

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FORD MOTOR COMPANY,
Petitioner,

v.

SAFE DRIVING TECHNOLOGIES LLC,
Patent Owner.

U.S. Patent No. 10,532,709 to Naboulsi

Case No.: IPR2021-01353

DECLARATION OF SCOTT ANDREWS

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List of Exhibits

Exhibit No.	Description	Identifier
1001	U.S. Patent No. 10,532,709	'709 Patent
1002	U.S. Patent No. 10,532,709 File History	'709 Patent FH
1003	Declaration of Scott Andrews	Andrews Decl.
1004	Curriculum Vitae of Scott Andrews	
1005	<i>Safe Driving Technologies LLC v. Ford Motor Company</i> , No. 21-cv-64-MN, Ford's First Interrogatories (No. 1) served April 28, 2021	
1006	<i>Safe Driving Technologies LLC v. Ford Motor Company</i> , No. 21-cv-64-MN, Safe Driving Response to Interrogatory No. 1	
1007	https://timeandnavigation.si.edu/multimedia-asset/magellan-nav-1000-gps-receiver-1988 (accessed 11/19/2017)	
1008	TravTek Global Evaluation and Executive Summary (Publication No. FHWA-RD-96-031 March 1996)	TravTek1
1009	TravTek System Architecture Evaluation (Publication No. FHWA-RD-94-141 July 1995)	TravTek2
1010	TravTek Evaluation Orlando Test Network Study (Publication No. FHWA-RD-95-162 January 1996)	TravTek3
1011	U.S. Patent No. 5,923,294	Bacelon
1012	U.S. Patent No. 5,808,566	Behr
1013	Vehicle Location and Navigation Systems by Yilin Zhao, ©1997	Zhao
1014	Computer Networks, 3 rd Ed., by Andrew S. Tanenbaum, ©1996, Prentice Hall, ISBN 0-13-394248-1	Tanenbaum
1015	Automotive Electronics Handbook, by Ronald Jurgen	Jurgen
1016	U.S. Patent No. 3,906,166	Cooper
1017	An Introduction to GSM by Redl, Weber, and Oliphant, ©1995 Artech House, ISBN 0-890067-785-6	An Intro to GSM

Exhibit No.	Description	Identifier
1018	GSM and Personal Communications Handbook, by Redl, Weber, and Oliphant, ©1998 Artech House, ISBN 0-89006-957-3	GSM and Personal Communications Handbook
1019	"History of Pagers and Beepers." ThoughtCo, Jan. 31, 2021, thoughtco.com/history-of-pagers-and-beepers-1992315	History of Pagers and Beepers
1020	Post Office Code Standardisation Advisory Group	
1021	Map Design: An On-the-Road Evaluation of the Time to Read Electronic Navigation Displays By Christopher Nowakowski and Paul Green, Report Date June 1998	UMTRI Report 98-4
1022	Map Design: An On-the-Road Evaluation of the Time to Read Electronic Navigation Displays By Christopher Nowakowski and Paul Green, Report Date June 1998	UMTRI Report 98-20
1023	U.S. Patent No. 6,612,682	Andrews
1024	Japanese Patent H10-232992	Nojima
1025	U.S. Patent No. 6,574,531	Tan
1026	U.S. Patent No. 7,711,355	Krueger
1027	U.S. Patent No. 7,484,008	Gelvin
1028	<i>Safe Driving Technologies LLC v. Ford Motor Company</i> , No. 21-cv-64-MN, D.I. 21, Scheduling Order	
1029	U.S. Patent Publication No. 2002/0070852	Trauner
1030	U.S. Patent No. 9,047,170	'170 Patent
1031	<i>Intentionally Left Blank</i>	
1032	<i>Intentionally Left Blank</i>	
1033	60/336,293 Provisional Patent Application	'293 provisional
1034	60/390,877 Provisional Patent Application	'877 provisional

I, Scott Andrews, hereby declare as follows:

1. I am making this declaration at the request of Ford Motor Company in the matter of *inter partes* review of U.S. Patent No. 10,532,709 (“the ‘709 Patent”) to Naboulsi.

2. I am being compensated at an hourly consulting rate of \$450 for time spent reviewing materials and performing my analysis of the technical issues relevant to this matter. My compensation is not contingent on the outcome of this proceeding or the content of my opinions.

3. This declaration is based on the information currently available to me. If additional information becomes available, I may continue my investigation and study, which may include a review of documents and information that may be produced, as well as testimony from depositions that have not yet been taken.

4. In preparation of this declaration, I have studied the exhibits as listed in the Exhibit List shown above in my report.

5. In forming the opinions expressed below, I have considered:

- a. The documents listed above as well as additional patents and documents referenced herein;
- b. The relevant legal standards, including the standard for obviousness provided in *KSR International Co. v. Teleflex, Inc.*,

550 U.S. 398 (2007), and any additional documents cited in the body of this declaration; and

- c. My knowledge and experience based upon my work and study in this area as described below.

I. Qualifications and Professional Experience

6. I have over 30 years of professional experience in the fields of mobile and automotive technologies and systems, including vehicle information systems, and navigation systems. I have authored numerous published technical papers and am a named inventor on 11 U.S. and foreign patents.

7. I received a Bachelor of Science degree in Electrical Engineering from University of California, Irvine in 1977 and a Master of Science degree in Electronic Engineering from Stanford University in 1982.

8. From 1977 to 1979, I worked at Ford Aerospace where I designed, tested and delivered microwave radar receiver systems.

9. From 1979 to 1983, I worked at Teledyne Microwave, where I developed high reliability microwave components and developed CAD tools.

10. From 1983 to 1996, I worked at TRW, Inc., having held various positions. From 1983 to 1985, I was a Member of the technical staff and a Department Manager in the Space Electronics sector. Between 1985 and 1990 I was a project manager working on various communications systems projects including

the US DoD Advanced Research Projects Administration (ARPA) MIMIC Program. Between 1990 and 1993 I was the Manager of MMIC (monolithic-microwave-integrated-circuit) Products Organization. In this role, I developed business strategy and managed customer and R&D programs. During this time, I also developed the first single chip 94 GHz Radar, used for automotive cruise control and anti-collision systems. In 1993, I transferred to the TRW Automotive Electronics Group, and managed about 30 engineers in the Systems Engineering and Advanced Product Development organization. In this role, I managed advanced development programs such as automotive radar, adaptive cruise control, occupant sensing, automatic crash notification systems, in-vehicle information systems, and other emerging transportation products.

11. In April 1996, I was hired as a Project General Manager in the Electronics Division of Toyota Motor Corporation at Toyota headquarters in Toyota City, Japan. I held this position from April 1996 to around April 2000. In this position, I was responsible for leading the development of vehicle telematics systems, infotainment systems, including on-board and off-board navigation systems, traffic information systems, vehicle communications systems, safety applications, and automated vehicle control systems. One example of the technology I worked on was a cellular telephone interface for the vehicle. In 1997, American cellular phones all had different physical and logical interfaces, which meant they

were difficult to integrate into a vehicle hands free phone system. One company I researched, and met with around 1997 was Cellport Labs. This company had developed a two part phone interface that had a portion that was fixed in the vehicle, and a portion that was unique to the phone (known as “the pocket,” because the phone would physically slide into the phone component). The fixed portion could be customized to the vehicle itself, interfacing to the sound system, microphone, and if available a voice recognition system. The pocket was unique to each phone type (e.g. Nokia, Motorola, Ericsson, etc.). The interface between the pocket and the in-vehicle component was standardized, so every pocket would fit mechanically, and interface logically and electrically with every instance of the in-vehicle system. The pocket included circuitry and logic that would adapt the phone interface to the standard in-vehicle component. Used in this way a car maker could install the in-vehicle component in their vehicles, and the user could customize the system for whatever phone they were using simply by purchasing and using the pocket corresponding to their phone. If they changed to a different type of phone, they simply obtained a new corresponding pocket for their new phone, and their car would work with the new phone. While this system was oriented toward interfacing with phones, the basic concept was not far removed from the programmable PLC interface concept. Here the controlled device was the phone instead of whatever upfit equipment would be used with a PLC, and the standard vehicle interface would be

very similar to the PLC. Programming was done via the hardware and software contained in the pocket, instead of by directly programming the interface.

12. I am currently a consultant for Cogenia Partners, LLC, focusing on systems engineering, business development and technical strategy supporting automotive and information technology. I have been in this position since 2001. In one of my active engagements, I serve as the technical lead on a project funded by the National Highway Traffic Safety Administration (NHTSA) to develop requirements for connected vehicle safety systems in preparation for NHTSA regulations governing such systems. I also serve as a technical consultant on multiple projects sponsored by the Federal Highway Administration (FHWA) related to connected vehicle technology research.

13. In the various positions mentioned above, I was responsible for research and development projects relating to numerous vehicle information systems, user interface systems, sensory systems, control systems and safety systems, and also had the opportunity to collaborate with numerous researchers and suppliers to the auto industry. I therefore believe that I have a detailed understanding of the state of the art during the relevant period, as well as a sound basis for opining how persons of skill in the art at that time would understand the technical issues in this case.

14. A more complete summary of my experience, expertise, and publications is set forth in my curriculum vitae. (Ex. 1004.)

II. Relevant Legal Standards

15. I have been asked to provide opinions on the claims of the '709 Patent in light of the prior art.

16. It is my understanding that a claimed invention is unpatentable under 35 USC § 102 if a prior art reference teaches every element of the claim. Further, it is my understanding that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the alleged invention was made to a person having ordinary skill in the art to which the subject matter pertains. I also understand that an obviousness analysis takes into factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

17. It is my understanding that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of the claimed subject matter. Some of these rationales include the following: combining prior art elements according to known methods to yield predictable results; simple substitution of one known element for another to obtain predictable results; a predictable use of prior art elements according to their established functions; applying a known technique to a known device to yield predictable results; choosing from a finite number of identified, predictable solutions, with a

reasonable expectation of success; and some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

III. Qualifications of an ordinary artisan

18. I have been asked to provide my opinion as to the level of skill of a person having ordinary skill in the art (“ordinary artisan”) of the ‘709 Patent at the time of the claimed invention, which I have been instructed to assume is October 24, 2001. In determining the characteristics of a hypothetical person of ordinary skill in the art of the ‘709 Patent at the time of the claimed invention, I was told to consider several factors, including the type of problems encountered in the art, the solutions to those problems, the rapidity with which innovations are made in the field, the sophistication of the technology, and the education level of active workers in the field. I also placed myself back in the time frame of the claimed invention and considered the colleagues with whom I had worked at that time.

19. In my opinion, an ordinary artisan of the ‘709 Patent at the time of its filing would have been a person having, as of October 24, 2001, a Bachelor’s degree in Electrical Engineering, Mechanical Engineering, Computer Engineering, or Computer Science, or an equivalent degree with at least two years of experience in electronic user interface systems and vehicle sensor systems or related technologies. Additional education may substitute for lesser work experience and vice-versa. Such

an ordinary artisan would have been capable of understanding the '709 Patent and the prior art references discussed herein.

20. Based on my education, training, and professional experience in the field of the claimed invention, I am familiar with the level and abilities of a person of ordinary skill in the art at the time of the claimed invention. Additionally, I met at least these minimum qualifications to be a person having ordinary skill in the art at least as of October 24, 2001. Further, although my qualifications may exceed those of the hypothetical ordinary artisan defined above, my analysis and opinions regarding the '709 Patent have been rendered from the perspective of a person having ordinary skill in the art at the time of the invention

IV. U.S. Patent No. 10,532,709 to Naboulsi

A. Overview of the '709 Patent

21. U.S. Patent No. 10,532,709 ("the '709 Patent") was issued on January 14, 2020 from an application filed on September 25, 2018. (Ex. 1001.)

22. The '709 Patent is directed to a system for controlling the user interfaces of telematics systems based on various sensor inputs indicating, for example the speed of the vehicle or other factors that may relate to the level of attention that the driver can safely devote to the user interface. For example:

...a safety control system for using applications in vehicles, includes, a communication device having at least one of an input accessible from

within the vehicle and an output communicated within the vehicle, at least one sensor operable to sense at least one condition related to vehicle operation, and data about distraction features of a running application, to and a controller communicated with the sensor and the communication device to selectively suppress at least one of said input and said output in response to a sensed parameter of said at least one condition being outside of a threshold. When an input is suppressed, the driver is prevented from accessing or inputting information into the communication device. When an output is suppressed, communication between the device and the driver of a vehicle is suppressed to, among other things, avoid distracting the driver during certain driving situations or conditions relating to the driver, vehicle and/or environment.

(Ex. 1001, '709 Patent at Abstract.)

23. The method for accomplishing this objective is illustrated for example in connection with Figure 4, reproduced below, wherein various vehicle sensors are used to determine the state of the vehicle, the state of the driver and/or the current driving situation. Depending on these factors the various devices (telephone, computer, etc.) are disabled.

24. FIG. 4 is a flowchart illustrating an example of the operation of the system of FIGS. 1-3. For example:

Thus, as shown in FIG. 4, the control system is made operational when the vehicle is in motion (blocks 50, 51).

When the vehicle is in motion, a microprocessor 20 output signals 41, 42 and 43 (FIG. 3) disabling the vehicle telephone, computer, etc. within the vehicle (block 53), and also signal 44 actuating a visual indicator within the vehicle to indicate this condition (block 54).

If, on the other hand, both hands of the driver are properly sensed on the steering wheel 4 so as to actuate the two sensors S1, S2, one or both of the sensors is used to sense a physiological condition of the driver that might indicate a stress condition (block 55). For example, such a stress condition could be indicated by an unduly high gripping force applied by one or both of the hands of the driver to the steering wheel, or by an unduly high pulse rate of the driver or skin conductivity of the driver indicating a high degree of perspiration. If such a stress condition is indicated as being present, the telephone, computer, vehicle alarm or signal, etc. are also disabled (block 53), and a visual indicator activated (block 54) to indicate this condition.

(Ex. 1001, '709 Patent at 13:65 to 14:17; *see also* Fig. 4.)

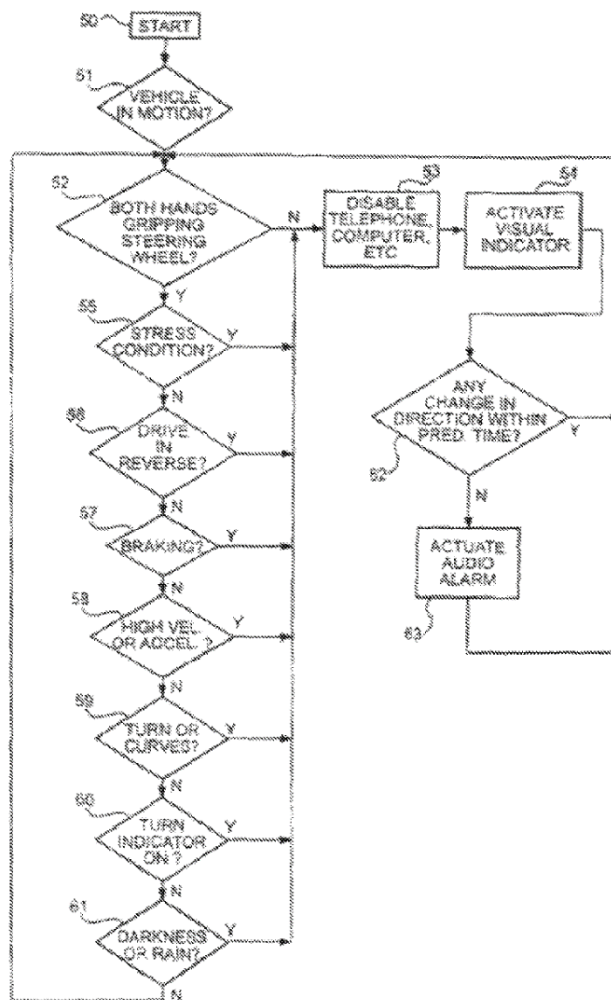


Figure 4

Ex. 1001, '709 Patent, Figure 4

25. While the '709 Patent describes controlling various input/output devices, the claims of the '709 Patent relate specifically to a "telematics system." I note that the '709 Patent only describes a "telematics system" in the context of a mobile telephone. For example:

Thus, the telephone 10 can be permitting "hands free operation" or a telephone/telematics system that can be used as such with an adapter or when docked to the system gateway

(Ex. 1001, '709 Patent at 7:66-8:2.)

26. The '709 Patent does, however, use the term "telematics" in association with a variety of devices types including CD players, pagers, fax machines, computers, etc. with the term "telematics." For example:

...a portable multi-function telematics device in the vehicle allowing access to the Internet or other network for transmitting and/or receiving faxes or e-mail or browsing the web or accessing a WAN

(*Id.* 3:45-48.)

...telematics such as e-mail, radio, CD, DVD, navigation system, incoming page or the like

(*Id.* 6:2-4.)

...a computer 11 or other multifunction telematic device allowing access to the Internet for transmitting and/or receiving faxes or e-mail, WAN and Web access

(*Id.* 6:37-40.)

... telephone 10, and the computer or other telematics portable or built in 11 from accessing the Internet or announcing incoming signals, e.g. page, e-mail etc.

(*Id.* 7:12-16.)

...telephone 10 and the computer 11 or similar multi-function or standalone telematics or other devices

(*Id.* 7:65-66.)

...CD changer, cell messages or other telematics

(*Id.* 11:30.)

...telephone or other telematics

(*Id.* 12:48.)

...a portable Telematic device such as a cell phone, blackberry, PDA, etc.

(*Id.* 14:45-46.)

...a telephone or other telematic device

(*Id.* 15:43-44.)

a portable telematics device such as a cellular phone, or a WAN

(*Id.* 16:44-45.)

...cell phone or other portable telematics devices

(*Id.* 16:47.)

...a telematic device (e.g. telephone, PDA, computer, and the like)

(*Id.* 16:62-64.)

...telephones, pagers, PDAs, computers, fax machines, GPS devices, navigation systems and displays, radios, CD players, CB's, video monitors, and other telematic or informational devices.

(*Id.* 18:12-17.)

27. The '709 Patent also identifies a wide array of sensors used to determine the status of the driver, the vehicle or the driving environment. For example as shown in connection with Figure 3, reproduced below (*see also* Ex. 1001, '709 Patent at 9:59 to 11:12).

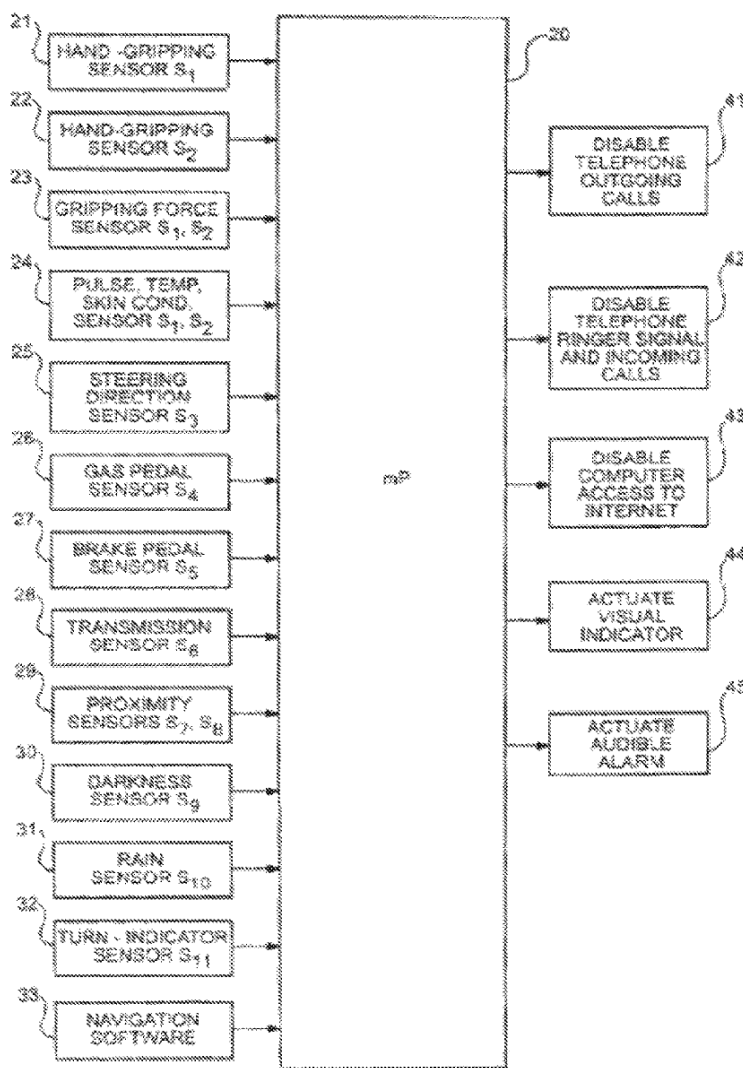


Figure 3

Ex. 1001, '709 Patent, Figure 3

B. File History

28. U.S. Patent Application No. 16/140,786 was filed on September 25, 2018. It claims priority through a chain of continuation patents to Provisional Patent Application No. 60/336,293 filed Oct. 24, 2001 and Provisional Application No. 60/390,877 filed Jun. 21, 2002. The original filing included 20 claims. The 16/140,786 application included 16 claims. The applicant then cancelled all pending claims and submitted 20 new claims (claims 17 to 36). (Ex. 1002, '709 File History at pages 59-62.)

29. The examiner issued a Notice to File Corrected Application Papers on November October 17, 2018, noting a number of minor technicalities in the formatting and figures. The applicant responded with a revised specification that corrected the formatting errors. (Ex. 1002, '709 File History at pages 160-161.)

30. On February 13, 2019 the examiner issued an Office Action rejecting all of the claims (17-36)¹ on the basis of non-statutory double patenting, citing that the claims were not patentably distinct over the claims of U.S. Patent Nos.

¹ I note that the Office Action cites that claims 7-36 are rejected, but this appears to be a typographical error, since claims 17-36 were included in the application, and originally filed claimed 1-16 were cancelled.

6,731,925, 9,047,170, and 9,713,994, all members of the same patent family. (Ex. 1002, ‘709 File History at pages 166-168.)

31. The examiner also rejected claims 7-36 [sic] as being anticipated by U.S. Patent No. 6,690,940 to Brown et al. citing that Brown discloses “a system for selective prevention of non-emergency use of an electronic device that may be a cell phone or laptop that uses Internet access via a web server. The driver is prevented from using the phone in distracted or dangerous situations as well as in certain GPS locations.” (Ex. 1002, ‘709 File History at page 169.)

32. The applicant cancelled claims 21-26 and 28, submitted new claims 37-39, and amended independent claims 17 and 27. The Applicant also completed a terminal disclaimer to overcome the double patenting rejection. (Ex. 1002, ‘709 File History at pages 187-191.)

33. The applicant argued that the amended claims required the indicium be presented by the vehicle, and that this was not disclosed by Brown, which only presented the indicia that the phone was disabled over the phone. The examiner also argued that added claims 37 included the use of transmission information from the vehicle, and automatically switched between the first mode of operation and the reduced distractions mode, and that claim 38 included three modes of operation, which Brown did not. (Ex. 1002, ‘709 File History at 184.)

34. On July 30, 2019 the examiner issued a final rejection of claims 17-20, 27 and 29-38 because of unpaid fees and specific omissions on the Terminal Disclaimer filed. The examiner stated that the claims were allowable over the prior art. (Ex. 1002, '709 File History at pages 215-220.)

35. The applicant paid the fees and submitted revised Terminal Disclaimers, and the examiner allowed the patent.

36. The examiner then allowed the claims with no further office actions.

37. During examination of the '709 Patent, or any of the parent patents/applications in the priority chain, the examiner did not consider the prior art that I consider in this petition. Indeed, none of the prior art I consider in this petition was even submitted on an IDS to the patent office.

C. Challenged Claims of the '709 Patent

38. I have been asked to review claims 1-7 and 14-16 of the '709 Patent. These claims are listed below for reference.

1. A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the vehicle, the telematics system comprising: a first mode of operation and a reduced distractions mode of operation;

the telematics system configured to be operatively coupled with a cellular phone having at least one feature and an output;

the telematics system operable by a driver of the motor vehicle;

the telematics system configured to be operatively coupled with a web server;

the telematics system being operatively coupled to the vehicle's bus and being configured to receive at least one of a vehicle transmission information and a vehicle movement information from the bus;

the telematics system configured to automatically switch between the first mode of operation and the reduced distractions mode of operation, as a result of at least one predetermined condition being met by the at least one of the transmission information and the vehicle movement information; and,

wherein the telematics system, while operating in the reduced distractions mode of operation, is configured to disable the at least one feature, suppress at least a portion of the output and provide at least one indicium to the driver that the reduced distractions mode of operation is active; wherein the at least one indicium is presented by the motor vehicle.

2. The telematics system of claim 1, further configured to provide a second output format instead of the suppressed output format.

3. The telematics system of claim 1, further configured to receive settings from the web server.

4. The telematics system of claim 1, further comprising the telematics system being configured to receive a navigation information from the bus.

5. A method for providing safety to a driver in a motor vehicle that includes a bus, a cellular phone and a web server, the method comprising:

receiving at a controller a vehicle transmission information and a vehicle movement information from the bus;

determining from at least one of the vehicle transmission information and the vehicle movement information, that a predetermined condition has been met;

the controller, in response to determining that the predetermined condition has been met, switching between a first mode of operation having at least one feature wherein the at least one feature includes an output and a reduced distractions mode;

wherein in the reduced distractions mode of operation the at least one feature is disabled and at least a portion of the output is suppressed;

and the controller providing at least one indicium from the motor vehicle that the reduced distractions mode of operation is active.

6. The method according to claim 5 further including controller receiving at least one setting from the web server.

7. The method according to claim 5, further including the controller receiving a navigation information from the bus.

14. A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the motor vehicle, the telematics system comprising:

a first mode of operation and a reduced distractions mode of operation;

the telematics system configured to be operatively coupled with a cellular phone having at least one feature and an output;

the telematics system configured to be operatively coupled with a web server;

the telematics system being operatively coupled to the motor vehicle's bus and being configured to receive a vehicle transmission information from the bus; the telematics system configured to automatically switch between the first mode of operation and the reduced distractions mode of operation, as a result of at least one predetermined condition being met by the vehicle transmission information; and,

wherein the telematics system, while operating in the reduced distractions mode of operation, is configured to disable the at least one feature, suppress at least a portion of the output and provide at least one indicium to the driver that the reduced distractions mode of operation is active.

15. A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the motor vehicle, the telematics system comprising:

a first mode of operation, a second mode of operation, and a third mode of operation each being respectively configured to operate a first, a second, and a third set of telematics features;

wherein at least the first set of telematics features is disabled in the second mode of operation and at least the second set of telematics features is disabled in the third mode of operation; the telematics system configured to be operatively coupled with a cellular phone;

the telematics system configured to be operatively coupled with a web server;

the telematics system being operatively coupled to the motor vehicle's bus and being configured to receive at least one of a vehicle transmission information and a vehicle movement information from the bus;

the telematics system configured to automatically switch between the first, the second, and the third modes of operation based on at least one of the transmission information and the vehicle movement information

16. The telematics system of claim 15, wherein the first and the second sets of telematics features respectively include a first and a second output format for substantially the same information, and the first output format is disabled in the second set.

(Ex. 1001, '709 Patent.)

D. Claim construction

39. In order to properly evaluate these claims, I understand that the terms of the claims must first be construed. In my opinion, the claims of the '709 Patent do not include any terms that require specific construction. Instead, each of the

claims includes terms that an ordinary artisan would understand according to their plain and ordinary meaning.

E. Priority Date

40. I understand that claims of a continuation patent and/or a patent that claims priority to a provisional patent application may only claim priority to a prior application that provides written support for the claim limitations.

41. As noted above the ‘709 Patent claims priority through a chain of continuations to U.S. Patent No. 9,047,170, which claims priority to Provisional Patent Application No. 60/390,877 filed on June 21, 2002, Provisional Patent Application No. 60/336,293, filed on October 24, 2001, U.S. Patent Application No. 10/279,447, filed on October 24, 2002, and U.S. Patent Application No. 10/287,299. (Ex. 1030.)

42. I have reviewed both of the provisional patent applications and have concluded that neither of them describes multiple sets of telematics features and neither of them describe multiple operating modes wherein different sets of telematics features are disabled as required by claims 15 and 16 of the ‘709 Patent.

43. As noted above, the limitation for a third mode of operation was added during prosecution of the ‘709 Patent application in 2019.

44. The 60/336,293 Provisional Patent Application (“the ‘293 provisional,” Ex. 1033) comprises a conceptual planning document that primarily describes the

physical switches and user interface outlined in the specification of the ‘170 Patent. The ‘293 provisional devotes only 2 of its 77 pages to the disablement of systems to avoid distraction. For example:

The Operating system will control the level of access to each Telematics activity based on Safety parameters and feed back from the driving environment.

This environment will be assessed based on safety but will be variable as well, e.g. If the car is moving at freeway speed, and all **Physical** primary safety conditions are met,

If a Driver attempted to access a system during a regulated or controlled situation, the system will deny access to such activity.

(Ex. 1033, ‘293 provisional at pages 64-65, emphasis in original.)

45. As an initial matter, in my opinion, an ordinary artisan would not recognize the term “each telematics activity” as clearly and distinctly describing a first, second or third set of “telematics features.” Moreover, such an ordinary artisan would have also identified only two operational modes in this description, a mode in which a telematics activity is allowed or enabled, and a mode where it is disabled. Thus, there is no third mode, as required by claim 15.

46. In addition, this description also does not describe first and second output formats for substantially the same information, as required by claim 16.

47. Thus, in my opinion, the ‘293 provisional does not provide sufficient written description to support claims 15 and 16 of the ‘709 Patent, and thus these claims cannot be afforded the October 24, 2001 priority date of the ‘293 provisional.

48. The 60/390,877 Provisional Patent Application (“the ‘877 provisional”) also comprises a conceptual planning document that primarily describes the physical switches and user interface outlined in the specification of the ‘170 Patent. The ‘877 provisional devotes only 5 of its 81 pages to the disablement of systems to avoid distraction. For example:

The System will not allow Incoming/Outgoing Telematics under the following conditions

1. Gear in Reverse
2. Turn Signal is ON (Either direction) and speed >10 but
3. Break On and Speed > than 15 MPH, No ABS kicking in
4. Front Proximity Algorithm Flag is Zero
5. ON / OFF Ramp Algorithm Flag is Zero
6. Steering Wheel angle greater then 45 Degrees in either direction at speed of 15 MPH or more
7. Any Telematics activities in Progress/Phone/Pager/Voice recorder, Hands on SorS
8. Any SorS is activated, or Stuck ON
9. Intelligent features Flag, when installed, is set to Zero

10. Emergency Vehicle Approaching
11. Speed exceeds max speed set by law in the general area, e.g., > 70 MPH
12. Baby crying (As per driver preference)
13. Pedal or Throttle Pushed down fast and held for t-A so the vehicle can reach v- A MPH in less then t-A Seconds
14. If cup or food are moved for less t-CR or t-CF
15. If ABS Kicked in
16. If Break is pressed and A/T kicked down quickly or MIT Shifted down.
17. No unnecessary signals will interrupt the driver during bad situation. e.g. low windshield washer fluid etc.
18. When Front collision alarm is on, rear collision signal is not audible.
19. If a sudden change is direction of steering wheel was too sensitive and hyper. It means driver was not paying attention while using Telematics. This will cause a time out flag as well as log into profile as a Near Miss for future consideration of when to allow Telematics.
20. As instructed by Drivers editing of Tick Marks events

(Ex. 1034, '877 provisional at page 76.)

21. The System will put Ongoing Telematics on HOLD under the following conditions

1. Gear put in Reverse

2. PSorS were disengaged
3. Emergency Vehicle Approaching
4. Any changes from Allowable conditions to a Non Allowable condition
5. Steering is Greater then 45 degrees in either way
6. Tum signal came on and speed is Greater then 10 MPH
7. Break Came on and Speed > than 15 MPH and G force is greater then normal declaration.
8. As instructed by Drivers editing of Tick Marks events

(Ex. 1034, '877 provisional at page 77.)

The System will allow Incoming Telematics under the following conditions

1. Gear is in Park
2. Car is in Drive, and speed is 15 Mph or less Excluding when
 - 2.1. ABS Flag is 1
 - 2.2. ESP Flag is 1
 - 2.3. Traction control Flag is 1
3. Break On and Speed < than 15 MPH, but no ABS
4. Emergency Vehicle Approaching and speed is Zero
5. No Telematics activities in Progress
6. Cup holder Flag =1 or Ignored

7. Food Holder Flag =1 or Ignored

8. If Break is pressed and A/T kicked down slowly or M/T Shifted down slowly, then Telematics is not interrupted. Similarly for Acceleration

(Ex. 1034, '877 provisional at page 78.)

The System will allow Outgoing Telematics under the following conditions

(no conditions stated)

(Ex. 1034, '877 provisional at page 79.)

The System will be circumvented under the following conditions

1. Emergency Flashers are ON

(Ex. 1034, '877 provisional at page 80.)

49. As an initial matter, in my opinion an ordinary artisan would not recognize the terms “ongoing telematics,” “incoming telematics,” or “outgoing telematics” as clearly and distinctly describing a first, second or third set of “telematics features.” For instance, “ongoing telematics” is inclusive of both “incoming” and “outgoing” telematics, so even if “incoming” and “outgoing” telematics were considered to represent different “telematics features,” which, in my

opinion they do not, this would only represent two telematics features. Moreover, such an ordinary artisan would have also identified only two operational modes in this description, a mode in which a telematics activity is allowed or enabled, and a mode where it is disabled. Thus, there is no third mode, as required by claim 15.

50. In addition, this description also does not describe first and second output formats for substantially the same information, as required by claim 16.

51. Thus, in my opinion, the ‘877 provisional also does not provide sufficient written description to support claims 15 and 16 of the ‘709 Patent, and thus these claims cannot be afforded the June 22, 2002 priority date of the ‘877 provisional.

V. General Background Regarding the State of the Art

A. Telematics

52. I have been asked to briefly summarize the background of the prior art from the standpoint of an ordinary artisan.

53. The Telematics and information systems described in the ‘709 Patent were well known for many years prior to the October 24, 2001 and the June 21, 2002 provisional applications.

54. Telematics devices are generally devices that combine location technology, such as GPS with computing capability and some form of data communications. Not all telematics devices or services require communications or

location services, but all of them include some combination of these technologies. The simplest telematics devices are navigation systems. Development in the field of electronic navigation systems began in earnest in the 1980s with the activation of the Global Positioning System (GPS). Even early navigation systems were able to provide positional and navigational information to the user. With the emergence of low cost GPS systems in the early 1990's, the ubiquity of wireless communications, and the sponsorship of Intelligent Transportation Systems (ITS) research projects by the U.S. Department of Transportation and various Japanese and European government agencies, the field of Telematics was well underway by at least 1995.

55. One of the earliest production handheld GPS navigation devices was the Magellan NAV 1000. This device was introduced for public sale in 1988.² The unit, illustrated below, included a flip up GPS antenna, an LCD display, and a keypad for data input.

² See, e.g., <https://timeandnavigation.si.edu/multimedia-asset/magellan-nav-1000-gps-receiver-1988> (accessed 11/19/2017) (Ex. 1007.)



56. The NAV 100 operated generally from geographic coordinates, so the user would specify the latitude and longitude of their destination, and any way points, and the device would then determine its current position, and provide distance to the destination, and any of the way points, as well as the current heading required to travel from the current position to the next way point. Since the display was entirely alphanumeric, this course heading was presented as a numerical value in degrees (i.e., as a compass heading).

57. One navigation system combining vehicle navigation and cellular communications was the TravTek system developed in the early 1990s.³ TravTek was an Intelligent Transportation System developed as a result of a joint research project between the Federal Highway Administration, Florida Department of Transportation, the City of Orlando, the American Automobile Association, and General Motors. The project is summarized in numerous publications by the U.S. DOT. Three of these are: TravTek Global Evaluation and Executive Summary (Publication No. FHWA-RD-96-031 March 1996), (Ex. 1008, “TravTek1”), and TravTek System Architecture Evaluation (Publication No. FHWA-RD-94-141 July 1995), (Ex. 1009, “TravTek2”), and TravTek Evaluation Orlando Test Network Study (Publication No. FHWA-RD-95-162 January 1996) (Ex. 1010, “TravTek3”).

58. Early systems such as the Magellan NAV 1000 did not provide map databases or displays. A key development around 1990 was the digital map database, and what is known as the “moving map display.” One of the first demonstrations of these technologies was the TravTek program. An operational field test of TravTek was conducted with about 100 rental car customers in Orlando, Florida for a one-year period between 1992 and 1993, and the program gathered information on the

³ See e.g., TravTek System Architecture Evaluation (Publication No. FHWA-RD-94-141 July 1995) (Ex. 1009, Preface.)

performance of the system, and reactions from the general public. (Ex. 1009, TravTek2, page 1.)

59. The TravTek in-vehicle system provided two route guidance visual displays including a Route Map display (Ex. 1008, TravTek1, Figure 6, page 19, shown below) and a “maneuver-by-maneuver Guidance Display” using directional arrows to indicate the maneuvers the user was to take (Ex. 1008, TravTek1, Figure 7, page 20, shown below):

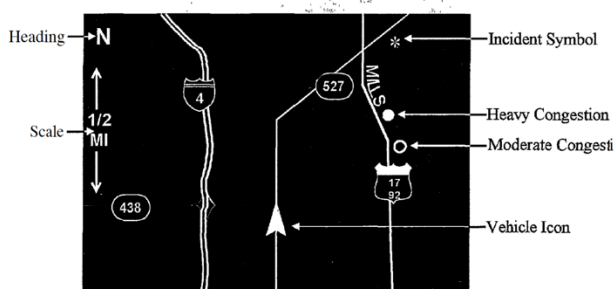


Figure 6. TravTek Navigation Plus display.

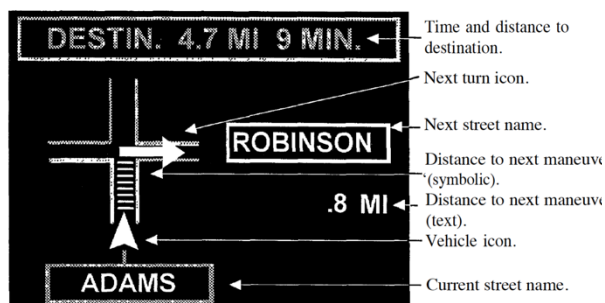


Figure 7. The TravTek Guidance Display.

60. The maneuver display (right photo) was fixed, in that it did not move as the vehicle moved, but rather would be displayed prior to the approach where the maneuver was to be made. The road map display would scroll across the screen as the vehicle moved. The system provided two map orientation modes: Heading up and North up. This is described in the report as:

The navigation system used a combination of dead-reckoning, map-matching, and Global Positioning System information to indicate the

vehicle's position on the map. The vehicle's position was indicated by a horizontally centered icon that was three fourths of the distance from the top of the screen. When the vehicle was in DRIVE the map was displayed in a heading-up format. Figure 6 provides an example of a navigation display with congestion and incident traffic information. Only the Navigation Plus configuration displayed traffic congestion and incident information. When the vehicle was in PARK, soft (touch sensitive) buttons on the display provided optional heading-up and north-up selections.

(TravTek1, Page 18)

61. In the "north-up" mode, the map would scroll both vertically and horizontally to maintain the vehicle icon in the desired position on the screen (centered laterally and located on the lower quarter of the screen, see Page 18. The vehicle icon itself would then rotate relative to the screen as the car's orientation changed relative to the earth's coordinate grid (i.e., relative to north). In "heading-up" mode the map would scroll vertically, and rotate as the vehicle turned, so that the top of the map always represented the region ahead of the vehicle. The rotation of the vehicle icon in north-up mode, and the map image in heading-up mode was determined by outputs from a compass:

Navigation Function - This function consisted of showing the vehicle position on a map displayed via the color CRT. The map data base was supplied by Etak, and the vehicle position was monitored by a flux gate

compass, with distance sensing via wheel sensors, and a GPS receiver for position correction.

(TravTek1, page 14)

62. The TravTek system was able to generate a route from the current location to a selected destination. Figure 4 below shows the presentation of a route indicated by a bent line (shaded and indicated in the photo) while indicating the specific route to take from the current location to the selected destination.

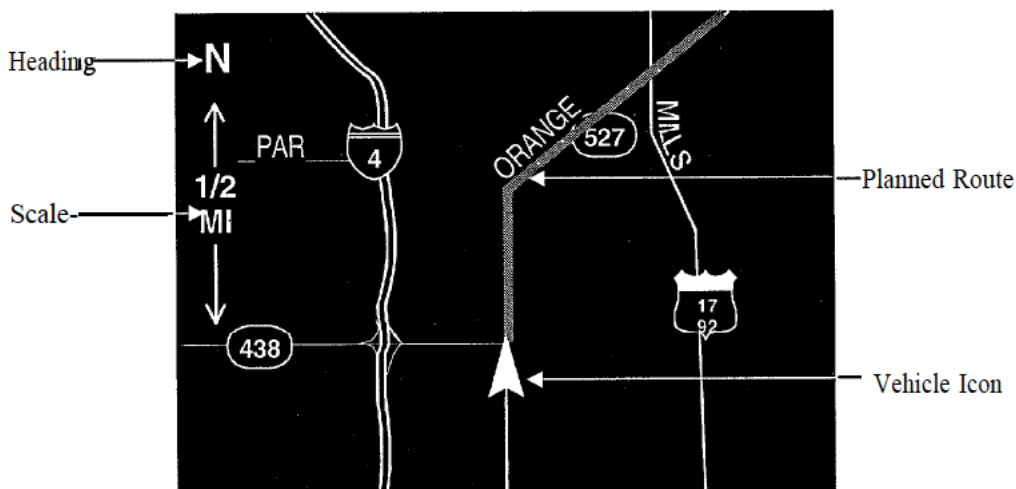


Figure 4. The TravTek Route Map displays the planned route as an overlay on the heading up map display.

(Ex. 1010, TravTek3, Figure 4, page 13.)

63. The TravTek system also included cellular voice and data communications to provide navigational and traffic information from fixed servers to the vehicles. This is illustrated conceptually in TravTek2 Figure 2, reproduced below.

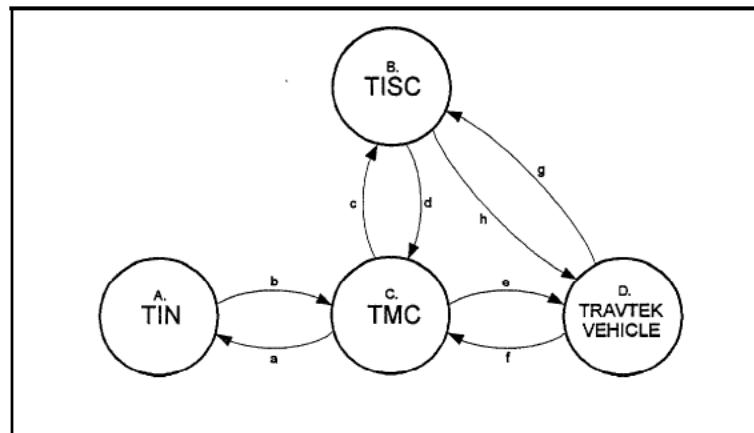


Figure 2. TravTek system diagram.

Four major system elements contributed to the TravTek system operation:

- A. **Traffic Information Network (TIN)** - Network traffic data source and/or sink; online, usually manned.
- B. **TravTek Information and Services Center (TISC)** - Local business services, events and help center; online, manned.
- C. **Traffic Management Center (TMC)** - Traffic data collection and management, operations, and communications center; online, manned.
- D. **TravTek Vehicle** - Onboard driver information platform with mobile communications; provided link travel time feedback.

(Ex. 1009, TravTek2 Figure 2, page 9.)

64. The Traffic Information and Service Center (TISC) included a remote map database as well as a local information directory (Ex. 1009, TravTek2, pages 11-12). This large set of databases included information on roads (74,000 navigable links), and stores (Yellow Pages listings).

65. The integration of the cellular phone with navigation devices was not confined to automotive applications. For example U.S. Patent No. 5,923,294, by Bacelon, describes two small handheld GPS devices that can communicate their position information to one another. (Ex. 1011.) The simple display then provides

each user with a diagram that indicates the location of the other unit relative to their current position (which is the center of the display), and the heading and speed of the other unit (if it is moving). From this the user can determine the direction to the other unit, as well as how far away it is. The system and the display are illustrated in Figures 1 and 2 of the patent, reproduced below.

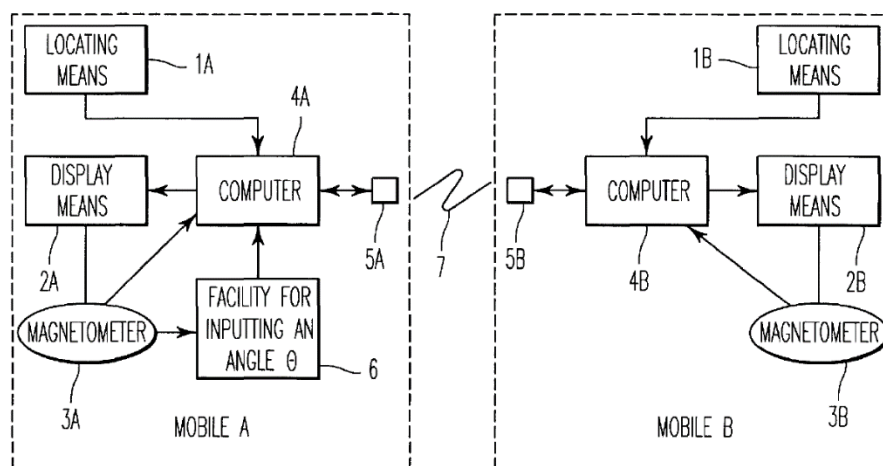


FIG. 1

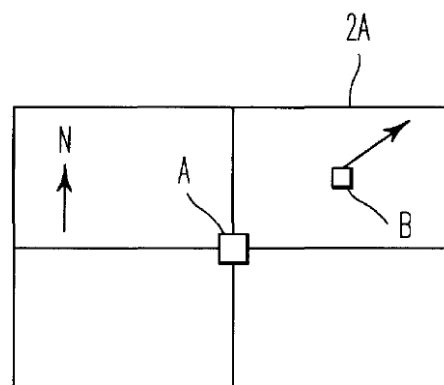


FIG. 2

Ex. 1011, U.S. Patent No. 5,923,294, Figs. 1 and 2

66. A similar patent by Sony, U.S. Patent No. 6,414,630, describes a system using two GPS terminals that include a radio link so that they can exchange location information about the “mobile object” that they are associated with. The patent describes this system in a variety of contexts, including the “user’[s] own position” (i.e. pedestrian) (*see, e.g.*, Ex. 1033 at 2:32-35), as well as “automobiles, airplanes and ships.” (*See e.g.*, Ex. 1033 at 1:5-7.)

67. U.S. Patent No. 5,808,566 to Behr, describes a system that provides navigational information on a portable device. (Ex. 1012.) This device generates requests that are sent over a cellular phone link to a server, and is able to receive information either using the cellular link, or a pager. The server fulfills the request, for example by returning a route from the current location to a specified destination, or by returning information about nearby points of interest.

B. Global Positioning System (GPS)

68. Navigation, and numerous other safety and convenience systems rely on determining the state⁴ of the vehicle (aircraft, ship, car, etc.) with reasonable accuracy. This position can then be used to locate the vehicle on a map, or to control

⁴ In general this state is represented by a set of state parameters that include latitude, longitude, altitude or elevation, time, speed heading and other related information.

the position of the vehicle relative to known structures or hazards (e.g. harbors, docks, airfields, storms, shoals, etc.).

69. Traditionally, navigation has used two methods for determining location. Celestial navigation and what is known as “Dead Reckoning.” Celestial navigation involves measuring the positions of stars and planets at known times, and then converting those measurements to a position estimate using tables describing the well-established motions of these celestial objects. Dead reckoning uses a known starting point, and a log of changes in direction and speed. By linking together these changes the navigator can plot the course traveled and determine roughly where they are after traveling some distance.

70. These two methods (dead reckoning and celestial navigation) have served navigators well for centuries, but they have serious drawbacks. Celestial navigation lacks fine accuracy (because you have to measure the elevation of a star from the horizon, and this may be challenging on the deck of a floating ship or flying aircraft) and it suffers greatly from the fact that it cannot be used effectively in daylight or under cloud cover. Dead reckoning assumes that speed and heading can be measured reasonably accurately. Dead reckoning works well over short distances, but if used for a long time the errors in heading and speed measurement accumulate, and the position estimate can drift off of the true position by significant amounts. To provide a more reliable and accurate alternative to celestial navigation, the U.S.

government built a constellation of satellites known as the Global Positioning System (GPS).⁵ This system operates in a way reminiscent of celestial navigation, but only re-created in an electronic form.

71. The satellites are arranged in earth orbit in a way that allows several of them to always be visible from any point on the globe. As a result it is possible to use the system at any time of day, and under most weather situations. In operation, the satellites transmit a repeating signal that contains a variety of information used by a receiver to determine the orbital location of the satellite, and also the time delay from when the signal was sent to when it was received by the receiver.

72. The determination of the position of the receiver is done by solving a system of equations, known as “the GPS equation.” This is shown below.⁶

⁵ The GPS system is variously known as the Global Navigation Satellite System (GNSS), Navstar, and simply the Global Positioning System (GPS). Its European counterpart is the Galileo System, and a Russian counterpart is known as GLONASS. All of these systems operate similarly.

⁶ See Vehicle Location and Navigation Systems by Yilin Zhao, ©1997. (Ex. 1013 at page 69.)

$$\begin{aligned}p_1 &= \sqrt{(x - x_1)^2 + (y - y_1)^2 + (z - z_1)^2} + c(dt - dT_1) \\p_2 &= \sqrt{(x - x_2)^2 + (y - y_2)^2 + (z - z_2)^2} + c(dt - dT_2) \\p_3 &= \sqrt{(x - x_3)^2 + (y - y_3)^2 + (z - z_3)^2} + c(dt - dT_3) \\p_4 &= \sqrt{(x - x_4)^2 + (y - y_4)^2 + (z - z_4)^2} + c(dt - dT_4)\end{aligned}$$

73. In this equation, p_i represents the measured pseudorange for satellite i (where i is the number of the satellite); x_1 , y_1 and z_1 represent the position of satellite 1; x , y and z represent the position of the receiver, dt represents the offset between the receiver clock and the time the satellites transmitted their signals, and dT_i is a time correction provided for each satellite. Indices 2-4 in the remaining three equations represent similar quantities (pseudorange, x , y , and z position, and time delay) related to additional satellites. This equation with four measured pseudoranges (from four satellites) represents a system of four equations with four unknowns (x , y , z and dt)⁷. The GPS receiver then solves for x , y , z and dt , and thus

⁷ Note, data from four satellites is required in order to solve this system of equations. However, it is not uncommon for the receiver to receive data from *more than four* satellites, in which case it determines the best fit for this over-specified set of equations.

determines its position and the time offset between its clock and the satellite clock.
(*See, e.g.*, Ex. 1013, Zhao at 69-70.)

74. The GPS receiver also performs other measurements on the signals in order to determine its speed and direction. Specifically, since the frequency of the satellite signals is known, measuring the observed frequency of each satellite signal, which will be doppler shifted as a result of the relative velocity of the satellite and the receiver allows the receiver to determine its own speed and heading. For example:

Velocity measurements are based on the Doppler frequency shift principle. The Doppler shift in the frequency of each satellite is a direct measure of the relative velocity of the receiver and the satellite along the line between them. Each satellite has a very high velocity relative to a stationary receiver, both because of the orbital motion of the satellite and because of the motion of the receiver associated with the Earth's rotation. The velocity solution can be calculated by differentiating the four dimensional navigation solution (pseudorange equations) introduced earlier with respect to time.

(Ex. 1013, Zhao at page 71.)

C. Communication Systems

75. Electronic communications between computing devices has been available for decades. For example, Tanenbaum⁸ describes a computer network as “an *interconnected collection of autonomous computers*. Two computers are said to be interconnected if they are able to exchange information.” (Ex. 1014 at page 2, emphasis in original.)

76. Computer networks are defined in terms of their physical medium, and logical protocols. The physical medium is the actual physical means by which information is transmitted from one place to another. Examples of physical media are fiber optic cables, radio signals, and electrical signals on cables. Virtually all modern networks use some form of electrical or optical signal (wireless or wired) to carry information from one place to another, and it is not uncommon for networks to support multiple different physical media.

77. Protocols are well defined rules that specify how two communicating entities can exchange information. Protocols are used, for example, to determine which entity is allowed to access the physical medium at what time, how information is routed between two entities that may not be directly linked by the physical

⁸ See Computer Networks, 3rd Ed., by Andrew S. Tanenbaum, ©1996, Prentice Hall, ISBN 0-13-394248-1 (“Tanenbaum,” Ex. 1014).

medium, how data is encoded, and how the flow of data is managed (for example, between two networks that operate at substantially different data rates). In order to avoid conflicts between different protocols, the protocols used on a network are generally separated into individual “layers,” each protocol operating on the data at its layer, and then passing the data up or down to the next adjacent layer.

1. Automotive Communication Systems and Networks

78. Early automobiles did not have any significant electrical systems. Ignition systems were self-contained, and powered by a magnet and a coil attached to the engine itself, and lights were gas powered. These vehicles obviously had few if any, wires. As vehicle have grown more and more complex, the amount of wiring has expanded substantially.

79. Multiplex data buses first appeared in motor vehicles around the early 1990’s. These buses are used to carry serial data between devices in the vehicle, generally between electronic control units (ECUs), sensors and actuators. The buses are grouped generally into three classes.⁹

⁹ See *e.g.* Automotive Electronics Handbook, by Ronald Jurgen, Figures 26.3, 26.4, and 26.6. (Ex. 1015.)

80. Class A: Low speed serial data bus used to replace direct wiring between various components. Examples include connecting door switches to an alarm controller simplify the wiring for a vehicle alarm system as shown below.

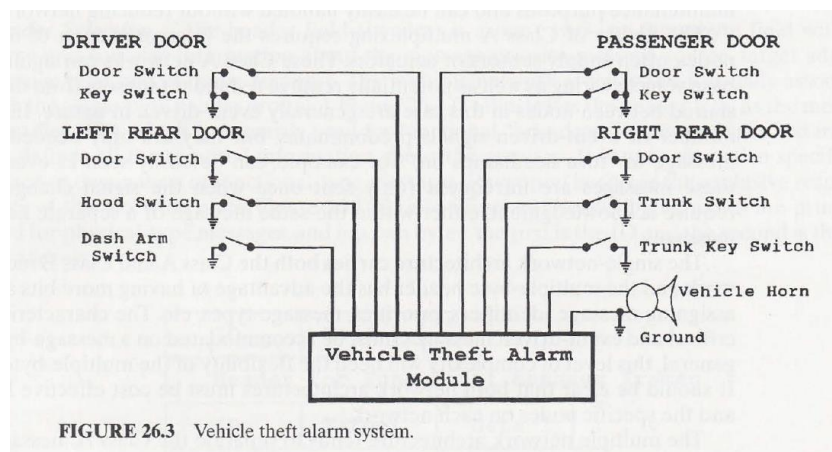


FIGURE 26.3 Vehicle theft alarm system.

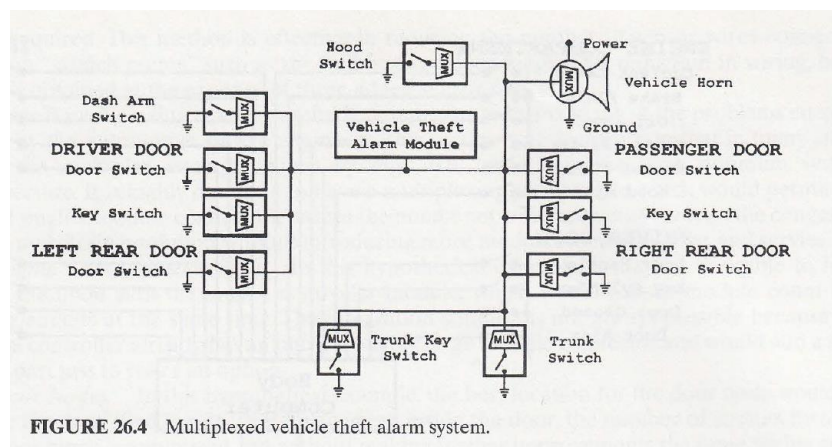
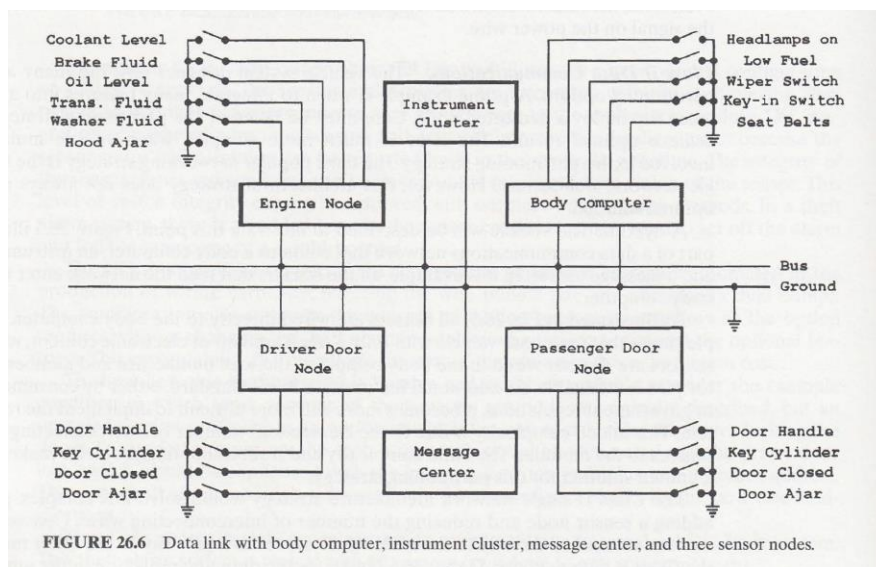


FIGURE 26.4 Multiplexed vehicle theft alarm system.

(Ex. 1015, Jurgan at pages 26.4-26.5.)

81. Class B: Mid-speed serial data bus intended to convey data between nodes, for example between a single sensor and multiple ECUs, or between ECUs.

For example, between a body controller, various activation switches, various actuators and in-vehicle display systems, as shown below.



(Ex. 1015, Jurgén at page 26.6.)

Class C: High speed serial data bus intended to support real time operation of components, such as engine management and other powertrain systems. (*See e.g.*, Ex. 1015, Jurgén at page 26.1.)

82. As can be appreciated any of these buses may be used to carry data from sensors to ECUs, from ECUs to actuators, and between ECUs.

83. Vehicle networks are particularly useful in supporting diagnosis of vehicle systems because a wide variety of vehicle information is available on the various vehicle networks. For example the U.S. Environmental Protection Agency required vehicle manufacturers to include a system known as On-Board Diagnostics II (OBD-II) on vehicles starting in 1997. OBD-II connects numerous vehicle

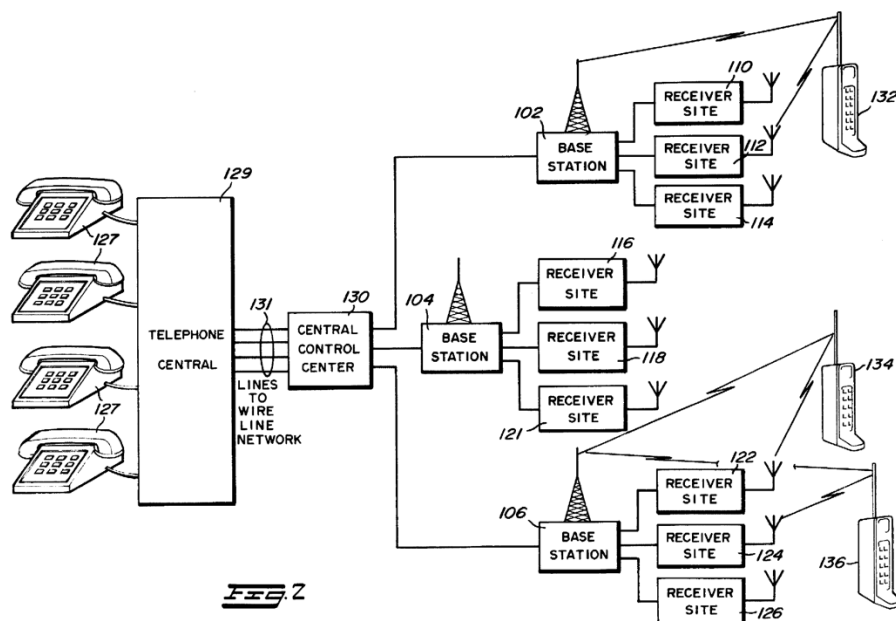
sensors, for example vehicle speed, and various engine and powertrain parameters, to a diagnostic system, and defines how these sensed parameters can be accessed.

(*See e.g.*, Ex. 1015, Jurgen at pages 22.1 to 22.6).

2. Cellular Networks and Communication

84. Wireless communication has been in use since the invention of the wireless radio system by Guglielmo Marconi around 1895. However, two way radio communication required both communicating parties to have compatible radios tuned to the same frequency, and anyone with a similar radio could listen in. Examples of this are “walkie talkies,” CB radio and today’s maritime VHF radio systems. In 1973, Martin Cooper and a group of others at Motorola patented¹⁰ a specialized radio telephone system that provided the basis for today’s cellular telephone system. This system used a series of base stations located in a grid pattern (known as cells) to provide a continuous radio link between mobile handsets and the public telephone system. Because the cells were relatively small, the number of users within any given cell could be managed to avoid interference, and the handset radios did not require significant transmission power levels. The result was the popular cellular phone system that has become ubiquitous today.

¹⁰ *See e.g.* U.S. Patent No. 3,906,166 (“Cooper”) (Ex. 1016).



Ex. 1016, Cooper, Fig. 2

85. The first U.S. Cellular systems (often referred to as 1G systems) used analog radio systems, that were prone to interference and fading. Sending data over the analog cellular system required a specialized modem, and, because of the limited bandwidth, the data speeds were very low. As a result, this system was rarely used for data communications. Around 1991, the first digital systems emerged. In Europe this was based on the Groupe Special Mobile (GSM) standard, and in the United States two competing standards were used, a time division multiple access (TDMA) system, pioneered by Motorola, and a Code Division Multiple Access (CDMA)

pioneered by Qualcomm.¹¹ These systems offered higher quality, and also used the available radio spectrum much more efficiently.¹² 2G cellular systems provided significantly improved data capability, and between 1991 and the emergence of the 3G standard in 2002, a wide variety of data oriented services were introduced. These included the Wireless Access Protocol (WAP) which allowed users to access primitive web pages using their mobile phones, and the well-known Short Message Service (SMS) which formed the basis for what is today simply known as “text messaging.” These 2G services are summarized in the table below.

¹¹ *See e.g.* An Introduction to GSM by Redl, Weber, and Oliphant, ©1995 Artech House, ISBN 0-890067-785-6. (Ex. 1017, Intro to GSM at pages 305-306.)

¹² *Id.* at page 20.

Table 3.3
Services Added Through GSM Phase 2

<i>Service Category</i>	<i>Service</i>	<i>Comment</i>
Teleservices	Telephony (speech)	Half rate, 6.5 kbps
	Short-message services	General improvements
Bearer services	Synchronous dedicated packed data access	2,400–9,600 bps
Supplementary services	Calling/connected line identity presentation	Displays calling party's directory number before/after call connection
	Calling/connected line identity restriction	Restricts the display of the calling party's number at called party's side before/after call connection
	Call waiting	Informs the user about a second (incoming) call and allows to answer it
	Call hold	Puts an active call on hold in order to answer or originate another (second) call
	Multiparty communication	Conference calls
	Closed user group	Establishment of groups with limited access
	Advice of charge	Online charge information
	Unstructured supplementary services data	Offers an open communications link for use between network and user for operator-defined services
	Operator-determined barring	Restriction of different services, call types by the operator

(Ex. 1017, Intro to GSM at page 25.)

86. The Short Message Service (SMS) is a system within the GSM standard that allows for sending short alphanumeric messages. For example:

The point-to-point service may be compared to the familiar paging service, but it is much more comprehensive. Traditional paging services deliver messages through an operator or computer, whereas GSM additionally allows direct (bidirectional) messaging without operator interaction. Sophisticated two-way paging (Motorola's FLEX family of

protocols is an example) has recently appeared in the paging and messaging industry that closely mimics GSM's SMS, thus assuring us the tiny pagers we know so well are not likely to disappear, even though they do not have GSM's voice services. Nevertheless, GSM's SMS allows anyone to send alphanumeric messages to a mobile user at any time. Short messages might be sent because the recipient did not respond to a call, or has not switched on his mobile phone, or is busy on another phone, or cannot be reached for some other private reason. The "store-and-forward" mechanism behind SMS makes sure that when the recipient's phone cannot be immediately reached, the message is eventually delivered when the receiving subscriber's terminal is back in service or otherwise ready to receive messages.

(Ex. 1018, GSM and Personal Communications Handbook¹³ at page 212.)

3. Paging

87. Before the emergence of the cellular phone, pagers were a common tool for limited wireless communications. The pager was invented by Alfred Gross around 1949. It was popularized by Motorola in 1959, who first coined the term "pager." The pager was originally a small radio receiver that used a wireless network

¹³ GSM and Personal Communications Handbook, by Redl, Weber, and Oliphant, ©1998 Artech House, ISBN 0-89006-957-3. (Ex. 1018.)

to send a set of tones that the user would understand to mean various things.¹⁴ In 1982 the International Radio Union (ITU) issued a standard for radio paging known as POCSAG.¹⁵ POCSAG provided a technical mechanism for encoding alphanumeric data messages onto various radio frequencies. This allowed the transmission of very short alphanumeric numeric messages to the various receivers. Pagers were widely used in the 1980's and 90's, and most were small devices that could be clipped to a user's belt. The most typical use was for a caller who wanted to contact the user to call the user's pager number. Using their touch tone dial pad, they could then enter the number they wanted the user to call. The system would then send a POCSAG message out on the paging network. The user's pager would receive the message and display the number they should call.

88. While pagers are still in use today, the emergence of the Short Message Service described above, and the inclusion of SMS type text messaging as a common feature in cell phones around the 2000-2002 time frame significantly reduced the usage of the technology because it offered a slightly greater message size that could be composed on the sender's phone. Other than the message size and the underlying

¹⁴ "History of Pagers and Beepers." ThoughtCo, Jan. 31, 2021, [thoughtco.com/history-of-pagers-and-beepers-1992315](https://www.thoughtco.com/history-of-pagers-and-beepers-1992315). (Ex. 1019.)

¹⁵ Post Office Code Standardisation Advisory Group. (Ex. 1020.)

network technology (2G vs POCSAG), from the user's perspective, paging and SMS were effectively the same. For example:

Sophisticated two-way paging (Motorola's FLEX family of protocols is an example) has recently appeared in the paging and messaging industry that closely mimics GSM's SMS, thus assuring us the tiny pagers we know so well are not likely to disappear, even though they do not have GSM's voice services...

Another difference between SMS and the common one-way pager is that with traditional paging services one never knows exactly if or when messages really arrive at the addressee, whereas with GSM, one can receive confirmation of the arrival of each message. In the unfortunate case where a message does not arrive within a specified time, the sender will be notified. There is an optional service for notification of when a message actually does arrive at the mobile phone.

(Ex. 1018, GSM and Personal Communications Handbook¹⁶ page 212.)

D. Driver Distraction

89. With the emergence of various telematics systems delivering graphical and other information to the driver, driver distraction became a significant concern. For example, in 1997-1998, I was responsible for a project that Toyota sponsored

¹⁶ GSM and Personal Communications Handbook, by Redl, Weber, and Oliphant, ©1998 Artech House, ISBN 0-89006-957-3. (Ex. 1018.)

with Dr. Paul Green at the University of Michigan Transportation Research Institute (UMTRI). This project used driving simulators fitted with cameras to assess the ability of drivers to decipher digital maps displayed on the screen while driving. Several elements emerged from this research. For example the way in which street names are presented on the map either aids or inhibits the speed (and thus degree of distraction) that the driver can relate a street name to the line representing the street on the map. Similarly, it was found that the greater the vehicle speed, the lower the level of graphical detail should be presented on the map because the driver would have less time to cognitively understand what was being displayed. This is set forth, for example in UMTRI Report 98-4.¹⁷

Recently there has been an influx of in-vehicle navigation systems into the United States, both as standard equipment (on the Acura RL and several Lexus vehicles) and as aftermarket products such as the Rockwell (now Magellan) PathMaster, the Alpine voice navigation system, and the Philips (now VDO) Carin system. A major concern is that the in-vehicle maps provided by navigation systems may be difficult to read, distracting drivers from attending to the road ahead.

¹⁷ Map Design: An On-the-Road Evaluation of the Time to Read Electronic Navigation Displays By Christopher Nowakowski and Paul Green, Report Date June 1998. (“UMTRI Report 98-4,” Ex. 1021.)

Such distractions could provide increased opportunities for crashes (Green, 1997).

(Ex. 1021, UMTRI 98-4 Overview at page 1.)

Across all tasks, increasing the number of streets displayed increased the response times. For simple tasks the increase was slight (about 7 ms per street); but for more difficult tasks, such as an unstructured search, the response times increased by 140 ms per street.

(Ex. 1021, UMTRI 98-4 Conclusions at page 46.)

90. A similar study by UMTRI¹⁸ examined the ability for drivers to understand and remember audio prompts related to driving (e.g., audio driving directions). For example:

This report describes an on-the-road experiment conducted as part of the DIRECT (Driver Information Radio using Experimental Communication Technologies) Project, an operational field test of various low-cost traffic information system sponsored by the Michigan Department of Transportation (MDOT) using funds provided by the U.S. Department of Transportation, Federal Highway Administration (FHWA). In this project 4 mechanisms for presenting traffic information to drivers were evaluated: (1) Low Power Highway

¹⁸ Driver Performance and Memory for Traffic Messages: Effects of the Number of Messages, Audio Quality, and Relevance By Jill Fleming, Paul Green and Stewart Katz, Report Date June 1998. (“UMTRI 98-22,” Ex. 1022.)

Advisory Radio (LP HAR), (2) Automatic Highway Advisory Radio (AHAR), (3) cellular call in, and (4) Radio Broadcast Data System (RBDS).

(Ex. 1022, UMTRI 98-22 at page v.)

4 CONCLUSIONS

1. Poor audio quality combined with lack of relevance, more than one message, and age led to reduced recognition of the messages. Drivers recalled less than half of the information presented. Approximately 4 terms from each traffic message were recalled, regardless of the amount presented.
2. Poor audio quality, lack of relevance, more than one message, and response tasks led to poorer driving performance.
3. Drivers generally felt that the system was safe for them to use, but did not believe that it was safe for inexperienced drivers.
4. Subjects felt that the information would be useful when driving in a familiar area, but not in an unfamiliar area. On average, drivers were willing to pay \$117 (U.S.) for this type of system. However, the most common response was \$0.

(Ex. 1022, UMTRI 98-22 at page iv.)

91. In 1998, while I was employed at Toyota Motor Corporation in Japan, I filed a patent on a system that, among other things evaluated the format of an incoming communication and either converted the format or saved the communications and automatically responded to the communication depending on what the user was doing. For example:

If a vehicle is in motion, a text or an audio data is output as a voice message. Conversion of text data to audio data is performed by the text/audio converter 24, using ordinary audio synthesis. Image/graphic, HTML/VRML, and Applet are converted into audio summaries. An audio summary has a data type, data length, and a sender's name. Audio

data itself is generated by audio synthesis. If a vehicle is stopped, an input file is output as it is without converting its data type. If a portable terminal is in motion, it is regarded the same as the "in car-moving." If it is stopped, it is regarded the same as "in car-stopped."

(Ex. 1023, U.S. Patent No. 6,612,682 at 5:21-31.)

92. Similarly, Japanese patent H10-232992 to Nojima ("Nojima"), describes a system that infers the user's state based on speed and the type of transportation route being used to adjust the output of the device so as to best conform to the user's activity. For example:

The mobile terminal device can be used in a portable fashion and is therefore used during the use of various travel modes. According to the present invention, the travel mode that is currently used by the user is discerned based on the above-mentioned travel mode data, the current position, travel speed and travel direction. For example, when the current position is located on a road indicating a slow travel speed, the travel mode is determined to be on foot, whereas it is determined to be by car when the travel speed is fast. Also, for example, when the current position is located on a train route with the travel direction following along the route, the travel mode currently being used is determined to be a railroad train.

(Ex. 1024, Nojima at [0010].)

(1) "Travel on foot":

The display unit 30 displays an enlarged map of the surrounding area of the current position and also a current-position mark. It also displays an indication of the address of the current position, a guide for the surrounding facilities, etc. The loudspeaker 32 outputs notification, such as, "You are at the district number 00 of the Township of 00," or the like. In this way, the local information on the area around the current position is provided during travel on foot (Figure 3 (a)).

(Ex. 1024, Nojima at [0035].)

(2) Motor vehicle:

The display unit 30 displays a road map as well as a current-position mark. The map displayed herein covers a wider range than the map displayed in the case of travel on foot. The road, on which the user is currently driving, is indicated by a different color. And, intersections are displayed in a zoomed view. The loudspeaker 32 outputs notification, such as, "You are currently driving on National Highway No. 00 toward the direction of 00," or the like. In this way, information suitable for driving is provided during travel by car (Figure 3 (b)).

(Ex. 1024, Nojima at [0036].)

(3) Public transportation:

The display unit 30 displays a route map. As appropriate, the route map also shows the station names and the respective durations up to the last stop as well as the connection/transit information. A current-position mark is also displayed on the route. Furthermore, the display unit 30 also displays the diagram-schedule delay information created in the step S30 shown in Figure 2. The loudspeaker 32 outputs a notification

such as, "The next stop is 00 Station," or the like. It further outputs a notification such as, "This train is No. 00," doing so based on the boarding/flight number information sent from the travel-mode assessment part 24. In this way, during travel with public transportation, information associated with the use thereof is provided (Figure 3 (c)).

(Ex. 1024, Nojima at [0037].)

VI. Overview of the Prior Art

A. U.S. Patent No. 7,711,355 ("Krueger")

93. U.S. Patent No. 7,711,355 ("Krueger") issued on May 4, 2010 from an application filed July 21, 2000. It claims priority to German patent DE 19934105, which was filed on July 21, 1999. (Ex. 1026.)

94. Krueger describes a system for controlling in-vehicle devices based on the speed of the vehicle in order to avoid or reduce driver distraction. For example:

In the current state of the art there are a number of operable devices 11, 12, 13.

The invention uses a decision unit 15 that blocks or releases certain operating states of the operable device 11, 12, 13 based on the data received. The invention can be implemented, for example, so that a mobile telephone 11 installed in a vehicle 10 does not "transfer" any telephone calls or suppresses the making of telephone calls from within the vehicle 10 when the vehicle 10 is moving faster than certain speed.

(Ex. 1026, Krueger at Abstract.)

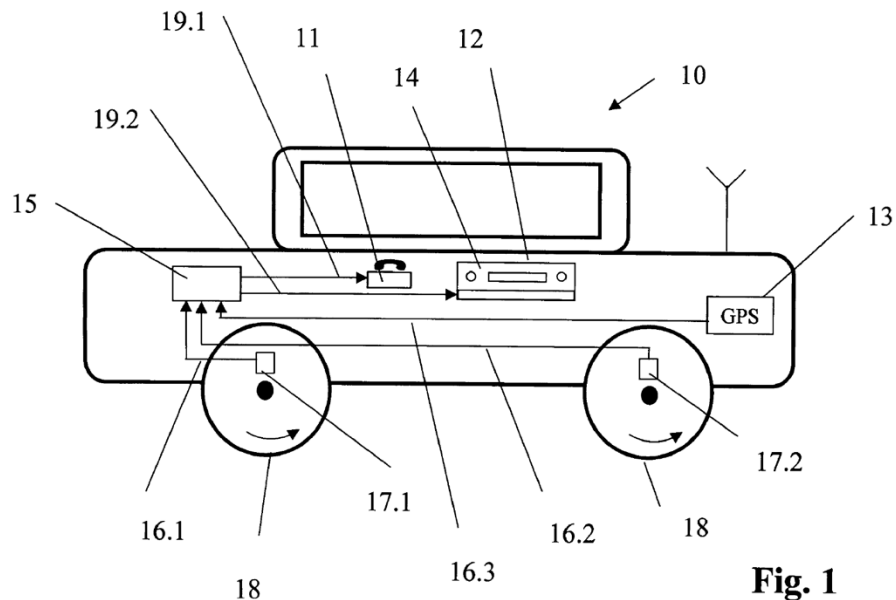
95. In connection with Figure 1, reproduced below, Krueger describes that the system comprises a variety of “operable devices” (car phone radio, etc.) and a “decision unit.” Each of the operable devices is connected to the decision unit by discrete wires. For example:

FIG. 1 shows a diagram of a motor vehicle 10. This motor vehicle is equipped with a car phone 11, a car radio 12 and a navigation system 13. The car phone 11, the car radio 12 and the navigation system 13 each fulfill the definition of the term “operable device”. For the sake of clarity, however, the operating panel 14 is only shown in more detail for the car radio 12.

There is also a decision unit 15 present. This decision unit 15 is connected to sensors 17.1, 17.2 via the wires 16.1, 16.2. Sensor 17.1 has the task of determining the speed of the vehicle 10, The determination of when the vehicle brakes (not shown) have been activated is done via sensor 17.2.

Furthermore, the decision unit 15 is connected to the car phone 11 via a data line 19.1 and is connected to the car radio 12 via a data line 19.2.

(Ex. 1026, Krueger at 2:11-39.)



Ex. 1026, Krueger, Fig. 1

96. Krueger further describes the operation of the system via two examples:

In this example only sensor 17.1 is present, and it continuously transmits speed values to the decision unit 15. The decision unit 15 is designed as a threshold switch (not presented in more detail). If the threshold switch is provided with speed values from sensor 17.1 that are over the speed of 130 km/h that is considered dangerous, then a signal is triggered and is transmitted on the data lines 19.1, 19.2. This signal then blocks the operation of the operating panel 14 on the car radio 12 and prevents telephone calls from being made in the vehicle 10 and from being received in the vehicle 10.

(Ex. 1026, Krueger at 2:48-57.)

97. Krueger also describes that the controlled device could be a car phone, and that the speed for disabling the phone may be different from the speed for disabling the radio control panel.

Just for the sake of completeness it should be noted that it is not necessary for the same speed limitations to apply to both the car radio 12 and the car phone 11. For example, making a telephone call can be prevented at speeds higher than 100 km/h while the operability of the car radio 12 is only restricted at speeds over 120 km/h. Even the various operating states of the car phone 11 could be dependent on the corresponding speed. For example, making a telephone call from the vehicle 10 could be prevented at speeds higher than 50 km/h while receiving a telephone call is allowed at speeds of up to 160 km/h, especially when the telephone is equipped with a hands-free operation accessory.

(Ex. 1026, Krueger at 2:58-3:2.)

98. Krueger also notes that when the operation of a device is suspended the driver is notified. For example:

If the telephone function of the car phone 12 or the operability of the car radio 11 is suspended due to the current vehicle speed, the driver can be optically or acoustically informed of this state at the same time the signal is transmitted on the data lines 19.1, 19.2.

(Ex. 1026, Krueger at 3:3-7.)

99. In a second example, Krueger describes using external information such as weather, road conditions and navigational data received from an external source to control the operation of the in-vehicle devices.

In addition to the vehicle-specific conditions (speed, braking response), external conditions can also be taken into consideration as influencing factors. For example, if the vehicle is equipped with a receiving unit 20 with which traffic and/or weather information can be received, then this information can be used to block or release the operable devices 11, 12, 13. To do this, it is necessary that the data received by the receiving unit 20 is transmitted to the decision unit 15 (not shown in FIG. 1). It is very advantageous in this context when there is a navigation system 13 present because the corresponding information can be restricted to the current location due to the knowledge of the current location of the vehicle. In addition, the presence of a navigation system 13 is also advantageous because important knowledge can be gained that can be used to block operating states due to the knowledge of the street currently being used or of the streets that will soon be used.

(Ex. 1026, Krueger at 3:63-4:11.)

B. U.S. Patent No. 7,484,008 (“Gelvin”)

100. U.S. Patent No. 7,484,008 (“Gelvin”) issued on January 27, 2009 from an application filed on October 4, 2000. It claims priority to a provisional application No. 60/158,013 filed on October 6, 1999. (Ex. 1027.)

101. Gelvin describes a system, called the “Wireless Integrated Network Sensor Next Generation” (WINS NG), for vehicle internetworking, which Gelvin describes as a means for communicating between components in a vehicle, and external to the vehicle (e.g. the internet or web) using different communications networks and protocols. For example:

Vehicle internetworks provide for communications among diverse electronic devices within a vehicle, and for communications among these devices and networks external to the vehicle. The vehicle internetwork comprises specific devices, software, and protocols, and provides for security for essential vehicle functions and data communications, ease of integration of new devices and services to the vehicle internetwork, and ease of addition of services linking the vehicle to external networks such as the Internet.

(Ex. 1027, Gelvin at Abstract.)

The Wireless Integrated Network Sensor Next Generation (WINS NG) sensors and nodes provide distributed network and Internet access to sensors, controls, and processors that are deeply embedded in equipment, facilities, and the environment.

(Ex. 1027, Gelvin at 5:25-29.)

102. In connection with Figure 3, reproduced below, Gelvin describes that the system provides protocol translation between different vehicle and external

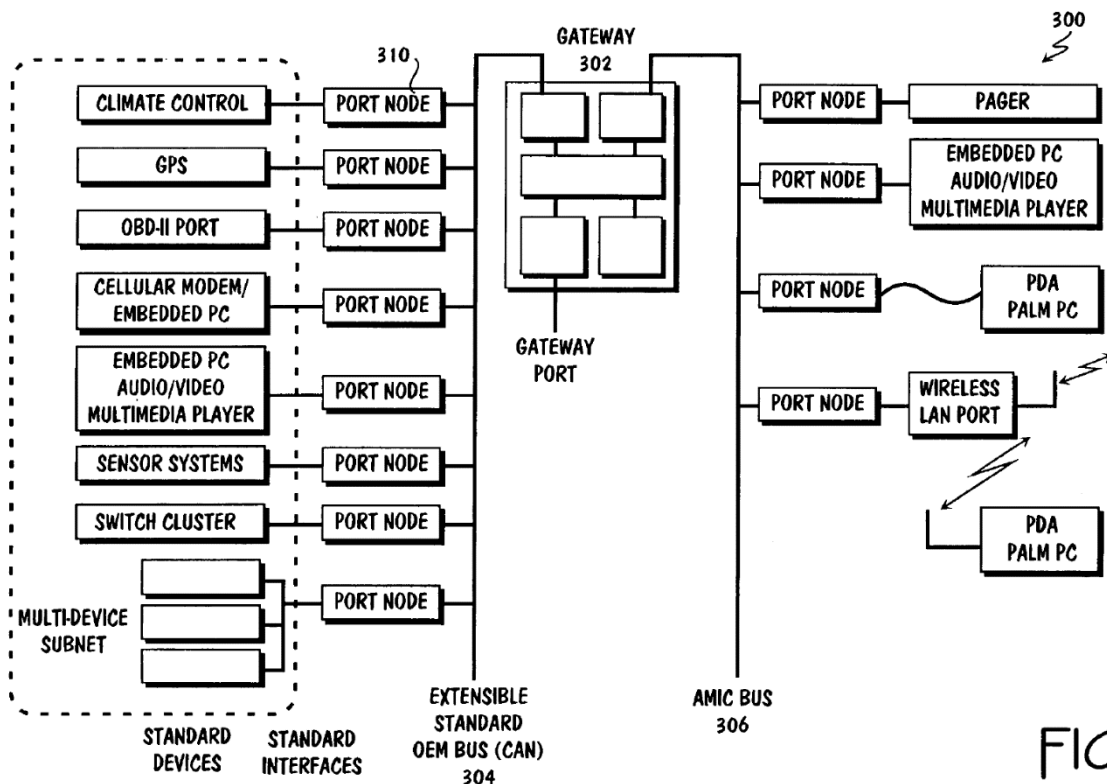
networks, for example an “OEM network” and an “AMIC network,” and describes a wide variety of devices that may be connected to these networks. For example:

The WINS vehicle internetwork includes a gateway 302 that links external networks and the Original Equipment Manufacturer (OEM) 304 and AMI-C buses 306. The gateway 302 provides protocol translation, security, and privacy functions in bridging these networks, and can act as a network master for any of these networks as well as coordinate applications that span multiple networks.

...

Devices and functions supported on the OEM bus 304 through port nodes 310 include, but are not limited to, climate control, position location devices, Global Positioning System (GPS) devices, OBD-II port, cellular modems/embedded processor, video/audio, multimedia players/embedded processor, sensor systems, switch clusters, and multiple device subnetworks. Devices and functions supported on the AMIC bus 306 through port nodes 310 include, but are not limited to, pagers, video/audio, multimedia players/embedded processor, personal digital assistants, and wireless local area network (LAN) ports.

(Ex. 1027, Gelvin at 8:50-56; 9:1-11.)



Ex. 1027, Gelvin, Fig. 3

103. Gelvin describes that this approach is a more efficient way to interconnect the physical world (e.g. sensors and user devices) and the computer world. For example:

The WINS NG networks provide a more efficient means of connecting the physical and computer worlds. Sensor nodes self-organize to form a network, and seamlessly link to the Internet or other external network via a gateway node, which can be of the same type or different from the sensor nodes.

(Ex. 1027, Gelvin at 5:39-43.)

104. Gelvin also describes that one of the vehicle systems connected to the network includes the On-Board Diagnostic (OBD) function, which provides access to vehicle operational parameters.

On-Board Diagnostics standards, OBD-I and OBD-II, provide access to a wide range of parameters useful in assessing the status of vehicle systems. In one embodiment, an application hosted on the gateway application processor collects histograms of the different parameters, and stores records that deviate from standards predicted by the manufacturer.

(Ex. 1027, Gelvin at 30:1-6.)

105. And Gelvin describes that using this internetworking approach on various devices can be controlled in response to the state of other devices. For example:

In another example of coordination of diverse systems of an embodiment, when an incoming voice-call is detected, the volume controls on the stereo system can be automatically damped, and windows closed to reduce the background noise. In this example, systems on the consumer side of the gateway would operate in tandem with controls on the OEM bus.

(Ex. 1027, Gelvin at 31:59-64.)

C. U.S. Patent Publication No. 2002/0070852 (“Trauner”)

106. U.S. Patent Publication No. 2002/0070852 (“Trauner”) published on June 13, 2002 from an application filed on December 12, 2000. (Ex. 1029.)

107. Trauner describes a display control system that prevents the operation of certain features of in-vehicle devices based on the state of the vehicle. For example:

A system is described that improves highway safety by preventing drivers from viewing a display or entering data while the vehicle is in motion. The system monitors the state of the vehicle and enables or disables the different system components that may include microphones, speakers, display screens and input devices such as keyboards, a mouse or a touchscreen.

(Ex. 1029, Trauner at Abstract.)

108. Trauner also describes that the system may access the Internet using a cellular phone. For example:

The system allows the vehicle to communicate with cell phones, Internet providers, Bluetooth enabled devices, and other vehicles. The system allows the driver to request information or data when the vehicle is stopped that can be downloaded and stored for later viewing when the vehicle is moving

(Ex. 1029, Trauner at Abstract.)

109. In connection with Figure 1, reproduced below, Trauner describes that the system comprises

FIG. 1 is block diagram showing the key components of an embodiment of the system. The system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80. In a preferred embodiment, only the display and input devices are visible and accessible to the driver.

(Ex. 1029, Trauner at [0012].)

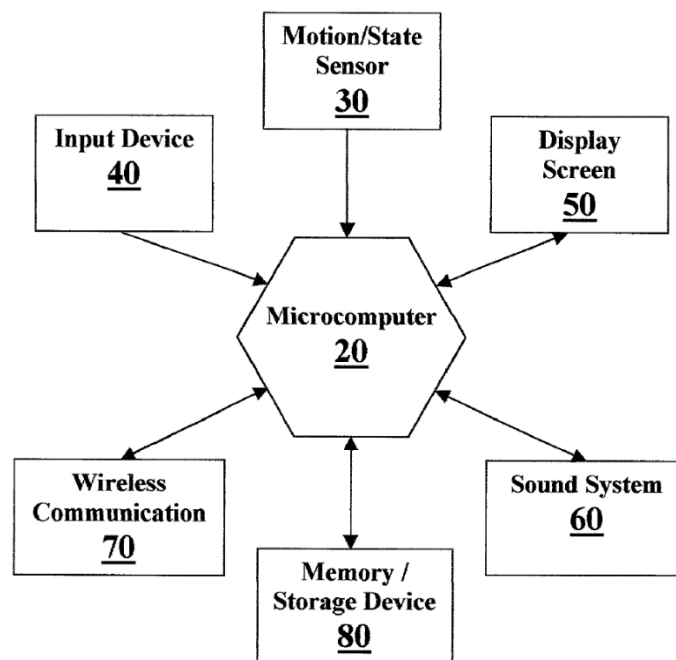


Figure 1

Ex. 1029, Trauner, Figure 1

110. Trauner describes that a variety of input devices may be used. For example:

The input device 40 can be any combination of a microphone, a keyboard, a touchscreen, a trackpad, a mouse or other graphic input device. The input device 40 may nongraphic input devices such as sound, motion and/or camera sensors that sense eye motion, nodding or nonverbal cues of a given passenger or driver.

(Ex. 1029, Trauner at [0014].)

111. Trauner describes that the motion state sensor may comprise a simple speedometer or it may include other sensors, such as a transmission gear sensor or driver pedal sensors.

The state/motion sensor 30 can be simply a direct electrical connection to the vehicle speedometer, which provides a signal that is proportional to the speed. In this case the microprocessor compares the vehicle speed to the maximum allowable speed and if the speed is lower, then the display and input devices are enabled

(Ex. 1029, Trauner at [0017].)

In one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system. Additional conditions that could be monitored by the state/motion sensor 30 include whether the driver has a foot on the break [sic], and whether the parking brake is on.

(Ex. 1029, Trauner at [0019].)

112. Trauner describes the system operation in connection with Figure 2, reproduced below.

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. At time t_0 , the driver powers up the system and the vehicle is stopped and the Speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled and the driver can operate the entire system. At a time t_1 , the driver starts to move and the “Display/Keyboard” state changes to disabled, thereby preventing the driver from looking at the display and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break [sic], or just in any gear or idle, but not moving or exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard”

state changes to enabled, once again allowing the driver to view the display and use the hand activated input devices. At

a time t_4 , the driver turns the system off by either powering the vehicle off by turning the ignition key to the off position, or deactivating a separate system power switch.

(Ex. 1029, Trauner at [0020].)

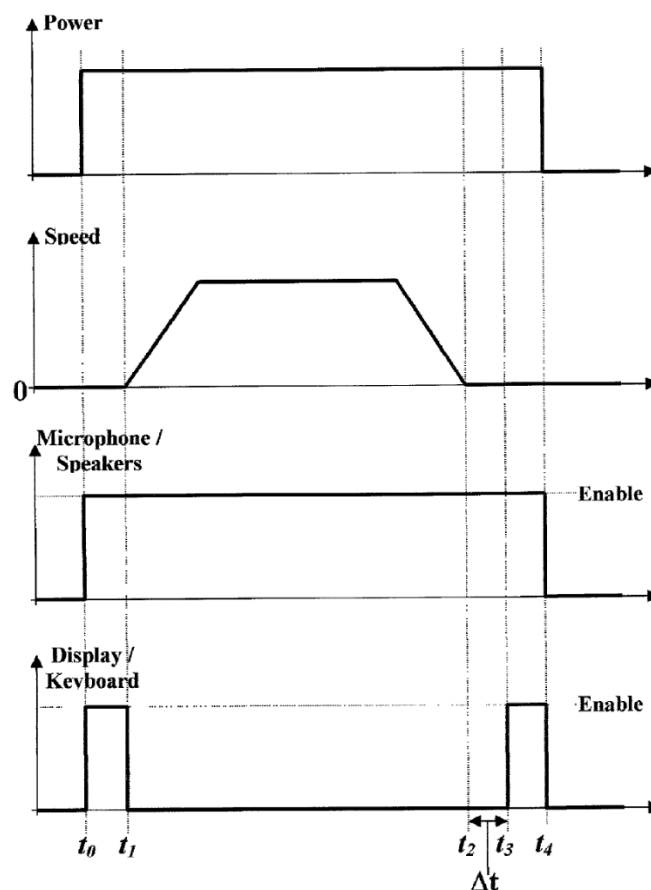


Figure 2

Ex. 1029, Trauner, Figure 2

113. Trauner also describes that the system may change the format of information based on the vehicle state, so that it is delivered to the driver in a safe manner. For example:

While moving, the present system can be put into a mode to slowly read the downloaded information via computer voice synthesis. Voice confirmation may be provided that searches have been completed (while the vehicle is in motion).

(Ex. 1029, Trauner at [0021].)

D. U.S. Patent No. 6,574,531 (“Tan”)

114. U.S. Patent No. 6,574,531 (“Tan”) issued on June 3, 2003 from an application filed on July 25, 2001. (Ex. 1025.)

115. Tan describes a vehicle information system that selectively changes the way information is presented to the user based on the speed of the vehicle. For example:

A vehicle computer system and method of providing information to an occupant of a vehicle that minimizes complete feature lock out are provided. The operating system of the computer is adapted to selectively display full and limited functionality versions of a particular screen, preferably based on whether the vehicle is in motion. A text-to-speech engine can automatically generate audio based on a particular screen once motion is detected. The availability of a limited functionality version of the screen and audio, either independently or

together, allow a vehicle occupant to retrieve information from the computer system without distraction.

(Ex. 1025, Tan at Abstract.)

116. In connection with Figure 1, reproduced below, Tan describes that the vehicle computer system can take many forms. For example integrated mobile phones and personal computers or navigation computers.

The vehicle computer system 10 can be any device capable of receiving input from an occupant of the vehicle and displaying or otherwise outputting information. Examples of vehicle computer systems suitable for use with the present invention include radios, integrated mobile phones, and integrated personal computers. The present invention is particularly well-suited for incorporation into navigational computers that allow an occupant of the vehicle to input an address or location to be mapped and displayed by the computer.

(Ex. 1025, Tan at 2:41-50; *see also* Fig. 1.)

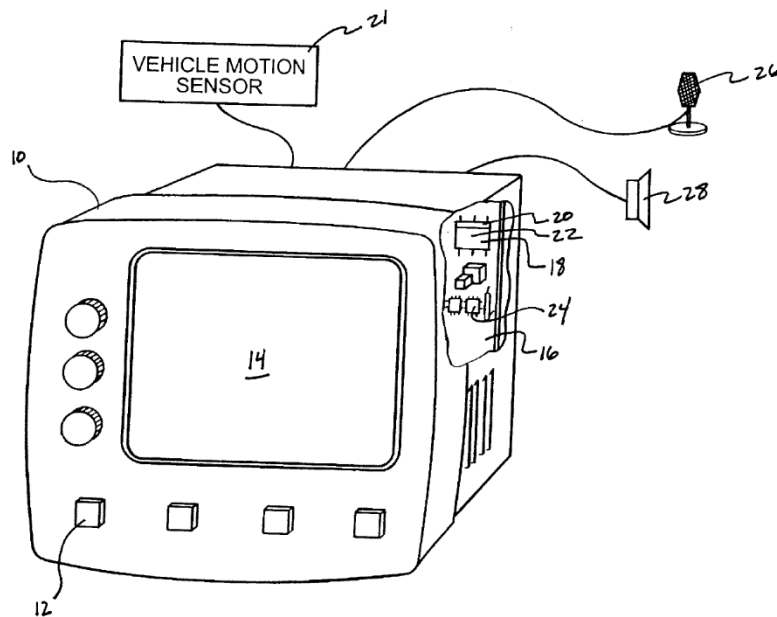


FIG. 1

Ex. 1025, Tan, Fig. 1

117. Tan also describes that the system includes a computer processor and operating system for launching and running various applications. For example:

The electronics 16 include a computer processor 18 that is capable of executing various types of software programs. Essentially any suitable computer processor can be incorporated into the system 10 of the present invention. In any given embodiment, the processor chosen will depend on the computing needs, e. g. , power and speed, of the overall system. Also, the electronics 16 preferably include one or more application programs 20. The application programs 20 preferably comprise software built into the electronics 16 of the system 10. Alternatively, the application programs 20 may be supplied to the

system 10 via some type of temporary or removable memory, such as floppy disks, CD ROMs, smart memory cards, PCMCIA cards, or hard drives.

Electronics 16 also preferably include an operating system 22 adapted to interact with the application programs 20.

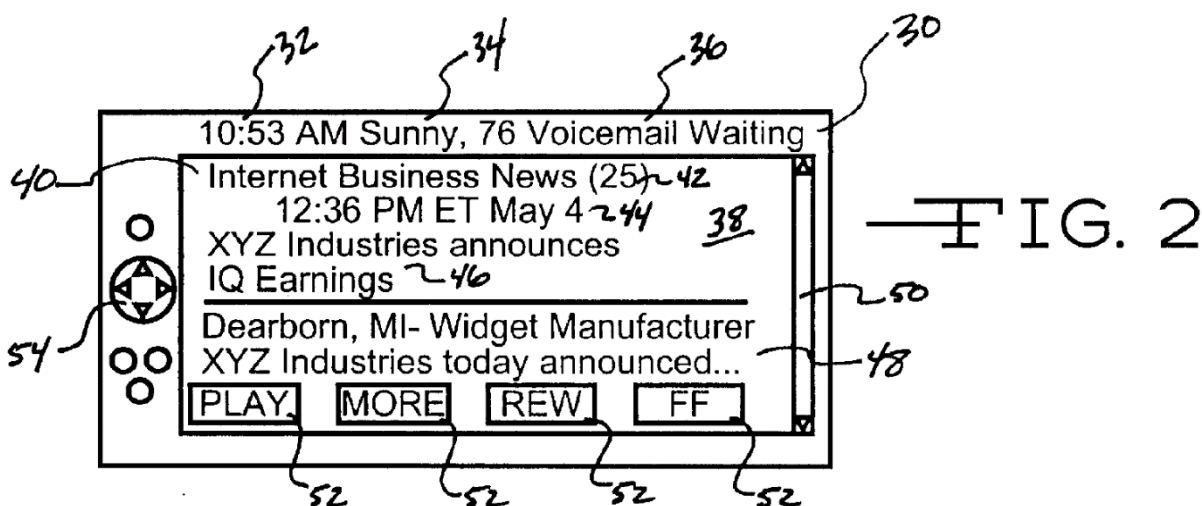
(Ex. 1025, Tan at 3:24-38.)

118. To illustrate the invention, Tan describes a set of exemplary display screens, associated with an Internet news retrieval program, that have “full functionality” when the vehicle is stopped, or below a preset speed, and have “limited functionality” when the vehicle is moving. For example, in connection with Figure 2 Tan describes the full functionality screen:

FIG. 2 illustrates the first version, or full functionality version 30, of the screen. As shown in the figure, the full functionality version 30 displays complete information for common features of the system, such as the clock 32, weather summary 34, and voice mail indicator 36. Also, in the content window 38, the full functionality version 30 displays the complete contents of the news article...

The full functionality version 30 preferably allows access to all features and functions of the system 10, operating system 22, and application programs 20.

(Ex. 1025, Tan at 4:13-29; *see also* Fig. 2.)

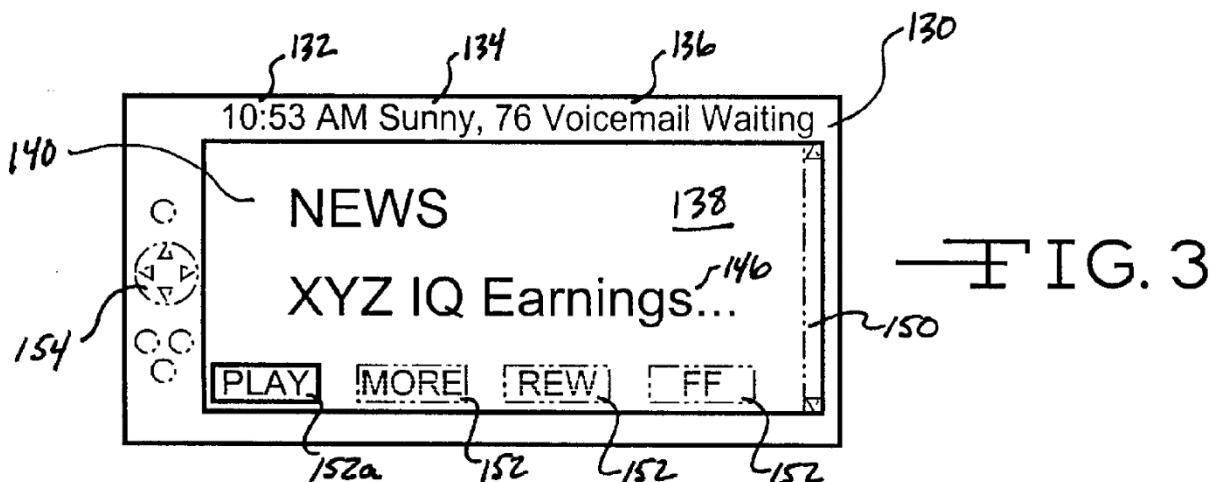


Ex. 1025, Tan, Fig. 2

119. Tan also describes a “limited functionality version of the screen above in connection with Figure 3. For example:

FIG. 3 illustrates an alternate version, a limited functionality version 130, of the screen illustrated in FIG. 2. Like reference numbers in FIG. 3 refer to similar features illustrated in FIG. 2. As shown in the figure, the limited functionality version 130 displays the system functions, such as the clock 132, the weather summary 134, and the voice mail indicator 136. These features are characterized by small pieces of visual information, such as digits, words or icons, that allow for quick retrieval of information. As such, these types of features are preferably included in both the full 30 and limited 130 functionality versions of the screen. The content window 138 of the limited functionality version 130 preferably contains abbreviated or truncated versions of some of the information presented in the full functionality version.

(Ex. 1025, Tan at 4:34-49; *see also* Fig. 3.)

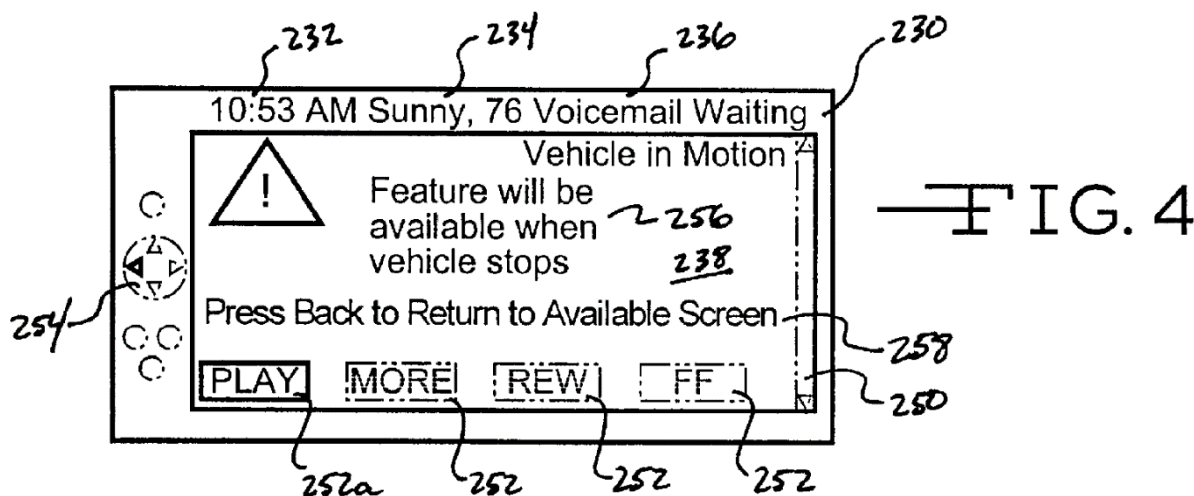


Ex. 1025, Tan, Fig. 3

120. Tan also describes an even more limited functionality screen for use when a limited functionality screen above is not available.

The system also preferably includes a common screen for displaying on the output when a limited functionality version of the screen is not available. The common screen is preferably independent of the application programs, and it is particularly preferred that the operating system provide the common screen. FIG. 4 illustrates a suitable common screen 230. Again, like reference numbers in FIG. 4 refer to similar features shown in the other figures. The common screen 230 preferably provides notice 256 to an occupant of the vehicle that they have reached a point at which a limited functionality version of the screen is not available.

(Ex. 1025, Tan at 4:61-5:4; *see also* Fig. 4.)



Ex. 1025, Tan, Fig. 4

121. Tan discloses that the system includes a sensor for determining when the vehicle is in motion. For example:

Preferably, the operating system selectively chooses which version of the screen to display based on whether the vehicle is in motion. The operating system can receive data related to vehicle motion from a motion sensor placed appropriately in the vehicle, as described above.

(Ex. 1025, Tan at 5:16-20.)

122. Tan discloses that the full functionality screen described above would be displayed when the vehicle is stopped, and

Based on this data, the operating system preferably chooses between the two alternate versions of the screen. In the preferred method, the operating system displays the full functionality version of the screen if the vehicle is not in motion, giving an occupant of the vehicle access to

all information associated with the screen. However, if the vehicle is in motion, the operating system displays the limited functionality version of the screen.

(Ex. 1025, Tan at 5:20-28.)

VII. Grounds for Challenge

A. Ground 1 – Claims 1-4 and 15 of the ‘709 Patent are obvious in view of U.S. Patent No. 7,711,355 (“Krueger”) in combination with U.S. Patent No. 7,484,008 (“Gelvin”)

1. Rationale to Combine Krueger and Gelvin

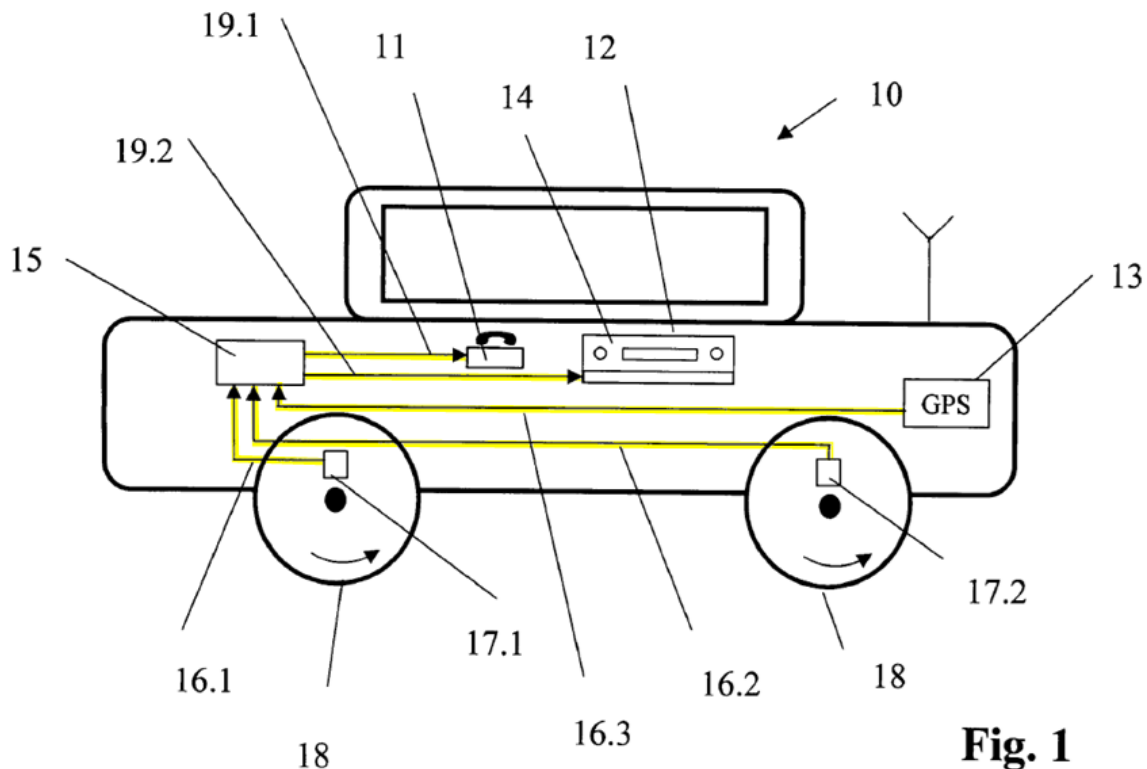
123. An ordinary artisan would have found it obvious to combine the vehicle bus disclosed in Gelvin with the various operable devices and sensors disclosed in Krueger such that the devices in Krueger could more efficiently communicate with one another. Indeed, as I describe in the background section above, at the time of the ‘709 invention, vehicles were often equipped with data buses like those disclosed in Gelvin. The idea of utilizing such a data bus to connect the operable devices and sensors in Krueger would have been an obvious modification to the Krueger system.

124. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)

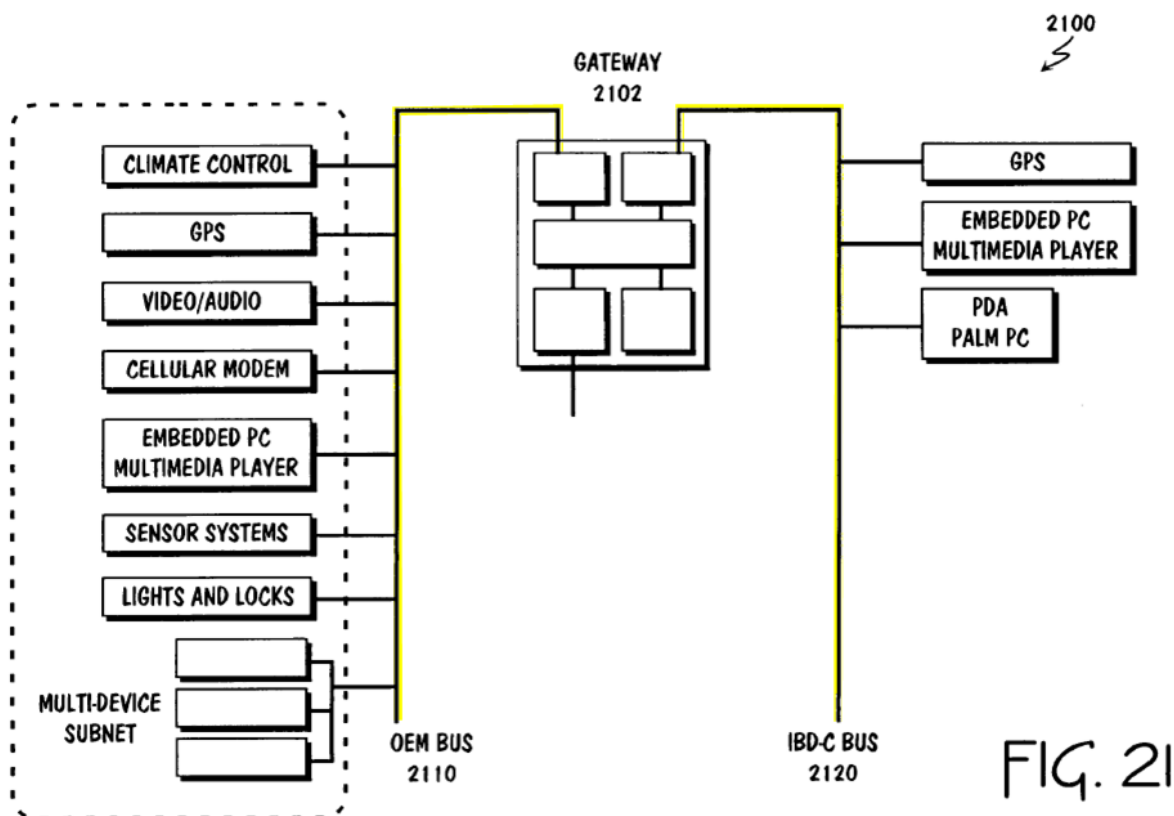
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

125. An ordinary artisan would have understood that the benefits described in Gelvin for utilizing such a data bus would have benefited the system in Krueger. Indeed, Krueger discussed the use of wires, as depicted in Figure 1 of where each operable device (11-13 and sensor 17.1 and 17.2) are connected to the decision unit 15 with their own dedicated wiring (shown in yellow in the figure below).



Ex. 1026, Krueger, Fig. 1 (annotated)

126. On the other hand, as shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires) either through the decision unit or directly without any intermediaries.



Ex. 1027, Gelvin, Fig. 21 (annotated)

127. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Krueger devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices managed by the decision unit grows, the number of wires and the number of connectors also grows, thereby adding significant complexity and density to the inputs and outputs of the decision unit. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the decision unit, with one set of wires interconnecting all of the devices.

128. An ordinary artisan would have also understood that such an arrangement would allow the decision unit to maintain control over the device functions as described by Krueger, but would also allow for these devices to share data directly with one another when there was no decision or control required. For example, to the extent the radio requires signals from the phone for making ringing sounds and for communicating in hand-free mode, the data bus would allow these devices to directly communicate. Similarly, when the phone received web data, it could then send this data directly to a vehicle display without sending the data through the decision unit as would have been required in the original Krueger architecture.

129. An analysis of the *KSR* Factors supports my conclusion that an ordinary artisan would have found it obvious to combine the teachings of Gelvin with the teachings of Krueger.

130. *The combination of familiar elements according to known methods to yield predictable results:* As discussed above, the use of vehicle data buses was common at the time of the '709 Patent filing. Therefore, an ordinary artisan would have expected that combining the data bus teachings disclosed in Gelvin with the system disclosed in Krueger would have yielded the predictable result of connecting the operable devices and sensors in Krueger together such that they could

communicate directly with one another, or with the decision unit on the same wiring, while using fewer wires and other materials.

131. *The technique has been used to improve other vehicles:* As discussed in Gelvin, the concept of using a data bus to connect various components in a vehicle together can lead to improvements such as reduced materials and the creation of a standard mode of communication between the different components. (Ex. 1027, Gelvin at 1:54-2:17.) An ordinary artisan would have understood that the benefits taught in Gelvin could have been applied to the system in Krueger to similarly improve the system in Krueger so that the different components and sensors described in Krueger would have been able to communicate with one another in a standard mode while reducing unnecessary waste of materials and wiring.

132. *The teachings fit together like pieces of a puzzle:* In this case the data bus disclosed in Gelvin would be able to fit together like pieces of a puzzle with the system described in Krueger. Indeed, Figure 21 shows the data bus with the same, or similar components, as are described in Krueger—including GPS, Video/Audio, Cellular modem, Embedded PC, Sensor Systems and PDA/Palm. (Ex. 1027, Gelvin at Fig. 21, 27:53-65.) Hence, Gelvin effectively depicts how its teachings would fit together with the teachings of Krueger like a puzzle to form a combination consisting of the system disclosed in Krueger utilizing a data bus like the data bus described in Gelvin.

133. *It is obvious to try the combination:* As discussed above, there are multiple benefits to utilizing a data bus like the data bus described in Gelvin—including reducing wiring, allowing multiple devices to communicate directly with one another, minimizing load on a central management device, and creating a standard communication protocol that leads to more compatibility amongst a variety of devices. Because of these benefits to using a vehicle data bus, coupled with the fact that many vehicles at the time of the ‘709 Patent were already using data buses, an ordinary artisan would have found it obvious to try and combine the data bus disclosed in Gelvin with the system described in Krueger.

134. Thus, an ordinary artisan would have been motivated to use the data bus disclosed in Gelvin with the system disclosed in Krueger.

2. Analysis of claims 1-4 and 15

a. Claim 1

... [1.0] A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the vehicle, the telematics system comprising:

135. Krueger discloses “operable devices” that consist of “car phone 11, a car radio 12 and a navigation system 13.” (Ex. 1026, Krueger at 2:11-15.) Krueger discloses that these devices communicate with decision unit 15, which determines whether to disable functionality based on vehicle speed. (Ex. 1026 Krueger at 2:18-

39, 2:48-57.) Below, in an annotated version of Figure 1 from Krueger, the devices that make up the “operable devices” are highlighted in yellow.

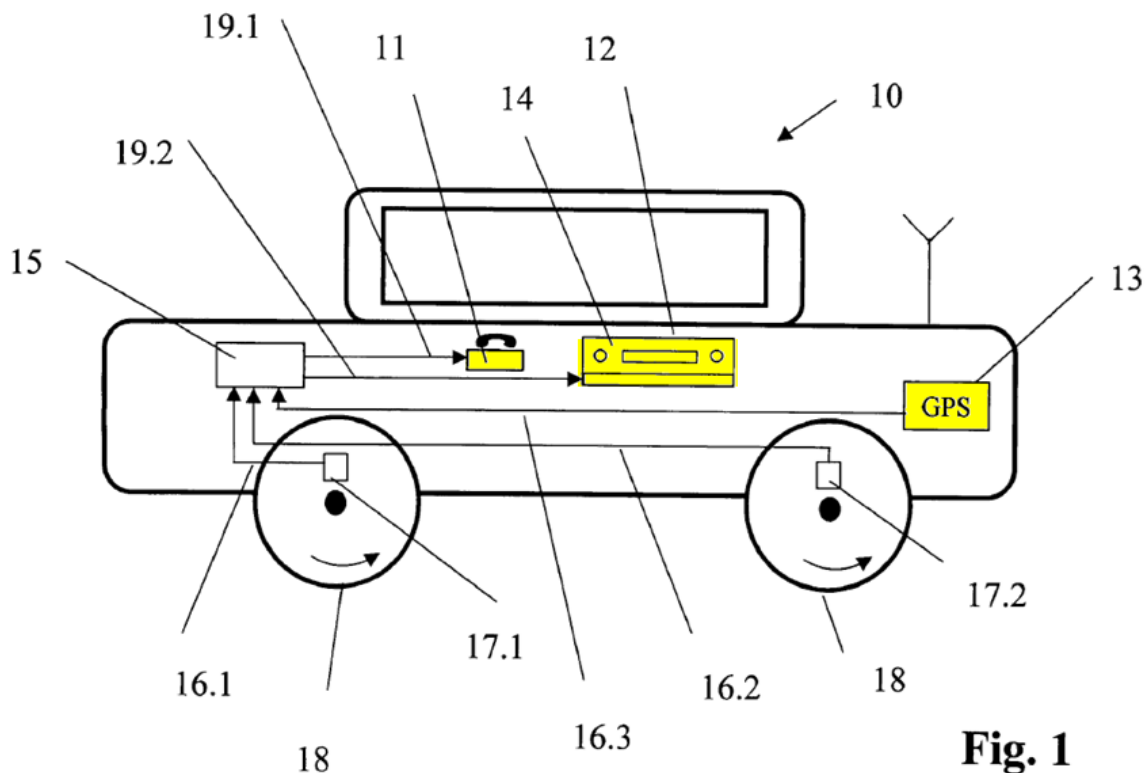


Fig. 1

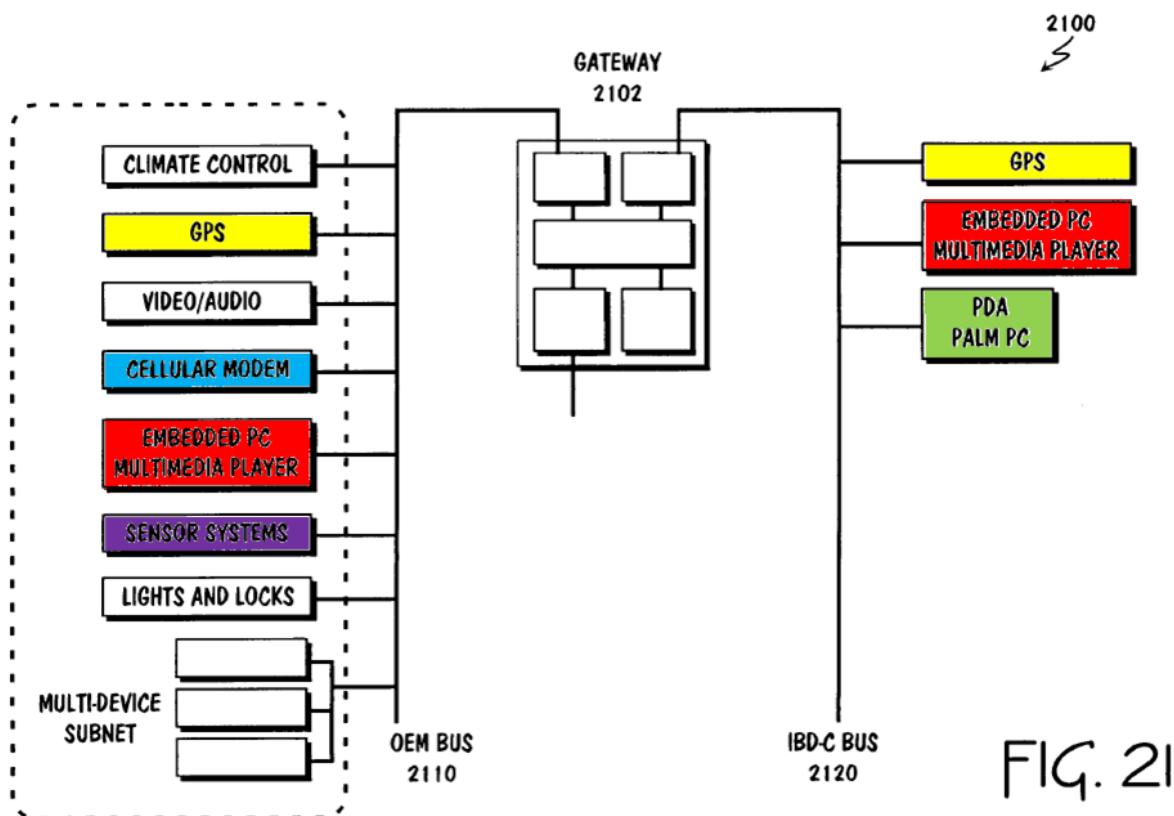
Ex. 1026, Krueger, Fig. 1 (annotated)

136. The ‘709 Patent states that the “telematic device,” i.e. “telematic system,” can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Krueger discloses that the “operable devices” include a car phone and navigation system, which an ordinary artisan would have understood both include computers to perform their functionality. (Ex. 1026, Krueger at 2:11-15, Fig. 1.) Therefore, it is my opinion that the “operable devices” along with decision unit 15 described in Krueger constitutes the claimed “telematic system.”

137. Krueger discloses that the “decision unit 15 is connected to sensors 17.1, 17.2 via the *wires* 16.1, 16.2. Sensor 17.1 has the task of determining the speed of the vehicle 10.” (Ex. 1026, Krueger at 2:18-21, emphasis added.) Thus, Krueger discloses connecting the system to sensors (including speed sensors) using wires.

138. Although Krueger discloses the use of separate wires to connect the sensors to the system, an ordinary artisan would have understood that vehicles at the time of the ‘709 Patent included the use of data buses to connect various devices in the system in order for data to be exchanged between the devices. Such data buses consist of wires like the wires (16.1, 16.2) disclosed in Krueger.

139. For example, as described in the technical background section of this declaration, at the time of the ‘709 Patent vehicles were already connecting multiple sensors to multiple processing units using vehicle networks/buses (*see e.g.*, Ex. 1015, Jurgen at Fig. 26.4). Further, as I discuss in more detail above, it would have been obvious to combine the data bus described in Gelvin with the system disclosed in Krueger. Indeed, as shown in the annotated version of Gelvin Figure 21 below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

140. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited.

Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

141. Thus, Gelvin teaches the ability for devices like GPS devices, cellular devices, and vehicle sensors, i.e., the devices described in Krueger, to communicate over one or more vehicle buses.

142. Accordingly, it is my opinion that element [1.0] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.1] a first mode of operation and a reduced distractions mode of operation;

143. Krueger discloses both a first mode of operation and a reduced distractions mode of operation. First, Krueger discloses a first mode of operation where the radio panel is functional and the user can make and receive telephone calls, consistent with their normal functionality. (Ex. 1026, Krueger at 1:13-26, 2:48-57, 3:21-28, Abstract.)

144. Krueger then discloses a reduced distractions mode: For example:

If the threshold switch is provided with speed values from sensor 17.1 that are over the speed of 130 km/h that is considered dangerous, then a signal is triggered and is transmitted on the data lines 19.1, 19.2. *This signal then blocks the operation of the operating panel 14 on the car*

radio 12 and prevents telephone calls from being made in the vehicle 10 and from being received in the vehicle 10.

(Ex. 1026, Krueger at 2:51-57, Abstract, emphasis added.)

145. In this mode, Krueger teaches the reduction of distractions by disabling the ability for the user to operate the radio and make or receive telephone calls.

146. Accordingly, it is my opinion that element [1.1] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.2] the telematics system configured to be operatively coupled with a cellular phone having at least one feature and an output; the telematics system operable by a driver of the motor vehicle;

147. As discussed above, Krueger teaches that the “operable devices” include “car phone 11,” which is later described as a “mobile telephone” that an ordinary artisan would have understood included cellular capabilities for making calls from a vehicle. (Ex. 1026, Krueger at 4:54-58, 2:11-15.) Krueger further discloses that “sensor 23,” which is part of the “mobile telephone” is connected to the “decision unit 15,” which is also part of the overall disclosed system. (Ex. 1026, Krueger at 5:8-10.) Therefore, an ordinary artisan would have understood that the telematic system described in Krueger is configured to be operably coupled with a cellular phone.

148. Krueger discloses that the “car phone,” and thus the telematic system, has at least the following features: (1) making a telephone call, (2) receiving a telephone call, (3) the ability to notify the driver of an incoming call, and (4) the ability to forward incoming telephone calls to another telephone. (Ex. 1026, Krueger at 2:55-57, 2:63-3:2, 3:7-15.) Further, Krueger discloses that the car phone has outputs such as notification for incoming calls and the ability to receive and engage an incoming telephone call, i.e., speak to the caller. (Ex. 1026, Krueger at 2:55-57, 2:63-3:2, 3:7-15.)

149. As discussed above, the described car phone can be operated by the driver, for example, to make phone calls and receive incoming phone calls. (Ex. 1026, Krueger at 2:55-57, 2:63-3:2, 3:7-15.) Further, when not restricted, the car radio can be operated by the driver. (Ex. 1026, Krueger at 2:58-63, 3:3-5.) Thus, aspects of the “operable devices,” i.e., the telematics system, would be operable by the driver of the vehicle depending on whether certain speed restrictions were met.

150. Accordingly, it is my opinion that element [1.2] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.3] the telematics system configured to be operatively coupled with a web server;

151. Krueger teaches that “if the vehicle is equipped with a receiving unit 20 with which traffic and/or weather information can be received, then this information

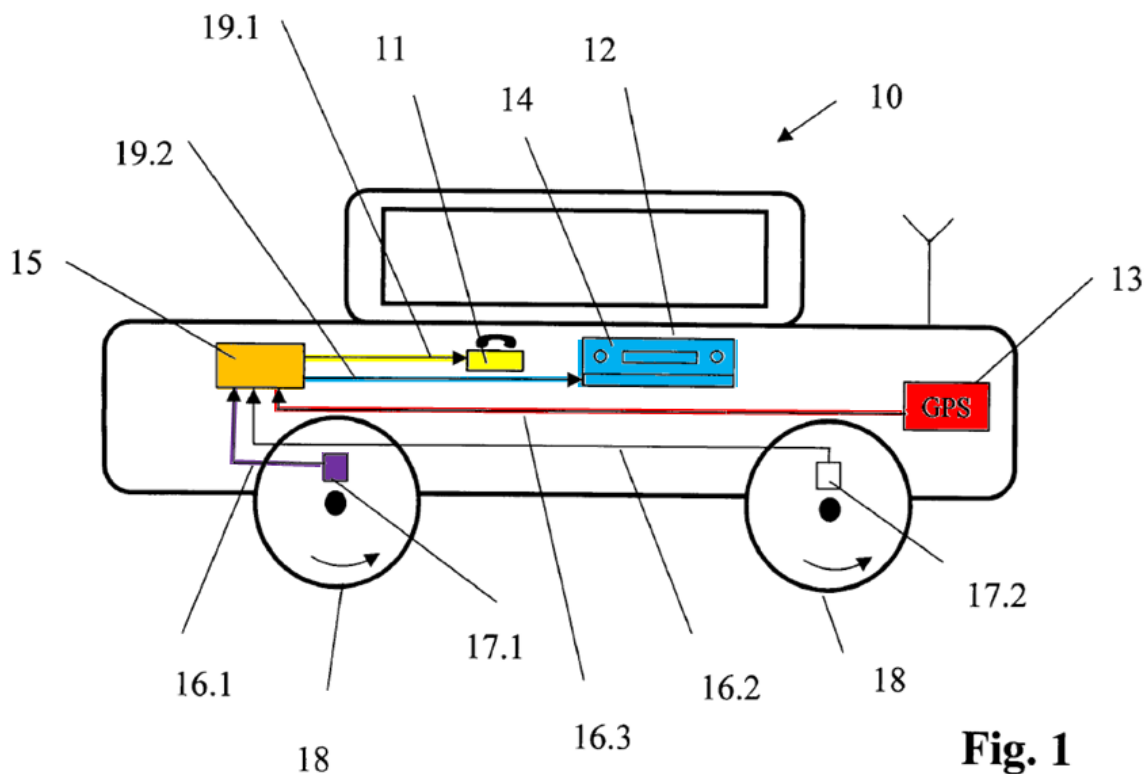
can be used to block or release the operable devices 11, 12, 13. To do this, it is necessary that the data received by the receiving unit 20 is transmitted to the decision unit 15 (not shown in FIG. 1).” (Ex. 1026, Krueger at 3:65-4:4.) In my opinion, an ordinary artisan would have understood that the “receiving unit” would communicate with a server so that it could download updated traffic and/or weather information for use with the decision unit, which is part of the overall system and used to make determinations for restrictions of the “operable devices.” An ordinary artisan would have also understood that while there are a variety of server interfaces available, a well-known interface at the time of the ‘709 Patent would be to use the Hyper-Text Transport Protocol (HTTP) or the Wireless Access Protocol (WAP) as that used to access servers on the worldwide web. This ordinarily skilled artisan would have also understood that a server responding to HTTP or WAP formatted requests would be considered a “web server.” (Ex. 1026, Krueger at 2:48-57, 3:65-4:4.)

152. Further, Krueger discloses that the system is capable of receiving e-mails and “information from the Internet via the Mobil Media Mode (WWW:MMM)” on the mobile telephone, which further demonstrates that the operable devices, i.e., telematic device, is configured to be operatively coupled with a web server. (Ex. 1026, Krueger at 5:43-47.)

153. Accordingly, it is my opinion that element [1.3] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.4] the telematics system being operatively coupled to the vehicle's bus and being configured to receive at least one of a vehicle transmission information and a vehicle movement information from the bus;

154. As I discuss above, Krueger discloses that the decision unit, which is the part of the disclosed system that determines whether to disable functionality, is connected to the phone, radio, GPS and sensors of the system. (Ex. 1026, Krueger at 2:18-22, 2:36-38.) Indeed, as showing below in the annotated version of Figure 1, the decision unit 15 (orange), is connected via wire to the car phone 11 (yellow), the radio 14 (blue), the GPS 13 (red), and the speed sensors 17.1 (purple).



Ex. 1026, Krueger, Fig. 1 (annotated)

155. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the system described in Krueger such that the wire-connected devices shown in Figure 1 of Krueger (above) could communicate over the vehicle bus, which was a commonly known technology at the time of the ‘709 Patent.

156. Krueger further discloses that the decision unit 15 receives speed information from sensor 17.1 (in purple above). Indeed, Krueger discloses that the “decision unit 15 is connected to sensors 17.1, 17.2 via the wires 16.1, 16.2. Sensor 17.1 has the task of determining the speed of the vehicle 10.” (Ex. 1026, Krueger at

2:18-21.) Krueger further discloses that sensor 17.1 “continuously transmits speed values to the decision unit 15. The decision unit 15 is designed as a threshold switch (not presented in more detail). If the threshold switch is provided with speed values from sensor 17.1 that are over the speed of 130 km/h that is considered dangerous, then a signal is triggered and is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 2:48-54.)

157. An ordinary artisan would have understood that the vehicle speed data, which is provided to the decision unit 15 from sensor 17.1 constitutes “vehicle movement information,” i.e. information about the speed at which the vehicle moves, a non-zero value representing movement of the vehicle. Finally, when combining the teachings of Krueger with the vehicle bus described in Gelvin, an ordinary artisan would have understood that the speed data would have commonly been communicated to the decision unit via a data bus like the data bus disclosed in Gelvin.

158. Accordingly, it is my opinion that element [1.4] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.5] the telematics system configured to automatically switch between the first mode of operation and the reduced distractions mode of operation, as a result of at least one predetermined condition being met by the at least one of the transmission information and the vehicle movement information; and,

159. Krueger teaches that if it is sensed that the vehicle speed is over 130 km/h a signal is sent that blocks the operating panel of the radio and prevents telephone calls from being made in the vehicle and being received in the vehicle.

In this example only sensor 17.1 is present, and it continuously transmits speed values to the decision unit 15. The decision unit 15 is designed as a threshold switch (not presented in more detail). *If the threshold switch is provided with speed values from sensor 17.1 that are over the speed of 130 km/h that is considered dangerous, then a signal is triggered and is transmitted on the data lines 19.1, 19.2. This signal then blocks the operation of the operating panel 14 on the car radio 12 and prevents telephone calls from being made in the vehicle 10 and from being received in the vehicle 10.*

(Ex. 1026, Krueger at 2:48-57, emphasis added.)

160. Thus, Krueger teaches that if the vehicle speed exceeds 130 km/h, a signal will be automatically triggered, which will switch from the first mode of operation (fully functional) to a reduced distractions mode (fully suppressing the ability make or received phone calls and use the operating panel of the radio).

161. Krueger further discloses that “[i]n the context of the car phone 12, the unit could be designed so that the driver is also notified of incoming calls even if the current speed prevents the driver from accepting the call, [sic] ***In this case the driver may be provided the opportunity to reduce the speed in order to be able to accept the call.***” (Ex. 1026, Krueger at 3:7-12, emphasis added.) Thus, when the speed is reduced to below the predetermined condition, e.g., 130 km/h, the phone functionality will be automatically enabled.

162. Similarly, Krueger discloses that “the unit could be designed so that the number of the caller is stored when the vehicle 10 is moving at a speed higher than the speed at which making and receiving a telephone call is prevented. ***If the speed of the vehicle 10 drops below the critical value later on, the number stored could be used to automatically dial the caller.***” (Ex. 1026, Krueger at 3:15-20, emphasis added.) Again, Krueger discloses that the suppressed act of making a phone call is automatically enabled once the speed of the vehicle drops below the critical value.

163. Accordingly, it is my opinion that element [1.5] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.6] wherein the telematics system, while operating in the reduced distractions mode of operation, is configured to disable the at least one feature, suppress at least a portion of the output and

164. As discussed above, when the vehicle speed increases above 130 km/h, both the radio's operating panel is disabled and the ability to make and receive telephone calls are disabled. (Ex. 1026, Krueger at 2:48-57.) Hence, Krueger discloses that calling and receiving features are disabled and the output that is associated with making and receiving phone calls are suppressed.

165. Accordingly, it is my opinion that element [1.6] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [1.7] provide at least one indicium to the driver that the reduced distractions mode of operation is active; wherein the at least one indicium is presented by the motor vehicle.

166. Krueger discloses that “[i]f the telephone function of the car phone 12 or the operability of the car radio 11 is suspended due to the current vehicle speed, ***the driver can be optically or acoustically informed of this state*** at the same time the signal is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 3:3-7, emphasis added.) Thus, Krueger discloses that at least one of an optical or acoustic indicium will be provided to the driver by the vehicle indicating that reduced distraction mode is the current state of the vehicle.

167. Accordingly, it is my opinion that element [1.7] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin. It is further my view, based on my analysis above, that claim 1 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

b. Claim 2

... [2] The telematics system of claim 1, further configured to provide a second output format instead of the suppressed output format.

168. Krueger discloses staggering which outputs are suppressed depending on the speed of the vehicle. For example, Krueger discloses that “making a telephone call can be prevented at speeds higher than 100 km/h while the operability of the car radio 12 is only restricted at speeds over 120 km/h.” (Ex. 1026, Krueger at 2:60-63.) Hence, rather than suppressing the radio and the telephone at the same speed, in this example at 100 km/h, making a telephone call is suppressed but the car radio remains fully operable (and its associated outputs)—resulting in a second output format besides suppressing the telephone and the radio together.

169. In another example, Krueger discloses that “making a telephone call from the vehicle 10 could be prevented at speeds higher than 50 km/h while receiving a telephone call is allowed at speeds of up to 160 km/h.” (Ex. 1026,

Krueger at 2:65-3:1.) Hence, in this example, rather than suppressing the outputs associated with both making and receiving phone calls, between 50 km/h and 160 km/h the ability to receive phone calls remains (and the outputs associated therewith like the incoming call alerts and speaker to listen to caller) while the ability to make a phone call is suppressed.

170. Finally, Krueger discloses an alternative notification format where “the unit could be designed so that the driver is also notified of incoming calls even if the current speed prevents the driver from accepting the call. In this case the driver may be provided the opportunity to reduce the speed in order to be able to accept the call.” (Ex. 1026, Krueger at 3:7-12.) Hence, Krueger discloses an output different from a complete suppression of an incoming call, but instead an output where the driver is provided with a notification and the opportunity to reduce the speed so that the call can be received.

171. Accordingly, it is my view based on my analysis above, that claim 2 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

c. Claim 3

... [3] The telematics system of claim 1, further configured to receive settings from the web server.

172. Krueger discloses that conditions other than the vehicle state can affect the operation of the telematics systems. For example:

In addition to the vehicle-specific conditions (speed, braking response), external conditions can also be taken into consideration as influencing factors. For example, if the vehicle is equipped with a receiving unit 20 with which traffic and/or weather information can be received, then this information can be used to block or release the operable devices 11, 12, 13.

(Ex. 1026, Krueger at 3:63-4:1.)

173. Hence, Krueger discloses using the “receiving unit 20,” a device that is configured to receive information from a webserver, to receive settings (information) that is used to determine whether to block or release operable devices. An ordinary artisan would recognize weather and traffic information as “settings” in this context because Krueger teaches that this information is used by the devices to set whether to block or release devices, i.e., they are settings.

174. In addition, Gelvin describes managing vehicle data systems remotely via web and Internet interfaces. For example:

The internetwork further includes bridging among the vehicular networks 2202 and cellular modems or services 2206, which may for example provide PCS and GSM wide-area access to the Internet 2299. Among the functions enabled are remote access to controls, diagnostic data and security functions via standard Web interfaces, and exchange of email. Other electronic services supported include access to a server 2210 enabling global Internet access. With this access, a SQL server can be used to provide database services for management of vehicle data systems.

(Ex. 1027, Gelvin at 28:22-31.)

175. In my opinion an ordinary artisan would have understood that such internet and web interfaces would interface to a web server. An ordinary artisan would also have understood that “management of vehicle data systems” would include setting various parameters associated with those systems, that is, to manage the vehicle data systems, the vehicle would receive settings from a web server via the web/internet interfaces described by Gelvin above.

176. Accordingly, it is my view based on my analysis above, that claim 3 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

d. Claim 4

... [4] The telematics system of claim 1, further comprising the telematics system being configured to receive a navigation information from the bus.

177. As discussed above, Krueger discloses that “navigation system 13” is connected to the “decision unit 15.” (Ex. 1026 Krueger at 2:11-15, Fig. 1.) Krueger further discloses:

If the navigation system 13 functions as a sensor in accordance with the diagram in FIG. 1, then, when a vehicle is driven on a difficult stretch of road such as a mountain road or on roads prone to accidents, a corresponding signal can be sent to the decision unit 15 via wire 16.3 and can be used to block the operable devices 11, 12 if necessary, for example.

In addition the navigation system 13 can also be used to improve convenience. Because the navigation system always knows the location of the vehicle, this information can easily be used to redirect calls. For example, if the vehicle is parked in front of the office or a private residence, the corresponding location data is transferred to the car phone 12. This information can be used to activate call forwarding so that the user can automatically have his or her calls to the car phone 12 forwarded to the office or private telephone number, depending on the current location of the vehicle.

(Ex. 1026, Krueger at 4:38-53.)

178. Hence, Krueger discloses that the navigation system is connected to other parts of the system by wire and sends navigation information, such as location and road condition that is used to determine whether to block the operable devices (phone and radio). Further, as discussed above, and as shown in Gelvin, an ordinary artisan at the time of the '709 Patent would have understood, and been motivated to communicate such information from a navigation system (GPS) over a vehicle data bus like that disclosed in Gelvin. (Ex. 1027, Gelvin at Fig. 21, 27:53-65, 9:1-7.) Thus, it would have been obvious to an ordinary artisan to communicate the location and road condition information from “navigation system 13” to the decision unit and operable devices via a vehicle bus like the bus disclosed in Gelvin.

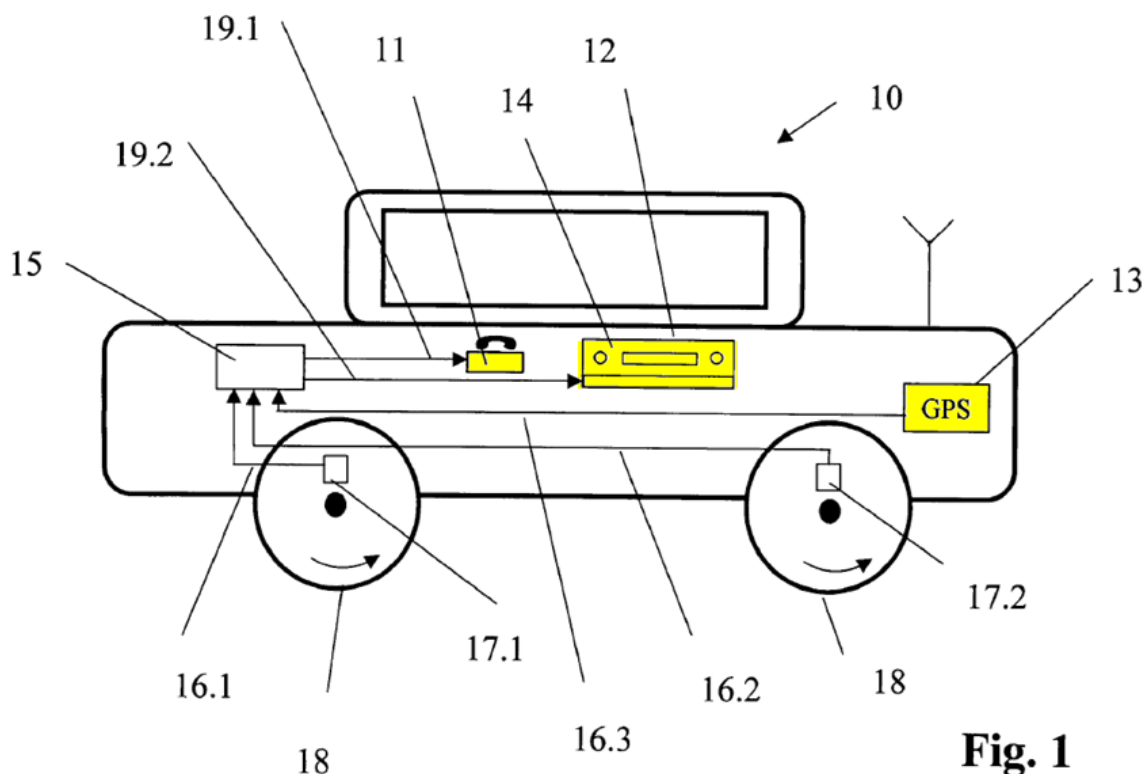
179. Accordingly, it is my view based on my analysis above, that claim 4 of the '709 Patent would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

e. Claim 15

... [15.0] A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the motor vehicle, the telematics system comprising:

180. As discussed above, Krueger discloses “operable devices” that consist of “car phone 11, the car radio 12 and the navigation system 13.” (Ex. 1026, Krueger at 2:11-15.) Krueger discloses that these devices communicate with decision unit 15,

which determines whether to disable functionality based on vehicle speed. (Ex. 1026, Krueger at 2:18-39, 2:48-57.) Below, in an annotated version Figure 1 from Krueger, the devices that make up the “operable devices” are highlighted in yellow.



Ex. 1026, Krueger, Fig. 1 (annotated)

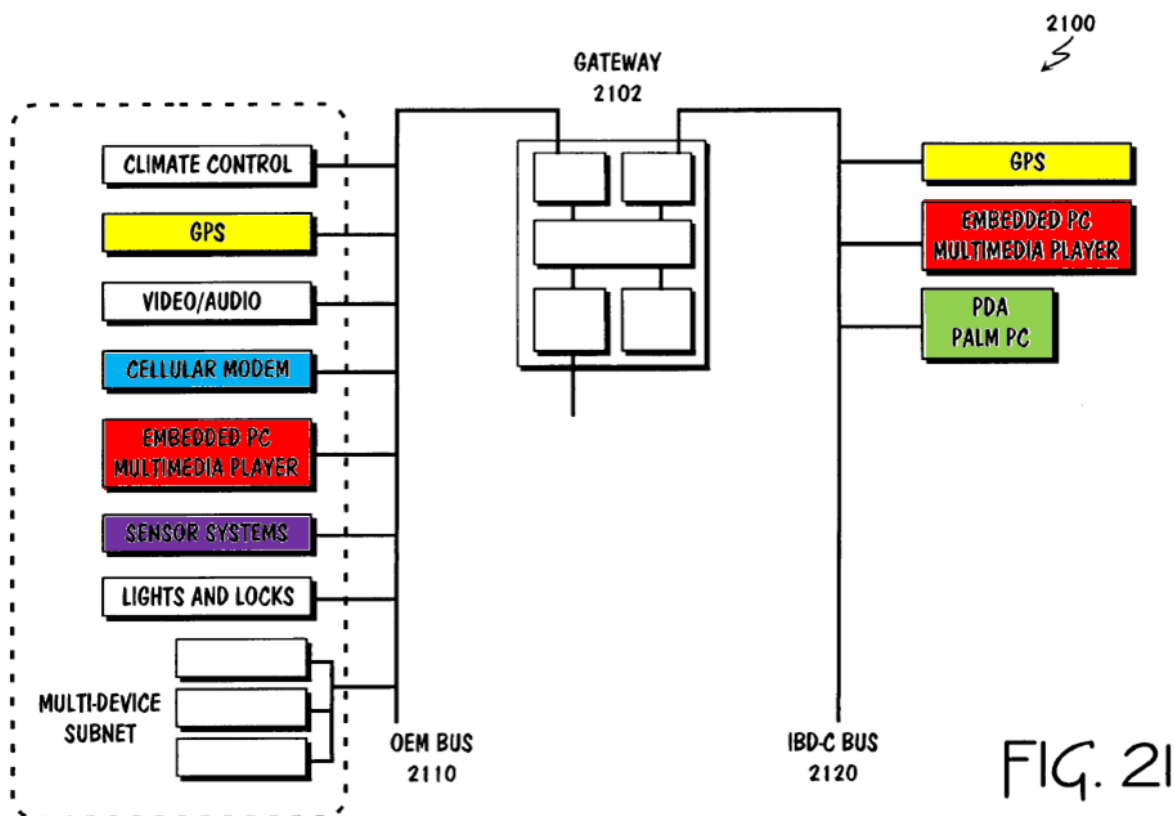
181. The ‘709 Patent states that the “telematic device,” i.e. system, can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Krueger discloses that the “operable devices” include a car phone and navigation system, which an ordinary artisan would have understood both include computers to perform their functionality. (Ex. 1026, Krueger at 2:11-15, Fig. 1.) Therefore, it is

my opinion that the “operable devices” along with decision unit 15 described in Krueger constitutes the claimed “telematic system.”

182. Krueger discloses that “[t]he decision unit 15 is connected to sensors 17.1, 17.2 via the *wires* 16.1, 16.2. Sensor 17.1 has the task of determining the speed of the vehicle 10.” (Ex. 1026, Krueger at 2:18-21, emphasis added.) Thus, Krueger discloses connecting the system to sensors (including speed sensors) using wires.

183. Although Krueger discloses the use of individual wiring to connect the each of the sensors to the system, an ordinary artisan would have understood that vehicles at the time of Krueger included the use of data buses to connect various devices in the system in order for data to be exchanged between the devices. Such data buses consist of wires like the wires (16.1, 16.2) disclosed in Krueger, but they connect to all of the devices, and area shared by all of the devices.

184. For example, as I discuss in more detail above, it would have been obvious to combine the data bus described in Gelvin with the system disclosed in Krueger. Indeed, as shown in the annotated version of Figure 21 of Gelvin below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

185. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited.

Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

186. Thus, Gelvin teaches the ability for devices like GPS devices, cellular devices, and vehicle sensors, like the devices described in Krueger, to intercommunicate over one or more vehicle buses.

187. Accordingly, it is my opinion that element [15.0] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [15.1] a first mode of operation, a second mode of operation, and a third mode of operation each being respectively configured to operate a first, a second, and a third set of telematics features;

188. Krueger discloses three modes of operation that are configured to operate a first, second and third set of telematic features. First, Krueger discloses a first mode of operation wherein the telephone can be operated to place a telephone call from the vehicle. Second, Krueger discloses a second mode of operation wherein the operating panel 14 of the car radio can be operated. Third, Krueger discloses a third mode of operation wherein the telephone can be operated to receive a telephone call in the vehicle. (Ex. 1026, Krueger at 2:48-3:2.)

189. Accordingly, it is my opinion that element [15.1] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [15.2] wherein at least the first set of telematics features is disabled in the second mode of operation and at least the second set of telematics features is disabled in the third mode of operation;

190. Krueger discloses that the first set of telematics features—the ability to make a phone call—is disabled in the second mode of operation when the radio panel is operable. Specifically, Krueger discloses that “making a telephone call can be *prevented at speeds higher than 100 km/h* while the operability of the car radio 12 is only *restricted at speeds over 120 km/h*. (Ex. 1026, Krueger at 2:60-3:2, emphasis added.) Hence, Krueger discloses that making a phone call feature (first mode of operation) is disabled (above 100 km/h) while the operability of the car radio feature (second mode of operation) remains enabled up to 120 km/h.

191. Similarly, Krueger discloses that “it should be noted that it is not necessary for the same speed limitations to apply to both the car radio 12 and the car phone 11.” (Ex. 1026, Krueger at 2:58-60.) Hence, an ordinary artisan would have understood that a different speed limitation should have been applied to the car radio functionality such that the operation of receiving a telephone call (third set of telematic features) is enabled in the third mode of operation while the radio operability is disabled. Indeed, in an example, Krueger teaches that “making a telephone call from the vehicle 10 could be prevented at speeds higher than 50 km/h while *receiving a telephone call is allowed at speeds of up to 160 km/h*.” (Ex. 1026,

Krueger at 2:65-3:1, emphasis added.) Thus, Krueger teaches that the second mode of operation (operability of the radio) is disabled above 120 km/h while the ability to receive a telephone call (the third mode of operation) remains enabled up to 160 km/h. In other words, between 121 km/h and 160 km/h, Krueger teaches that the second set of telematic features (radio operability) are disabled in the third mode of operation.

192. Accordingly, it is my opinion that element [15.2] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [15.3] the telematics system configured to be operatively coupled with a cellular phone;

193. As discussed above, Krueger teaches that the “operable devices” include “car phone 11,” which is later described as a “mobile telephone” that an ordinary artisan would have understood included cellular capabilities for making calls from a vehicle. (Ex. 1026, Krueger at 4:54-58, 2:11-15.) Krueger further discloses that “sensor 23,” which is part of the “mobile telephone” is connected to the “decision unit 15,” which is also part of the overall disclosed system. (Ex. 1026, Krueger at 5:8-11.) Therefore, an ordinary artisan would have understood that the telematic system described in Krueger is configured to be operably coupled with a cellular phone.

194. Krueger discloses that the “car phone,” and thus the telematic system, has at least the following features: (1) making a telephone call, (2) receiving a telephone call, (3) the ability to notify the driver of an incoming call, and (4) the ability to forward incoming telephone calls to another telephone. (Ex. 1026, Krueger at 2:55-57, 2:63-3:2, 3:7-15.) Further, Krueger discloses that the car phone has outputs such as notification for incoming calls and the ability receive and engage an incoming telephone call, i.e., speak to the caller. (Ex. 1026, Krueger at 2:55-57, 2:63-3:2, 3:7-15.)

195. Accordingly, it is my opinion that element [15.3] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [15.4] the telematics system configured to be operatively coupled with a web server;

196. As discussed above, Krueger teaches that “if the vehicle is equipped with a receiving unit 20 with which traffic and/or weather information can be received, then this information can be used to block or release the operable devices 11, 12, 13. To do this, it is necessary that the traffic and/or weather data received by the receiving unit 20 is transmitted to the decision unit 15 (not shown in FIG. 1)” (Ex. 1026, Krueger at 3:65-4:4.)

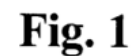
197. In my opinion, an ordinary artisan would have understood that the “receiving unit” would communicate with a server so that it could download updated

traffic and/or weather information for use with the decision unit, which is part of the overall system and used to make determinations for restrictions of the “operable devices.” An ordinarily skilled artisan would have also understood that while there are a variety of server interfaces available at the time of the ‘709 Patent, including the Hyper-Text Transport Protocol (HTTP) and the Wireless Access Protocol (WAP) used to access the worldwide web. This ordinarily skilled artisan would have also understood that a server responding to HTTP or WAP formatted requests would be considered a “web server.” (Ex. 1026, Krueger at 2:48-57, 3:65-4:4.)

198. Further, Krueger discloses that the system is capable of receiving e-mails and “information from the Internet via the Mobil Media Mode (WWW:MMM)” on the mobile telephone, which further demonstrates that the operable devices, i.e., telematic device, is configured to be operatively coupled with a web server. (Ex. 1026, Krueger at 5:43-47.)

199. Accordingly, it is my opinion that element [15.4] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

200. As I discuss above, Krueger discloses that the decision unit, which is the part of the disclosed system that determines whether to disable functionality, is connected to the phone, radio, GPS and sensors of the system. (Ex. 1026, Krueger at 2:18-22, 2:36-38.) Indeed, as shown below in the annotated version of Figure 1, the decision unit 15 (orange), is connected via wire to the car phone 11 (yellow), the radio 14 (blue), the GPS 13 (red), and the speed sensors 17.1 (purple).



Ex. 1026, Krueger, Fig. 1 (annotated)

201. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the Krueger reference such that the wire-connected devices shown in Figure 1 of Krueger (above) could communicate over a vehicle bus, which was a commonly known technology at the time of the '709 Patent.

202. Krueger further discloses that the decision unit 15 receives speed information from sensor 17.1 (in purple above). Indeed, Krueger discloses that the “decision unit 15 is connected to sensors 17.1, 17.2 via the wires 16.1, 16.2. Sensor 17.1 has the task of determining the speed of the vehicle 10.” (Ex. 1026, Krueger at 2:18-21.) Krueger further discloses that sensor 17.1 “continuously transmits speed values to the decision unit 15. The decision unit 15 is designed as a threshold switch (not presented in more detail). If the threshold switch is provided with speed values from sensor 17.1 that are over the speed of 130 km/h that is considered dangerous, then a signal is triggered and is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 2:48-54.)

203. An ordinary artisan would have understood that the vehicle speed data, which is provided to the decision unit 15 from sensor 17.1 constitutes “vehicle movement information,” i.e. information about the speed at which the vehicle moves. Finally, when combining the teachings of Krueger with the vehicle bus described in Gelvin, an ordinary artisan would have understood that the speed data

would have commonly been communicated to the decision unit via a data bus as disclosed in Gelvin.

204. Accordingly, it is my opinion that element [15.5] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

... [15.6] the telematics system configured to automatically switch between the first, the second, and the third modes of operation based on at least one of the transmission information and the vehicle movement information.

205. Krueger teaches that depending on the speed the car radio panel may be disabled, the function of making a phone call may be disabled, or the functionality of receiving a phone call may be disabled.

Just for the sake of completeness it should be noted that it is not necessary for the same speed limitations to apply to both the car radio 12 and the car phone 11. For example, making a telephone call can be prevented at speeds higher than 100 km/h while the operability of the car radio 12 is only restricted at speeds over 120 km/h. Even the various operating states of the car phone 11 could be dependent on the corresponding speed. For example, making a telephone call from the vehicle 10 could be prevented at speeds higher than 50 km/h while receiving a telephone call is allowed at speeds of up to 160 km/h, especially when the telephone is equipped with a hands-free operation accessory.

(Ex. 1026, Krueger at 2:58-3:2.)

206. Thus, in one example, Krueger teaches that if the vehicle speed exceeds 100 (or 50) km/h, the ability to make a telephone call will be automatically disabled while the ability to operate the radio will remain. Likewise, when the vehicle speed exceeds 120 km/h, the operability of the radio will be automatically disabled while the ability to receive a phone call (up to 160 km/h) will remain enabled.

207. Accordingly, it is my opinion that element [15.6] would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin. It is further my view based on my analysis above, that claim 15 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Krueger in combination with Gelvin.

B. Ground 2 – Claims 1-3, 5-6 and 14 of the ‘709 Patent are obvious in view of U.S. Patent Publication No. 2002/0070852 (“Trauner”) in combination with U.S. Patent No. 7,484,008 (“Gelvin”)

1. Rationale to Combine Trauner and Gelvin

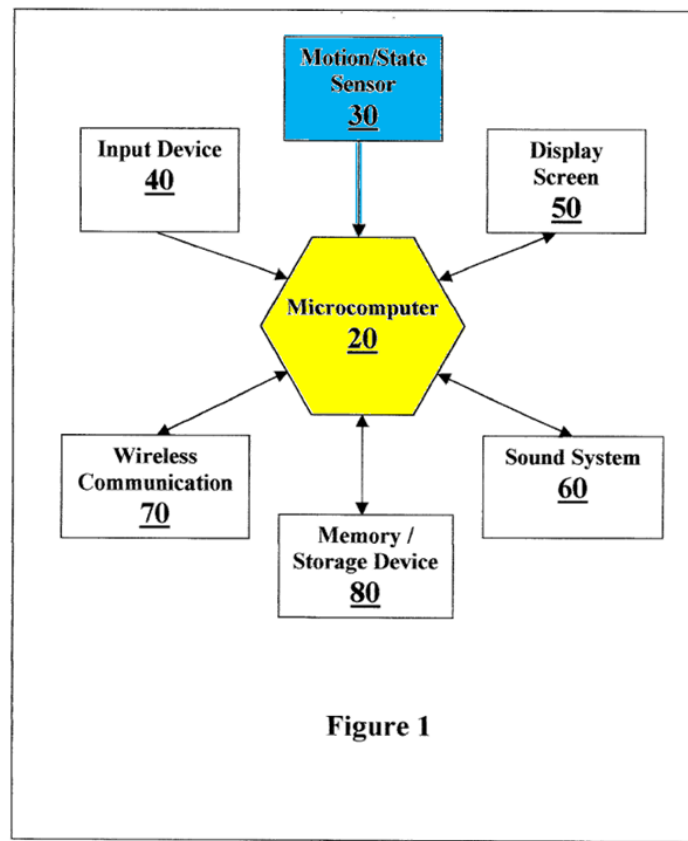
208. An ordinary artisan would have found it obvious to combine the vehicle bus disclosed in Gelvin with the various operable devices and sensors disclosed in Trauner such that the devices in Trauner (e.g., the Motion/State sensor and Microcomputer) could more efficiently communicate with one another. Indeed, as I describe in the background section above, at the time of the ‘709 invention, vehicles were often equipped with data buses like the one disclosed in Gelvin. Utilizing such

a data bus to connect the operable devices and sensors in Trauner would have been an obvious modification to the Trauner system.

209. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

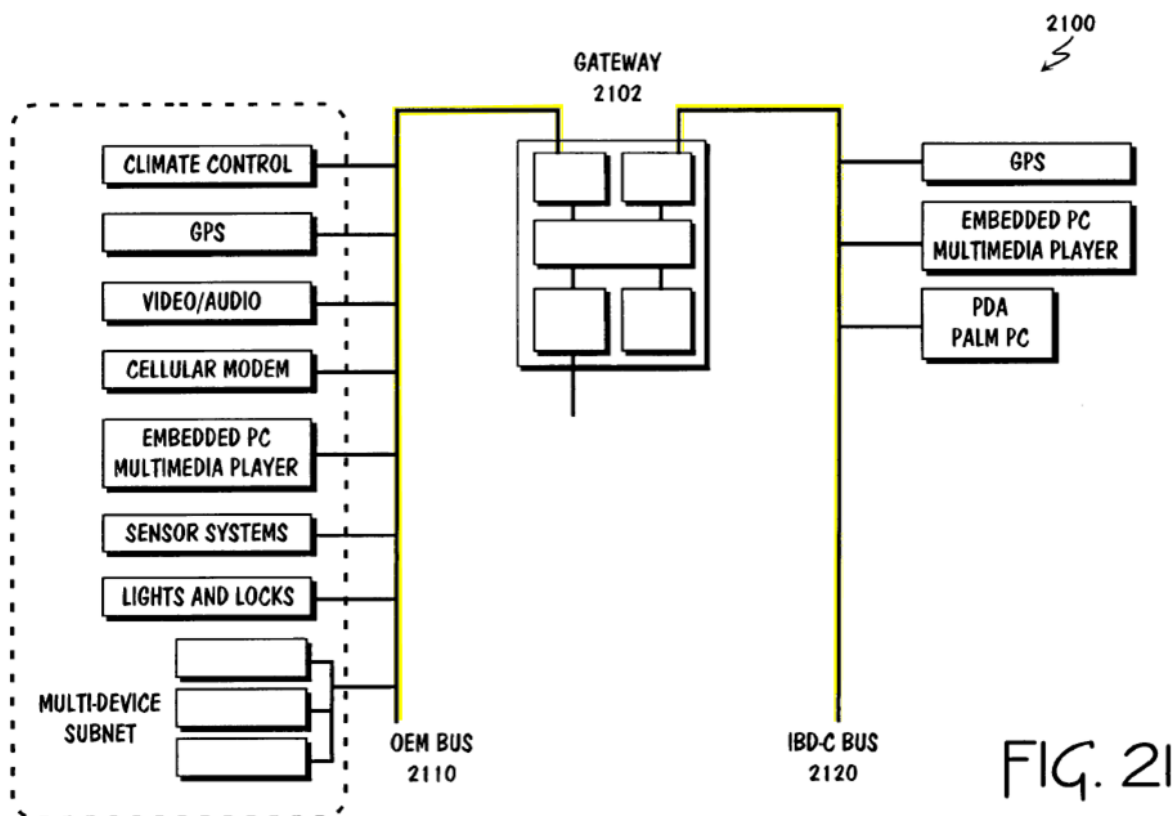
- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

210. An ordinary artisan would have understood that the benefits described in Gelvin for utilizing such a data bus would have benefited the system in Trauner. Indeed, Trauner teaches that the various devices such as a display screen, an input device, wireless communications, a sound system, a storage device, and a Motion/State Sensor (shown in blue below) are all connected—presumably by wires—to the Microcomputer 20 (controller) (shown in yellow below).



Ex. 1029, Trauner, Figure 1 (annotated)

211. On the other hand, as shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires) either through the decision unit or directly without any intermediaries.



Ex. 1027, Gelvin, Fig. 21 (annotated)

212. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Trauner devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices managed by the system grows, the number of wires and the number of connectors also grows, thereby adding significant complexity and density to the inputs and outputs of the system. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the microcomputer, with one set of wires interconnecting all of the devices. An ordinary artisan would

have also understood that such an arrangement would allow the microcomputer to maintain control over the device functions as described by Trauner, but would also allow for these devices to share data directly with one another when there was no decision or control required. For example, to the extent the radio requires signals from the phone for making ringing sounds and for communicating in hand-free mode, the data bus would allow these devices to directly communicate. Similarly, when the phone received web data, it could then send this data directly to a vehicle display without sending the data through the microcomputer as would have been required in the original Trauner architecture.

213. An analysis of the *KSR* Factors supports my conclusion that an ordinary artisan would have found it obvious to combine the teachings of Gelvin with the teachings of Trauner.

214. *The combination of familiar elements according to known methods to yield predictable results:* As discussed above, the use of vehicle data bus was common at the time of the '709 Patent filing. Therefore, an ordinary artisan would have expected that combining the data bus teachings disclosed in Gelvin with the system disclosed in Trauner would have yielded the predictable result of connecting the operable devices and sensors in Trauner together such that they could communicate directly with one another while using less wire and other materials.

215. *The technique has been used to improve other vehicles:* As discussed in Gelvin, the concept of using a data bus to connect various components in a vehicle together can lead to improvements such as reduced materials and the creation of a standard mode of communication between the different components. (Ex. 1027, Gelvin at 1:54-2:17.) An ordinary artisan would have understood that the benefits taught in Gelvin could have similarly improved the system described in Trauner so that the different components and sensors described in Trauner would have been able to communicate with one another in a standard mode while reducing unnecessary waste of materials and wiring.

216. *The teaching fit together like pieces of a puzzle:* In this case the data bus disclosed in Gelvin would be able to fit together like pieces of a puzzle. Indeed, Figure 21 shows the data bus with the same, or similar components, as are described in Trauner—including Video/Audio, Cellular modem, Embedded PC, Sensor Systems and PDA/Palm. (Ex. 1027, Gelvin at Fig. 21, 27:53-65.) Hence, Gelvin effectively depicts how its teachings would fit together with the teachings of Trauner like a puzzle to form a combination consisting of the system disclosed in Trauner utilizing a data bus like the data bus described in Gelvin.

217. *It is obvious to try the combination:* As discussed above, there are multiple benefits to utilizing a data bus like the data bus described in Gelvin—including reducing wiring, allowing multiple devices to communicate directly with

one another, and creating a standard communication protocol that leads to more compatibility amongst a variety of devices. Because of these benefits to using a vehicle data bus, coupled with the fact that many vehicles at the time of the '709 Patent were already using data buses, an ordinary artisan would have found it obvious to try and combine the data bus disclosed in Gelvin with the system described in Trauner.

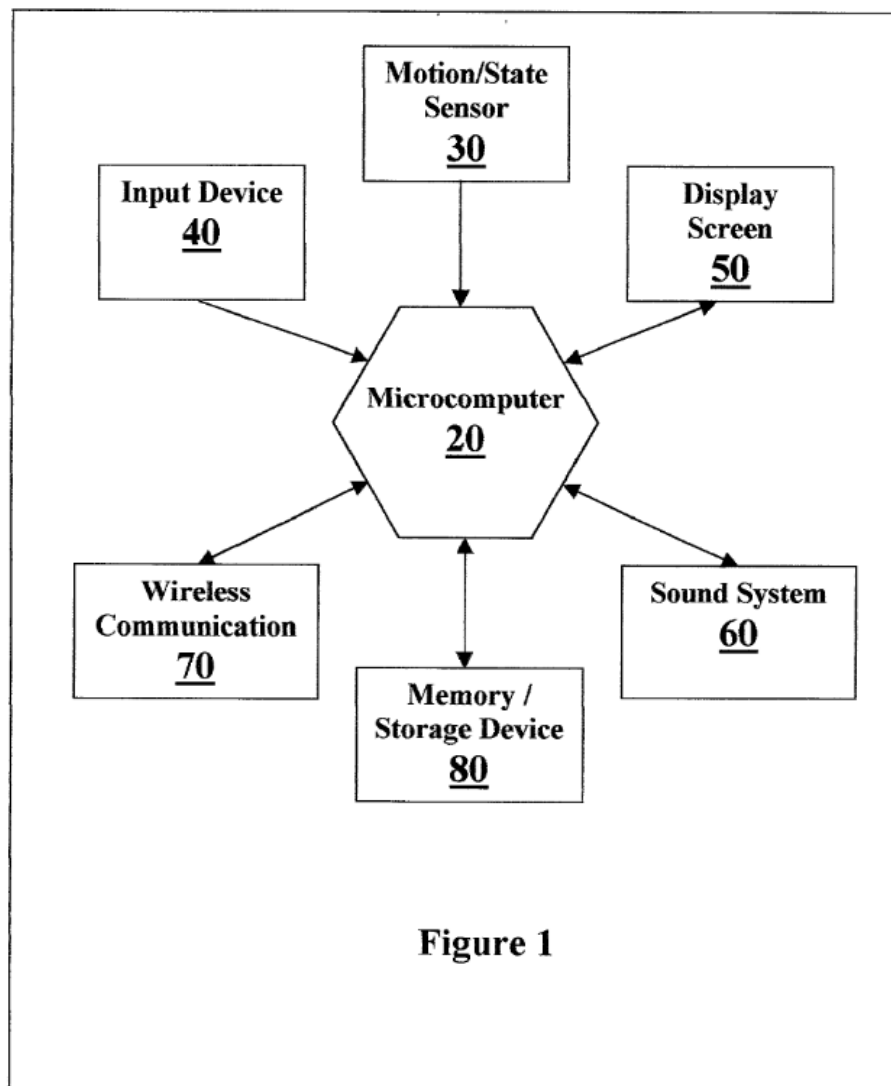
218. Thus, an ordinary artisan would have been motivated to use the data bus disclosed in Gelvin with the system disclosed in Trauner.

2. Analysis of claims 1-3, 5-7 and 14

a. Claim 1

... [1.0] A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the vehicle, the telematics system comprising:

219. Trauner discloses “[t]he system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012.) Figure 1 depicting the described system is shown below.



Ex. 1029, Trauner, Figure 1

220. Thus, Trauner discloses that the described system includes a microcomputer along with a wireless communication device. Trauner further discloses that “[t]he wireless communication device 70 uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers. This technology is now available for PDA's and can be easily integrated into the system.” (Ex. 1029, Trauner at ¶0016.) The ‘709 Patent states that the

“telematic device,” i.e. system, can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Hence, an ordinary artisan would have understood that the system described in Trauner, which is described as including a computer, cell phone and PDA, would constitute the claimed telematic system.

221. As shown above in Figure 1 and described in its specification, Trauner discloses that the system includes various components all connected to a microcomputer. For example:

FIG. 1 is block diagram showing the key components of an embodiment of the system. The system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.

(Ex. 1029, Trauner at ¶0012.)

222. Thus, Trauner discloses connecting the system to sensors (including speed sensors), as well as other devices such as a wireless communication device.

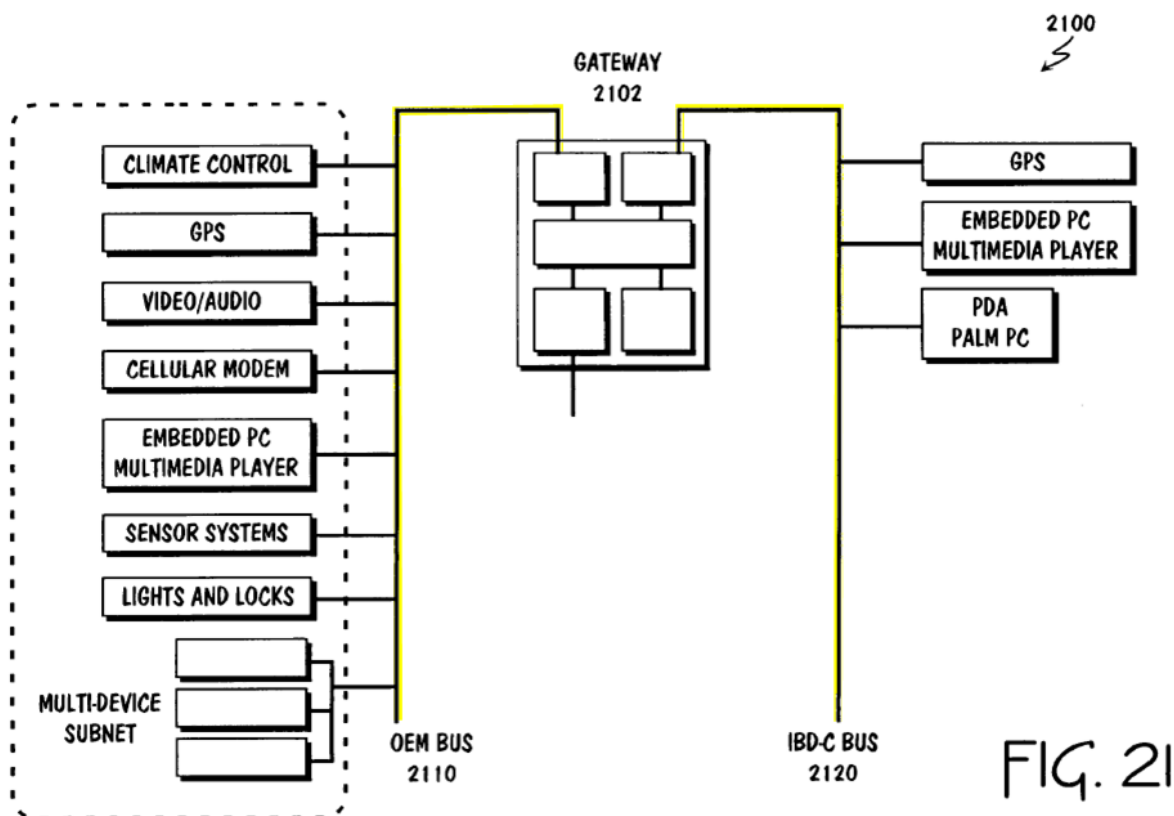
223. Although Trauner does not disclose the use of a vehicle bus, an ordinary artisan would have understood that vehicles at the time of the ‘709 Patent included the use of data buses to connect various devices in the system in order for data to be exchanged between the devices. Indeed, as I describe in the background section

above, at the time of the ‘709 invention, vehicles were often equipped with data buses like the one disclosed in Gelvin.

224. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

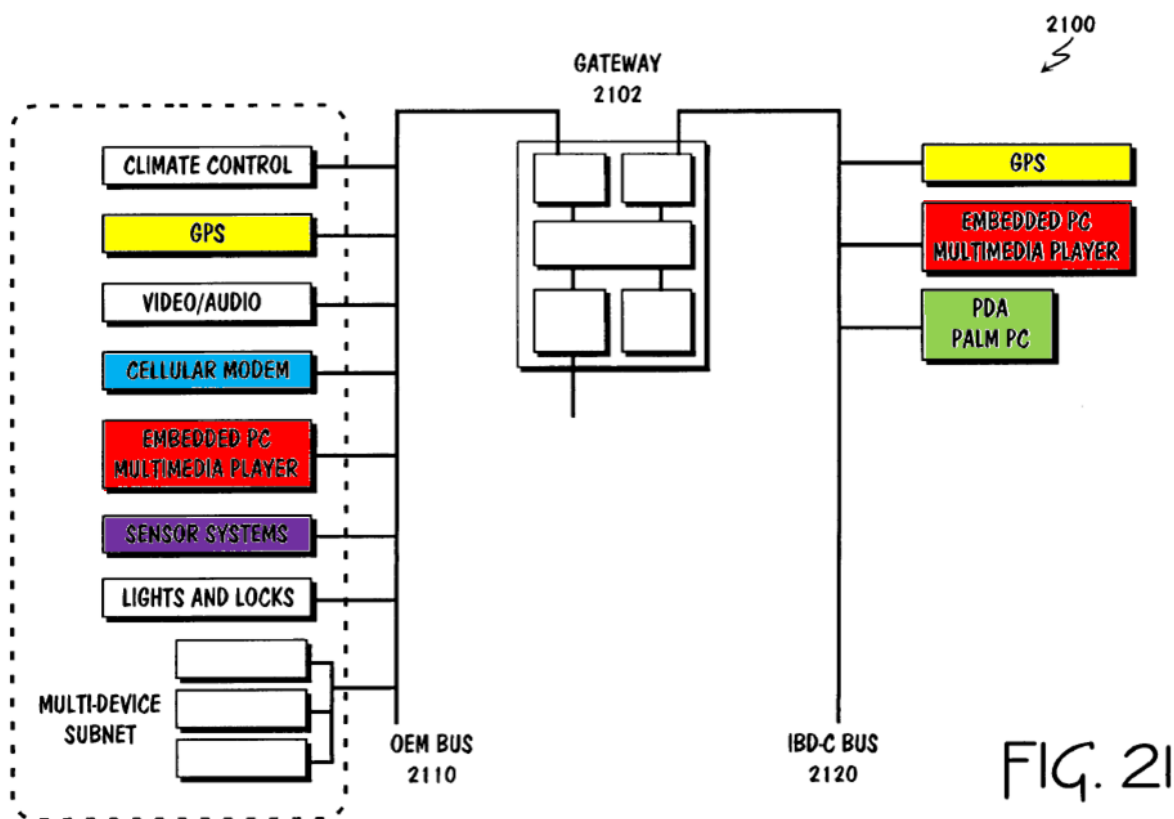
225. As shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires).



Ex. 1027, Gelvin, Fig. 21 (annotated)

226. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Trauner devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices connected to the microcomputer unit of Trauner grows, the number of wires and the number of connectors also grows, thereby adding significant complexity and density to the inputs and outputs of the decision unit. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the decision unit, with one set of wires interconnecting all of the devices. An ordinary

artisan would have understood that such an arrangement significantly reduces the complexity of the interface to the microcomputer, since it would have only a single interface instead of one interface for each device. Indeed, as shown in the annotated version of Figure 21 of Gelvin below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

227. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled

among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited. Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

228. Thus, Gelvin teaches the ability for devices like cellular devices and vehicle sensors, i.e., the devices described in Trauner, to communicate over one or more vehicle buses.

229. Accordingly, it is my opinion that element [1.0] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.1] a first mode of operation and a reduced distractions mode of operation;

230. Trauner discloses a first mode of operation where the driver has complete access to the described system:

In normal use, the driver when stopped would have complete access to the system and the information that would be downloaded.

(Ex. 1029, Trauner at ¶0007.)

231. Trauner next discloses a reduced distractions mode of operation:

However, when the vehicle is in motion the keyboard input and display are inhibited preventing the driver from being distracted while driving.

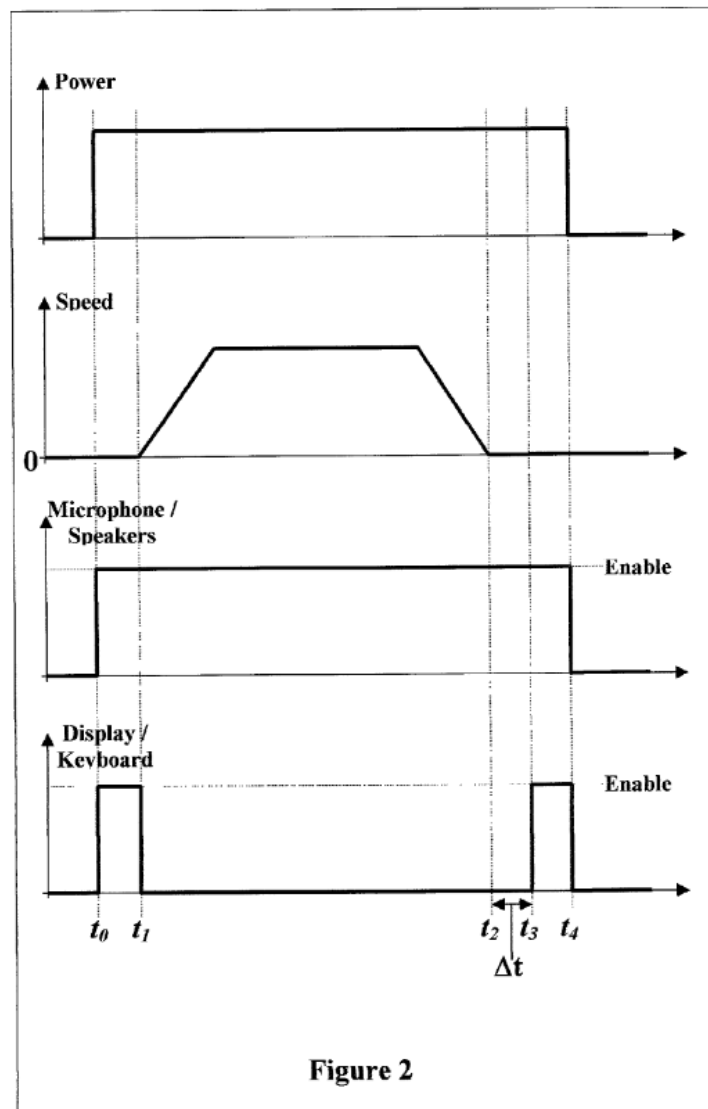
(Ex. 1029, Trauner at ¶0007.)

232. Trauner further discloses the operation of the system in these various modes of operation:

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. *At time t_0 , the driver powers up the system and the vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled and the driver can operate the entire system. At a time t_1 , the driver starts to move and the “Display/Keyboard” state changes to disabled, thereby preventing the driver from looking at the display and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or when the driver changes the*

driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break [sic], or just in any gear or idle, but not moving or exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard” state changes to enabled, once again allowing the driver to view the display and use the hand activated input devices. At a time t_4 , the driver turns the system off by either powering the vehicle off by turning the ignition key to the off position, or deactivating a separate system power switch.

(Ex. 1029, Trauner at ¶0020, emphasis added.)



Ex. 1029, Trauner, Figure 2

233. Accordingly, it is my opinion that element [1.1] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.2] the telematics system configured to be operatively coupled with a cellular phone having at least one feature and an output; the telematics system operable by a driver of the motor vehicle;

234. Trauner discloses that the system is operatively coupled with a cellular phone. Indeed, as described in connection with Figure 1, above, Trauner describes that the cell phone capabilities for connecting to the Internet are operable by the driver: “wireless communication device 70,” which Trauner discloses “uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.” (Ex. 1029, Trauner at ¶0016, Fig. 1.) Trauner further discloses that “the driver could request his/her email, voice mail, daily calendar, weather information, etc., to be downloaded while driving.

(Ex. 1029, Trauner at ¶0017.)

235. Further, as evidenced above, Trauner discloses that the included cellular phone, i.e. “communication device 70,” includes at least one feature. For example, the ability of the phone to provide the user with the aforementioned “email, voice mail, daily calendar, weather information, etc.” (Ex. 1029, Trauner at ¶0017.)

236. Trauner further discloses that the system has “an output”:

[t]he driver can request from the system multiple sets of data that are downloaded and displayed only when the display is enabled.

(Ex. 1029, Trauner at ¶0017.)

237. This data would certainly include the display of information such as email, the daily calendar and weather information discussed above, i.e., visual outputs from the display.

238. Accordingly, it is my opinion that element [1.2] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.3] the telematics system configured to be operatively coupled with a web server;

239. As discussed above, Trauner discloses that the system provides internet access. For example:

[t]he wireless communication device 70 uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.

(Ex. 1029, Trauner at ¶0016.)

240. In my opinion an ordinary artisan would have understood that this connection with wireless Internet providers would allow the telematic system disclosed in Trauner to be operatively coupled with a variety of servers accessible via the Internet, including web servers.

241. Trauner further discloses that PDAs “can be easily integrated into the system.” (Ex. 1029, Trauner at ¶0016), and Trauner discloses that these PDAs are used to access the internet/web.

Internet enabled cell phones and PDAs now allow wireless access to the internet/web. These devices are now used in vehicles to download driving directions, weather information, e-mails, voice mails, and general data.

(Ex. 1029, Trauner at ¶0016.)

242. An ordinary artisan would have understood that in order to “allow access to the []web,” the PDA would connect to a web server (i.e., be “operatively coupled to a web server”), since that is how the “web” operates as the servers store the information that can be downloaded via the Internet when a device accesses the server. Thus, Trauner also discloses the use of integrated PDA’s to operatively couple the described system with web servers on the Internet to allow for downloading e-mails, weather information, driving directions, etc.

243. Accordingly, it is my opinion that element [1.3] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.4] the telematics system being operatively coupled to the vehicle's bus and being configured to receive at least one of a vehicle transmission information and a vehicle movement information from the bus;

244. As discussed above, Trauner discloses that “[t]he system 10 includes a microcomputer 20 that controls system operation, **a vehicle state/motion sensor 30**, an input device 40, a display screen 50, a sound system 60, a wireless communication

device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012, emphasis added.) Thus, Trauner discloses that the system includes, and therefore is operatively coupled to among other devices “vehicle state/motion sensor 30.”

245. Further, Trauner discloses that the system is configured to receive at least transmission information. For example:

[i]n one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.

(Ex. 1029, Trauner at ¶0019.)

246. Trauner also discloses that the vehicle motion/state sensor measures vehicle speed and motion.

The state/motion sensor 30 can be simply a direct electrical connection to the vehicle speedometer, *which provides a signal that is proportional to the speed.*

(Ex. 1029, Trauner at ¶0017, emphasis added.)

247. Thus, Trauner expressly discloses that the telematic system can receive both “a transmission information” and “a vehicle movement information” to determine whether to change the state of the system for determine whether to disable functionality.

248. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the system described in Trauner such that devices like the vehicle state/motion sensor could communicate over a vehicle bus, which was a commonly known technology at the time of the '709 Patent. An ordinary artisan would have understood that the vehicle state (e.g., whether the vehicle is in park or drive) constitutes vehicle transmission information while the motion sensor would sense vehicle movement information.

249. Accordingly, it is my opinion that element [1.4] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.5] the telematics system configured to automatically switch between the first mode of operation and the reduced distractions mode of operation, as a result of at least one predetermined condition being met by the at least one of the transmission information and the vehicle movement information; and,

250. Trauner discloses automatically switching between a first motion of full operation and a reduced distractions mode based on vehicle movement information. Indeed, Trauner discloses that, for example, the keyboard is enabled when the vehicle is stopped and it is disabled when it is in motion.

[i]n normal use, the driver when stopped would have complete access to the system and the information that would be downloaded. However,

when the vehicle is in motion the keyboard input and display are inhibited preventing the driver from being distracted while driving.

(Ex. 1029, Trauner at ¶0007, emphasis added.)

251. As noted above, Trauner similarly discloses “[t]he state/motion sensor 30 can be simply a direct electrical connection to the vehicle speedometer, which provides a signal that is proportional to the speed. In this case the microprocessor compares the vehicle speed to the maximum allowable speed and if the speed is lower, then the display and input devices are enabled.” (Ex. 1029, Trauner at ¶0017.) Thus, Trauner discloses that when the vehicle is stopped the driver has full use of the keyboard input and display, but when the vehicle is in motion (vehicle movement information is provided), those functions are automatically inhibited.

252. Similarly, as discussed above, Trauner discloses automatically switching between a first mode of full operation and a reduced distractions mode based on vehicle transmission information.

[i]n one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.

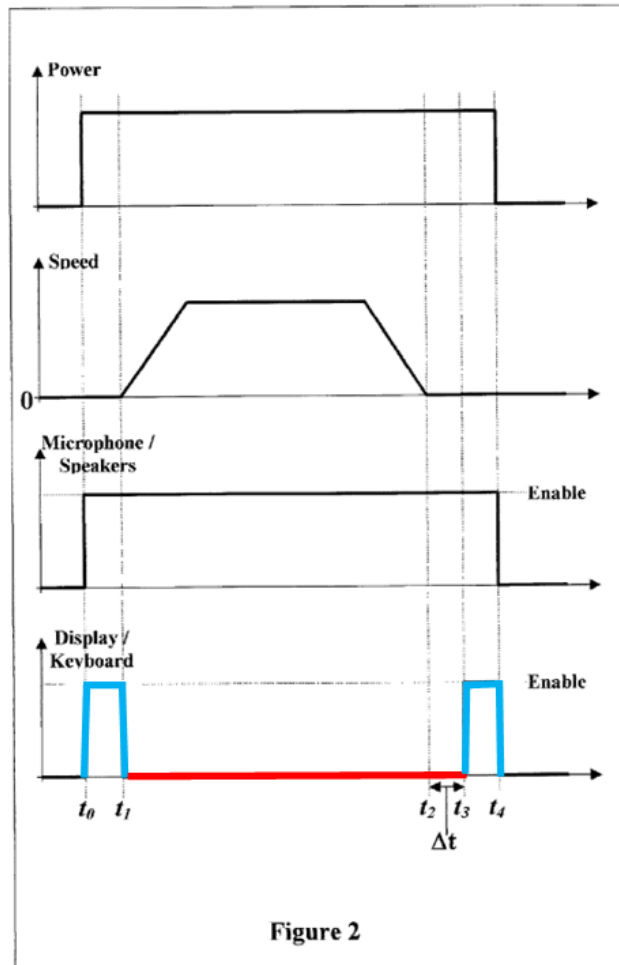
(Ex. 1029, Trauner at ¶0019.)

253. Trauner further discloses, , enabling (shown in blue below) and disabling (shown in red below) the keyboard and display based on vehicle speed and transmission position.

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. At time t_0 , the driver powers up the system and the *vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled and the driver can operate the entire system.* At a time t_1 , the *driver starts to move and the “Display/Keyboard” state changes to disabled*, thereby preventing the driver from looking at the display and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or *when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break, or just in any gear or idle, but not moving or exceeding a predetermined speed e.g., 2 mph), the*

“Display/Keyboard” state changes to enabled, once again allowing the driver to view the display and use the hand activated input devices.

(Ex. 1029, Trauner at ¶0020, emphasis added.)



Ex. 1029, Trauner, Figure 2 (annotated)

254. Thus, Trauner discloses that when the vehicle is in park the driver has full use of the keyboard input and display, but when the vehicle is in drive (and moving) (vehicle transmission and speed information is provided), those functions are automatically inhibited.

255. Accordingly, it is my opinion that element [1.5] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.6] wherein the telematics system, while operating in the reduced distractions mode of operation, is configured to disable the at least one feature, suppress at least a portion of the output and

256. As discussed above, Trauner discloses that when the vehicle is in motion, both the keyboard and display are disabled.

“Display/Keyboard” state changes to disabled, thereby *preventing the driver from looking at the display* and using any of the hand activated input devices.

(Ex. 1029, Trauner at ¶¶ 0020, 0007, 0017 (emphasis added).)

257. In my opinion an ordinary artisan would have understood that if the display is disabled in order to prevent the driver from looking at the display, an output from the system is “suppressed” as claimed.

258. Accordingly, it is my opinion that element [1.6] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [1.7] provide at least one indicium to the driver that the reduced distractions mode of operation is active; wherein the at least one indicium is presented by the motor vehicle.

259. Trauner discloses:

While moving, the present system can be put into a mode to slowly read the downloaded information via computer voice synthesis. Voice confirmation may be provided that searches have been completed (while the vehicle is in motion).

(Ex. 1029, Trauner at ¶0021.)

260. Thus, Trauner discloses that the driver is provided voice (audible) notification of downloaded information specifically because the vehicle is moving, and the display is disabled. An ordinary artisan would have understood that these voice synthesis confirmations would have acted as an indicium to the driver that the vehicle is in a reduced distraction mode because these functions are disclosed as occurring in the display-disabled mode.

261. Trauner further renders element [1.7] obvious in view of Krueger, which discloses that “[i]f the telephone function of the car phone 12 or the operability of the car radio 11 is suspended due to the current vehicle speed, *the driver can be optically or acoustically informed of this state* at the same time the signal is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 3:3-7, emphasis added.) Thus, Krueger discloses that at least one of an optical or acoustic indicium will be provided to the driver by the vehicle indicating that reduced distraction mode is the current state of the vehicle.

262. An ordinary artisan would have recognized the benefits of including a feature to optically or acoustically inform the driver that the vehicle is in reduced

functionality mode, i.e. reduced distraction mode. An ordinary artisan would have understood that adding the functionality from Krueger to the system in Trauner would have benefited the system disclosed in Trauner because it would provide the driver notification that the current conditions of the vehicle reflect increased driving risk and thus the driver should increase his or her alertness and avoid distractive behavior. Such an indicium would also assure that the driver did not become confused when certain features were disabled, since the system would be indicating that they had been disabled. This would avoid the driver from becoming concerned that the system was malfunctioning. This could lead to a decrease in driving incidents, such as accidents, and could even save lives. An ordinary artisan would have further been motivated to combine the teachings in Krueger with Trauner given that both references teach methods for distraction avoidance, and thus using certain methods from Krueger to improve Trauner would have been obvious to try as both systems focus on solving the same problem in similar ways.

263. Accordingly, it is my opinion that element [1.7] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin alone, or in further view of the combination of Trauner, Gelvin and Krueger.

b. Claim 2

... [2] The telematics system of claim 1, further configured to provide a second output format instead of the suppressed output format.

264. Trauner discloses that, while driving the system can receive voice input, and use voice synthesis to output data that would otherwise be displayed. For example:

The driver can request from the system multiple sets of data that are downloaded and displayed only when the display is enabled. However, *the driver could request this information through voice recognition when the vehicle is moving.* For example, the driver could request his/her email, voice mail, daily calendar, weather information, etc., to be downloaded while driving. *Voice synthesizing software and speakers can allow the onboard CPU to “read aloud” the screen-blank-hidden* but in memory data requested by the driver or given passenger.

(Ex. 1029, Trauner at ¶0017, emphasis added.)

265. Thus, Trauner discloses an alternative embodiment where the suppressed display information is synthesized into a second “voice” output format.

266. Accordingly, it is my view based on my analysis above, that claim 2 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

c. Claim 3

... [3] The telematics system of claim 1, further configured to receive settings from the web server.

267. Trauner discloses that “Internet enabled cell phones and PDAs now allow wireless access to the internet/web. These devices are now used in vehicles to download driving directions, weather information, e-mails, voice mails, and general data. Cell phone, PDAs and information systems are now being integrated into luxury automobiles.” (Ex. 1029, Trauner at ¶0004.) Trauner discloses that the described system includes “wireless communication device 70” that “uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.” (Ex. 1029, Trauner at ¶0016.) Thus, Trauner discloses that the system uses cellular technology to communicate with outside devices, which an ordinary artisan reading Trauner would have understood could include downloading settings such as driving directions, weather information and other data. In addition, Trauner describes using the system for receiving email. In my opinion, an ordinary artisan would have recognized that email is displayed in a list form in what is commonly known as an “inbox,” and the display of specific information, for example an email inbox with newly received emails highlighted or otherwise indicated, comprises a new “setting” for the email inbox, thus receipt of this sort of

state-change information, as opposed to simply a web page, would represent a changed “setting” in the system.

268. In addition, Gelvin describes managing vehicle data systems remotely via web and Internet interfaces. For example:

The internetwork further includes bridging among the vehicular networks 2202 and cellular modems or services 2206, which may for example provide PCS and GSM wide-area access to the Internet 2299. Among the functions enabled are remote access to controls, diagnostic data and security functions via standard Web interfaces, and exchange of email. Other electronic services supported include access to a server 2210 enabling global Internet access. With this access, a SQL server can be used to provide database services for management of vehicle data systems.

(Ex. 1027, Gelvin at 28:22-31.)

269. In my opinion an ordinary artisan would have understood that such internet and web interfaces would interface to a web server. An ordinary artisan would also have understood that “management of vehicle data systems” would include setting various parameters associated with those systems, that is, to manage the vehicle data systems, the vehicle would receive settings from a web server via the web/internet interfaces described by Gelvin above.

270. Accordingly, it is my view based on my analysis above, that claim 3 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

d. Claim 5

... [5.0] A method for providing safety to a driver in a motor vehicle that includes a bus, a cellular phone and a web server, the method comprising:

271. As discussed above, Trauner discloses “[t]he system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012.) Figure 1 depicting the described system is shown below.

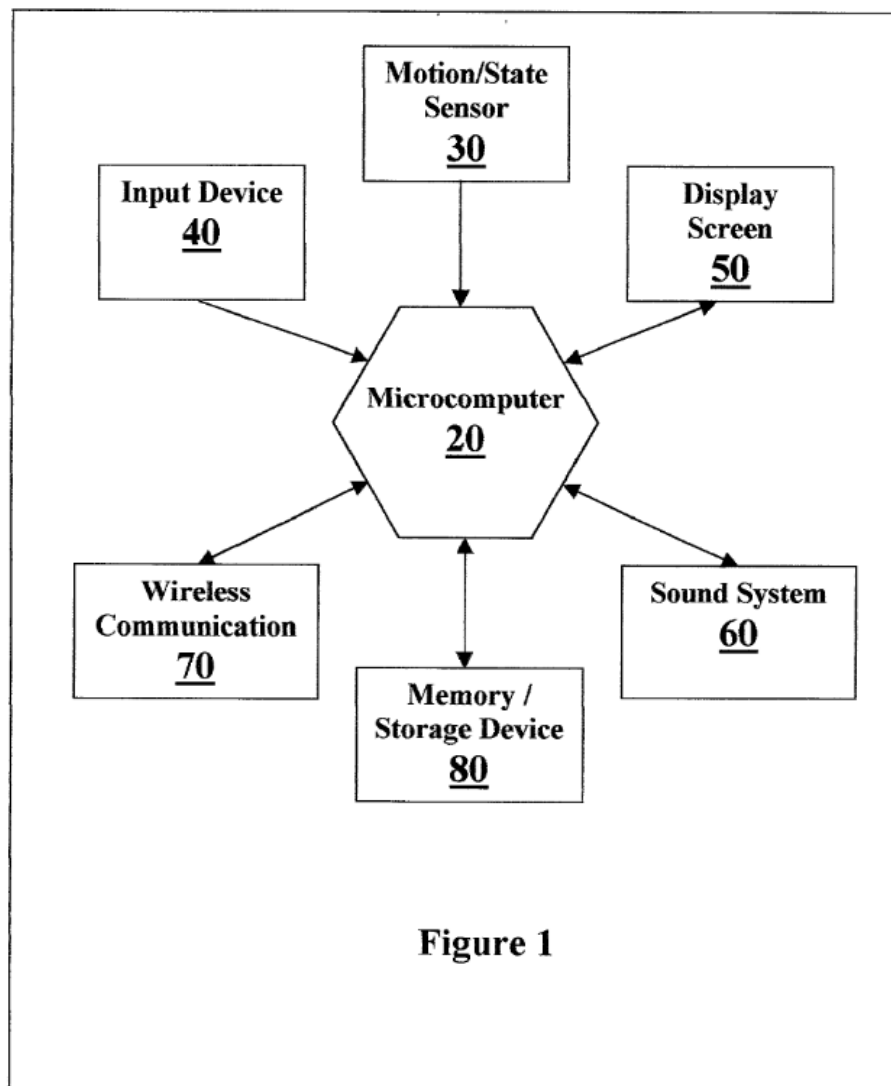


Figure 1

Ex. 1029, Trauner, Figure 1

272. Thus, Trauner discloses that the described system includes a microcomputer along with a wireless communication device. Trauner further discloses that “[t]he wireless communication device 70 uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers. This technology is now available for PDA's and can be easily integrated into the system.” (Ex. 1029, Trauner at ¶0016.) The ‘709 Patent states that the

“telematic device,” i.e. system, can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Hence, an ordinary artisan would have understood that the system described in Trauner, which is described as including a computer, cell phone and PDA, would constitute the claimed telematic system.

273. As shown above in Figure 1, and described in its specification, Trauner discloses that the system includes various components all connected to a microcomputer. For example:

FIG. 1 is block diagram showing the key components of an embodiment of the system. The system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.

(Ex. 1029, Trauner at ¶0012.)

274. Thus, Trauner discloses connecting the system to sensors (including speed sensors), as well as other devices such as a wireless communication device.

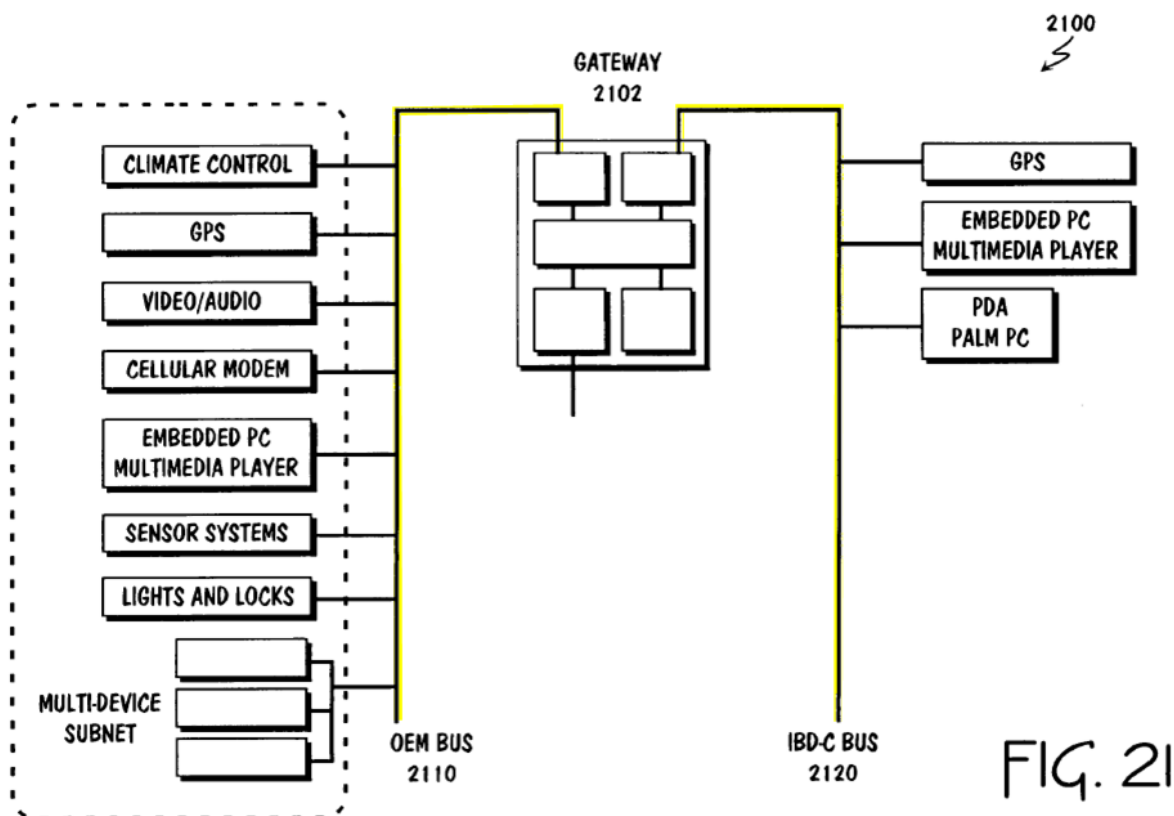
275. Although Trauner does not disclose the use of a vehicle bus, an ordinary artisan would have understood that vehicles at the time of the ‘709 Patent included the use of data buses to connect various devices in the system in order for data to be exchanged between the devices. Indeed, as I describe in the background section

above, at the time of the ‘709 invention, vehicles were often equipped with data buses like the one disclosed in Gelvin.

276. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

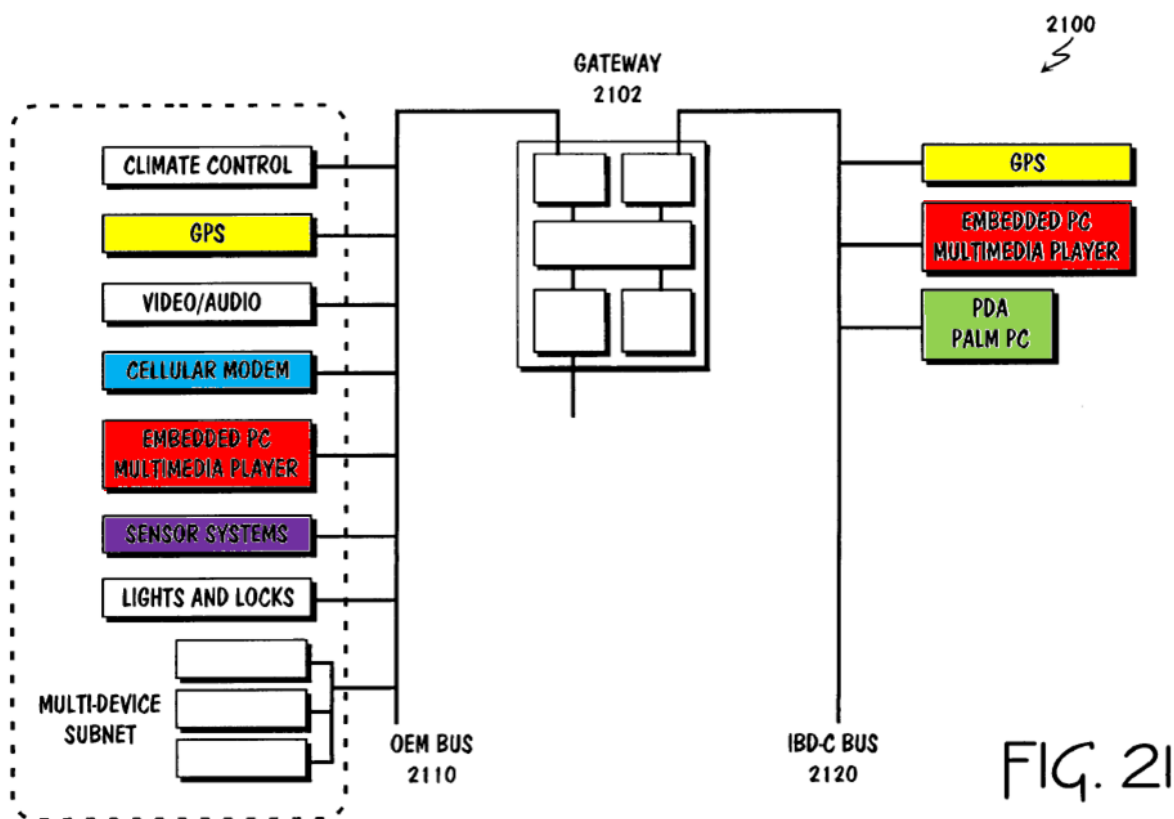
277. As shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires).



Ex. 1027, Gelvin, Fig. 21 (annotated)

278. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Trauner devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices connected to the microcomputer unit of Trauner grows, the number of wires and the number of connectors also grows, thereby adding significant complexity and density to the inputs and outputs of the decision unit. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the decision unit, with one set of wires interconnecting all of the devices. An ordinary

artisan would have understood that such an arrangement significantly reduces the complexity of the interface to the microcomputer, since it would have only a single interface instead of one interface for each device. Indeed, as shown in the annotated version of Figure 21 of Gelvin below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

279. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled

among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited. Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

280. Thus, Gelvin teaches the ability for devices like cellular devices and vehicle sensors, i.e., the devices described in Trauner, to communicate over one or more vehicle buses.

281. Accordingly, it is my opinion that element [5.0] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [5.1] receiving at a controller a vehicle transmission information and a vehicle movement information from the bus;

282. Trauner discloses that “microcomputer 20 includes a microprocessor, memory, and electronics to condition inputs, drive the display, wireless communication device, and memory/storage devices.” (Ex. 1029, Trauner at ¶0013.) Thus, Trauner discloses that the microcomputer is the device that drives the other devices in the system including the display and wireless communication device. An

ordinary artisan would have understood that the microcomputer functions as a controller of the system. Indeed, Trauner states that the “system 10 includes a *microcomputer 20 that controls system operation.*” (Ex. 1029, Trauner at ¶0012, emphasis added.)

283. As discussed above, Trauner discloses that “[t]he system 10 includes a microcomputer 20 that controls system operation, *a vehicle state/motion sensor 30*, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012, emphasis added.) As shown in the annotated version of Figure 1 below the “microcomputer 20” (shown in yellow) is connected to “Motion/State Sensor 30” (shown in blue), which provides the microcomputer the vehicle transmission information and vehicle movement information.

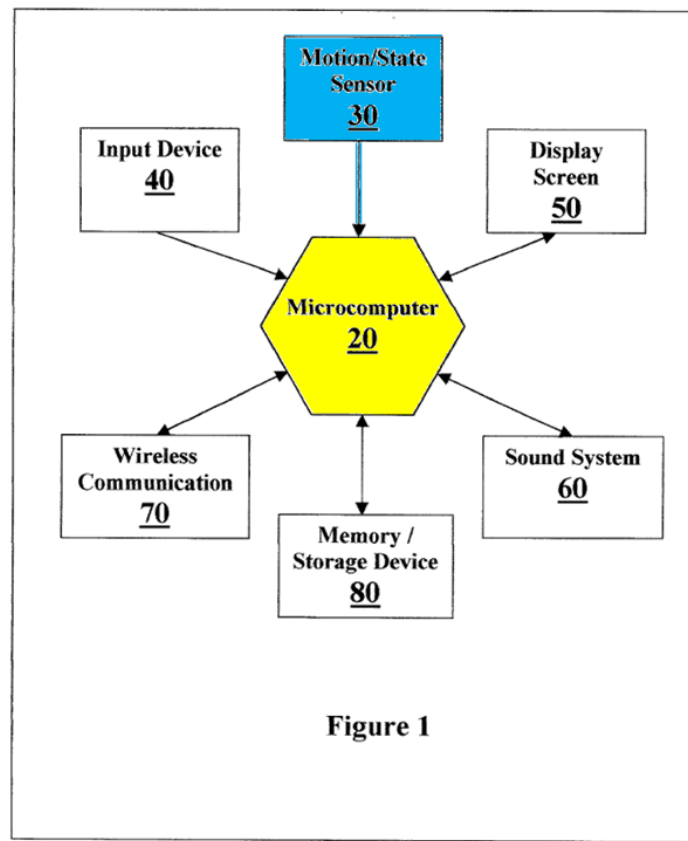


Figure 1

Ex. 1029, Trauner, Figure 1 (annotated)

284. Further, Trauner discloses receiving transmission information:

[i]n one embodiment, the *state/motion sensor 30 can include a monitor of the transmission state*. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.

(Ex. 1029, Trauner at ¶0019, emphasis added.)

285. Thus, Trauner expressly discloses that the telematic system can receive both vehicle movement (speed) and transmission information to determine whether to change the state of the system for determining whether to disable functionality.

286. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the system described in Trauner such that devices like the vehicle state/motion sensor could communicate over a vehicle bus, which was a commonly known technology at the time of the '709 Patent. An ordinary artisan would have understood that the vehicle state (e.g., whether the vehicle in park or drive) constitutes vehicle transmission information while the motion sensor would sense vehicle movement information.

287. Accordingly, it is my opinion that element [5.1] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [5.2] determining from at least one of the vehicle transmission information and the vehicle movement information, that a predetermined condition has been met;

288. Trauner discloses determining from at least one of the vehicle transmission information and the vehicle movement information that a predetermined condition has been met. Indeed, Trauner discloses that, for example, the vehicle display is disabled when the vehicle is in motion:

[i]n normal use, the driver when stopped would have complete access to the system and the information that would be downloaded. However, when the vehicle is in motion the keyboard input and display are inhibited preventing the driver from being distracted while driving.

(Ex. 1029, Trauner at ¶0007.)

289. Trauner similarly discloses “[t]he state/motion sensor 30 can be simply a direct electrical connection to the vehicle speedometer, which provides a signal that is proportional to the speed. In this case the microprocessor compares the vehicle speed to the maximum allowable speed and if the speed is lower, then the display and input devices are enabled.” (Ex. 1029, Trauner at ¶0017.) Thus, Trauner discloses that when the vehicle is stopped the driver has full use of the keyboard input and display, but when the vehicle is in motion (vehicle movement information is provided), those functions are automatically inhibited. Thus, Trauner determines, based on vehicle movement information, whether the predetermined condition (e.g., in motion or not) is met, and enables or disables the display accordingly.

290. Similarly, Trauner discloses determining whether a predetermined condition has been met based on vehicle transmission information.

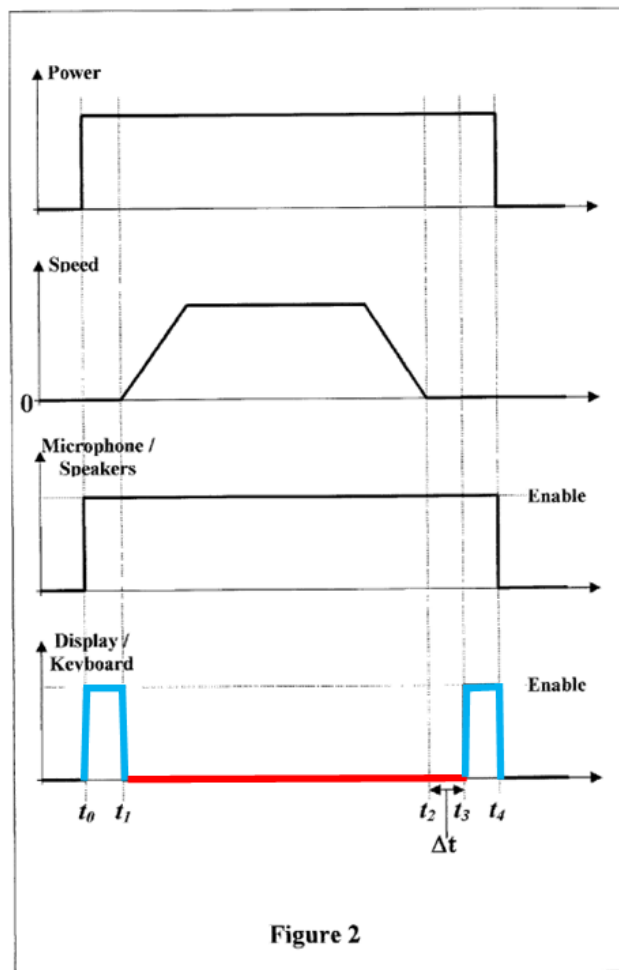
[i]n one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.

(Ex. 1029, Trauner at ¶0019.)

291. Trauner further discloses, in Figure 2 annotated below, enabling (shown in blue below) and disabling (shown in red below) the keyboard and display based on vehicle movement and transmission information.

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. *At time t_0 , the driver powers up the system and the vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled* and the driver can operate the entire system. At a time t_1 , *the driver starts to move and the “Display/Keyboard” state changes to disabled, thereby preventing the driver from looking at the display* and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or *when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break, or just in any gear or idle, but not moving or exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard” state changes to enabled*, once again allowing the driver to view the display and use the hand activated input devices.

(Ex. 1029, Trauner at ¶0020, emphasis added.)



Ex. 1029, Trauner, Figure 2 (annotated)

292. Thus, Trauner discloses that when the vehicle is in park the driver has full use of the keyboard input and display, but when the vehicle is in drive (and moving) (vehicle transmission information is provided), those functions are automatically inhibited. In my opinion an ordinary artisan would recognize that whether the vehicle is in park or drive is another predetermined condition taught by Trauner.

293. Accordingly, it is my opinion that element [5.2] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [5.3] the controller, in response to determining that the predetermined condition has been met, switching between a first mode of operation having at least one feature wherein the at least one feature includes an output and a reduced distractions mode;

294. Trauner discloses switching between a first mode of full operation and a reduced distractions mode based on vehicle movement information. Indeed, Trauner discloses that “[i]n normal use, the driver when stopped would have complete access to the system and the information that would be downloaded. However, when the vehicle is in motion the keyboard input and display are inhibited preventing the driver from being distracted while driving.” (Ex. 1029, Trauner at ¶0007.) Trauner similarly discloses “[t]he state/motion sensor 30 can be simply a direct electrical connection to the vehicle speedometer, which provides a signal that is proportional to the speed. In this case the microprocessor compares the vehicle speed to the maximum allowable speed and if the speed is lower, then the display and input devices are enabled.” (Ex. 1029, Trauner at ¶0017.) Thus, Trauner discloses that when the vehicle is stopped the driver has full use of the keyboard input and display, but when the vehicle is in motion (vehicle movement information is provided), those functions are automatically inhibited.

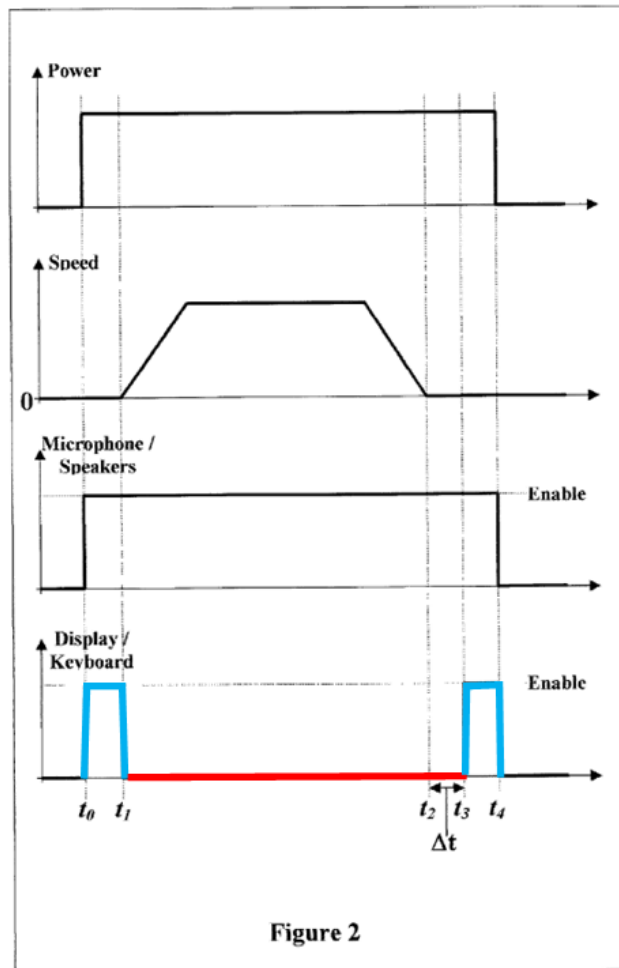
295. Similarly, Trauner discloses switching between a first mode of full operation and a reduced distractions mode based on vehicle transmission information. Trauner discloses “[i]n one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.” (Ex. 1029, Trauner at ¶0019.)

296. Trauner also discloses, in Figure 2 annotated below, enabling (shown in blue below) and disabling (shown in red below) the keyboard and display based on transmission position.

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. At time t_0 , the *driver powers up the system and the vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled* and the driver can operate the entire system. At a time t_1 , the *driver starts to move and the “Display/Keyboard” state changes to disabled*, thereby

preventing the driver from looking at the display and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or *when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break, or just in any gear or idle, but not moving or exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard” state changes to enabled*, once again allowing the driver to view the display and use the hand activated input devices.

(Ex. 1029, Trauner at ¶0020, emphasis added.)



Ex. 1029, Trauner, Figure 2 (annotated)

297. Thus, Trauner discloses that when the vehicle is in park the driver has full use of the keyboard input and display, but when the vehicle is in drive (and moving) (vehicle transmission information is provided), those functions are automatically inhibited.

298. Accordingly, it is my opinion that element [5.3] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [5.4] wherein in the reduced distractions mode of operation the at least one feature is disabled and at least a portion of the output is suppressed;

299. As discussed above, Trauner discloses that when the vehicle is in motion, both the keyboard and display is disabled. (Ex. 1029, Trauner at ¶¶0007, 0017.) Similarly, Trauner discloses that when the vehicle transmission is moved from park to drive, the keyboard and display are disabled. (Ex. 1029, Trauner at ¶¶0019-20.) Hence, Trauner discloses that the display and keyboard features are disabled and at least the outputs coming from the display are suppressed.

300. Accordingly, it is my opinion that element [5.4] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [5.5] and the controller providing at least one indicium from the motor vehicle that the reduced distractions mode of operation is active.

301. Trauner discloses

While moving, the present system can be put into a mode to slowly read the downloaded information via computer voice synthesis. Voice confirmation may be provided that searches have been completed (while the vehicle is in motion).

(Ex. 1029, Trauner at ¶0021.)

302. Thus, Trauner discloses that that the driver is provided voice (audible) notification of downloaded information specifically because the vehicle is moving, and the display is disabled. An ordinary artisan would have understood that these voice synthesis confirmations would have acted as an indicum to the driver that the vehicle is in a reduced distraction mode because these functions are disclosed as occurring in the mode.

303. Trauner further renders element [5.5] obvious in view of Krueger, which discloses that “[i]f the telephone function of the car phone 12 or the operability of the car radio 11 is suspended due to the current vehicle speed, *the driver can be optically or acoustically informed of this state* at the same time the signal is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 3:3-7, emphasis added.) Thus, Krueger discloses that at least one of an optical or acoustic indicium will be provided to the driver by the vehicle indicating that reduced distraction mode is the current state of the vehicle.

304. An ordinary artisan would have recognized the benefits of including a feature to optically or acoustically inform the driver that the vehicle is in reduced functionality mode, i.e. reduced distraction mode. An ordinary artisan would have understood that adding the functionality from Krueger to the system in Trauner would have benefited the system disclosed in Trauner because it would provide the driver notification that the current conditions of the vehicle reflect increased driving

risk and thus the driver should increase his or her alertness and avoid distractive behavior. Such an indicium would also assure that the driver did not become confused when certain features were disabled, since the system would be indicating that they had been disabled. This would avoid the driver from becoming concerned that the system was malfunctioning. This could lead to a decrease in driving incidents, such as accidents, and could even save lives. An ordinary artisan would have further been motivated to combine the teachings in Krueger with Trauner given that both references teach methods for distraction avoidance, and thus using certain methods from Krueger to improve Trauner would have been obvious to try as both systems focus on solving the same problem in similar ways.

305. Accordingly, it is my opinion that element [5.5] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin. It is further my view based on my analysis above, that claim 5 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

e. Claim 6

... [6] The method according to claim 5 further including the controller receiving at least one setting from the web server.

306. As discussed above for claim 3, Trauner discloses that “Internet enabled cell phones and PDAs now allow wireless access to the internet/web. These devices

are now used in vehicles to download driving directions, weather information, e-mails, voice mails, and general data. Cell phone, PDAs and information systems are now being integrated into luxury automobiles.” (Ex. 1029, Trauner at ¶0004.) Trauner discloses that the described system includes “wireless communication device 70” that “uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.” (Ex. 1029, Trauner at ¶0016.) Thus, Trauner discloses that the system uses cellular technology to communicate with outside devices, which an ordinary artisan reading Trauner would have understood could include downloading settings such as driving directions, weather information and other general data.

307. In addition, Trauner describes using the system for receiving email. In my opinion, an ordinary artisan would have recognized that email is displayed in a list form in what is commonly known as an “inbox,” and the display of specific information, for example an email inbox with newly received emails indicated comprises a new “setting” for the email inbox, thus receipt of this sort of state-change information, as opposed to simply a web page, would represent a changed “setting” in the system.

308. In addition, Gelvin describes managing vehicle data systems remotely via web and Internet interfaces. For example:

The internetwork further includes bridging among the vehicular networks 2202 and cellular modems or services 2206, which may for example provide PCS and GSM wide-area access to the Internet 2299. Among the functions enabled are remote access to controls, diagnostic data and security functions via standard Web interfaces, and exchange of email. Other electronic services supported include access to a server 2210 enabling global Internet access. With this access, a SQL server can be used to provide database services for management of vehicle data systems.

(Ex. 1027, Gelvin at 28:22-31.)

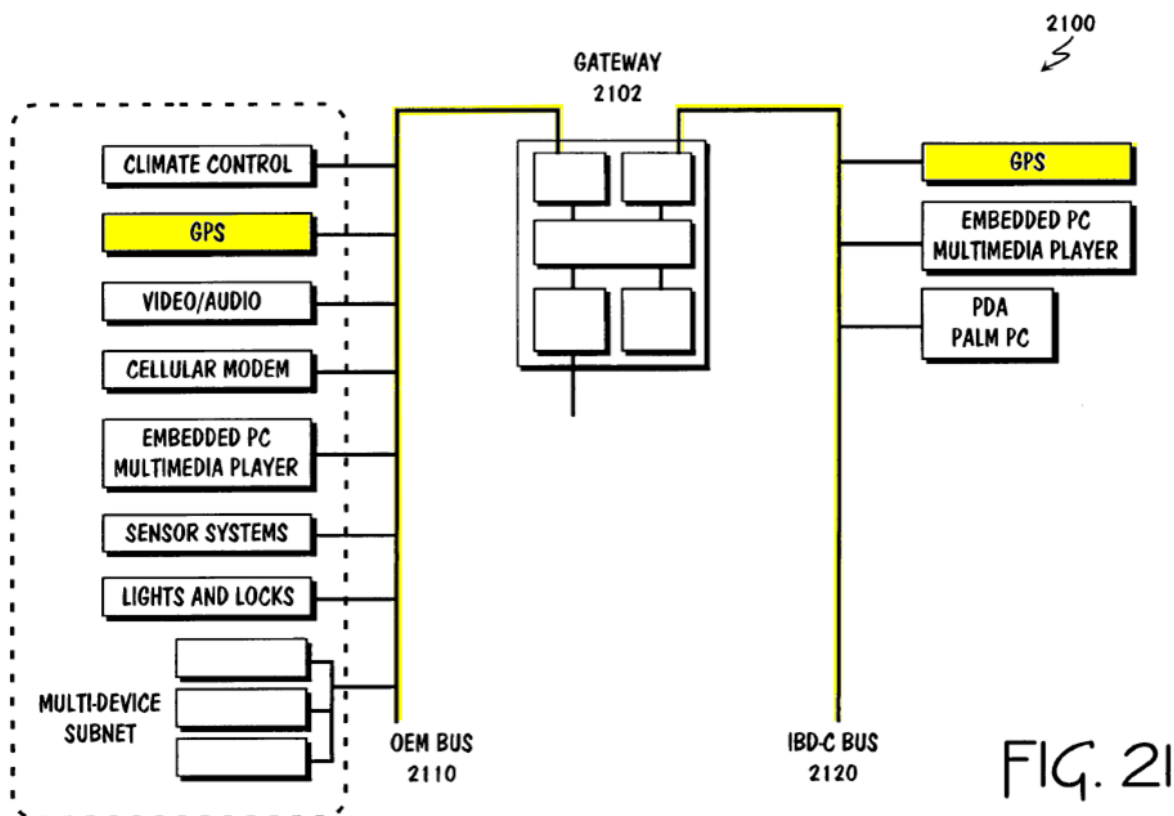
309. In my opinion an ordinary artisan would have understood that such internet and web interfaces would interface to a web server. An ordinary artisan would also have understood that “management of vehicle data systems” would include setting various parameters associated with those systems, that is, to manage the vehicle data systems, the vehicle would receive settings from a web server via the web/internet interfaces described by Gelvin above.

310. Accordingly, it is my view based on my analysis above, that claim 6 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

f. Claim 7

... [7] The method according to claim 5, further including the controller receiving a navigation information from the bus.

311. As shown below in yellow for Figure 21, Gelvin discloses that GPS devices communicate over both the OEM Bus 2110 and IBD-C Bus 2120. (Ex. 1027, Gelvin at 27:53-65.) An ordinary artisan would have understood that this disclosure shows that the buses described in Gelvin support communicating navigation information (e.g. GPS position information) from those GPS devices over the network. Indeed, Gelvin discloses that: (1) “[v]ehicle functions supported by the OEM network 2110 include. . .Global Positioning System (GPS),” and (2) “[d]evices supported on the IDB-C bus 2120 include. . .GPS units.” (Ex. 1027, Gelvin at 27:57-59, 27:63-64.)



Ex. 1027, Gelvin at Figure 21 (annotated)

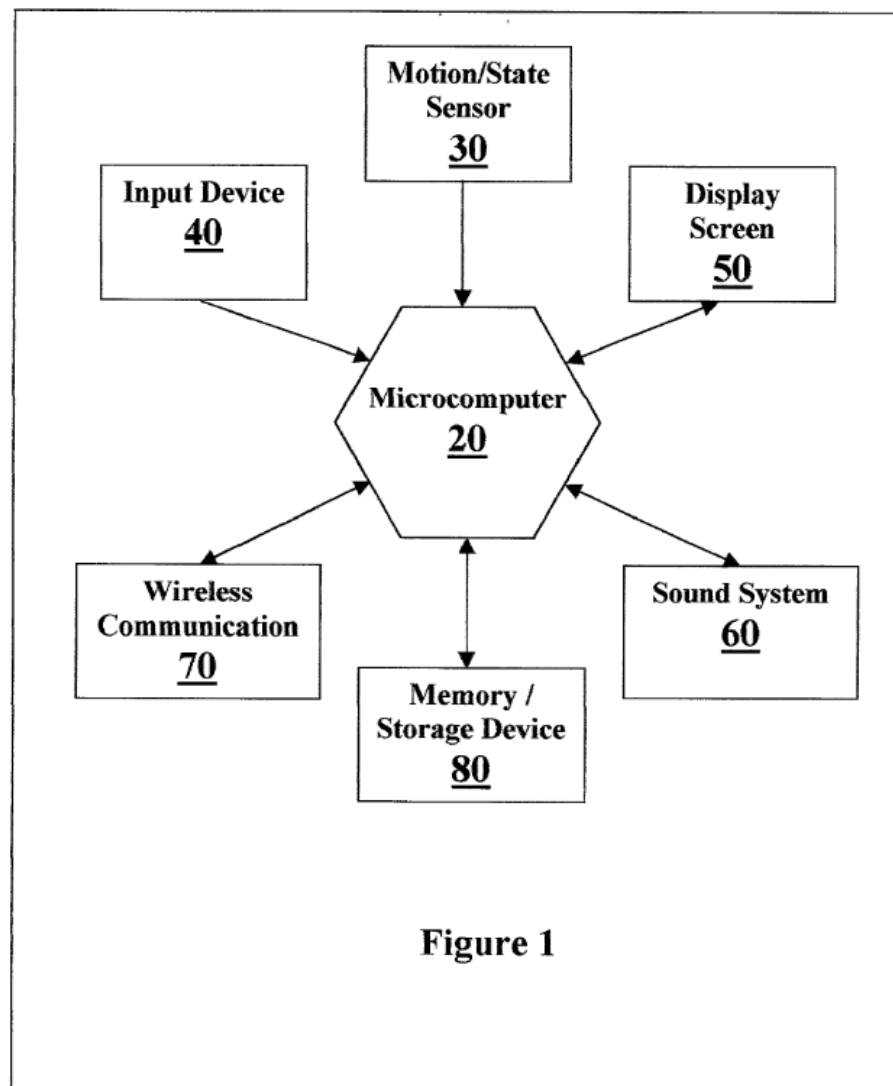
312. Trauner discloses various navigation information—like the information Gelvin discloses – that could be communicated: “‘GPS map’ plots the current car position, ‘traffic monitor’ generates a traffic search for the current GPS position and ‘check e-mail account x’ checks account x e-mail.” (Ex. 1029, Trauner at ¶0021.) An ordinary artisan would have understood that the GPS position data, e.g, navigation information, used in Trauner could be communicated over the vehicle buses described in Gelvin.

313. Accordingly, it is my view based on my analysis above, that claim 7 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

g. Claim 14

... [14.0] A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the motor vehicle, the telematics system comprising:

314. Trauner discloses “[t]he system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012.) Figure 1 depicting the described system is shown below.



Ex. 1029, Trauner, Figure 1

315. Thus, Trauner discloses that the described system includes a microcomputer along with a wireless communication device. Trauner further discloses that “[t]he wireless communication device 70 uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers. This technology is now available for PDA's and can be easily integrated into the system.” (Ex. 1029, Trauner at ¶0016.) The ‘709 Patent states that the

“telematic device,” i.e. system, can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Hence, an ordinary artisan would have understood that the system described in Trauner, which is described as including a computer, cell phone and PDA, would constitute the claimed telematic system.

316. As shown above in Figure 1, and described in its specification, Trauner discloses that the system includes various components all connected to a microcomputer. For example:

FIG. 1 is block diagram showing the key components of an embodiment of the system. The system 10 includes a microcomputer 20 that controls system operation, a vehicle state/motion sensor 30, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.

(Ex. 1029, Trauner at ¶0012.)

317. Thus, Trauner discloses connecting the system to sensors (including speed sensors), as well as other devices such as a wireless communication device.

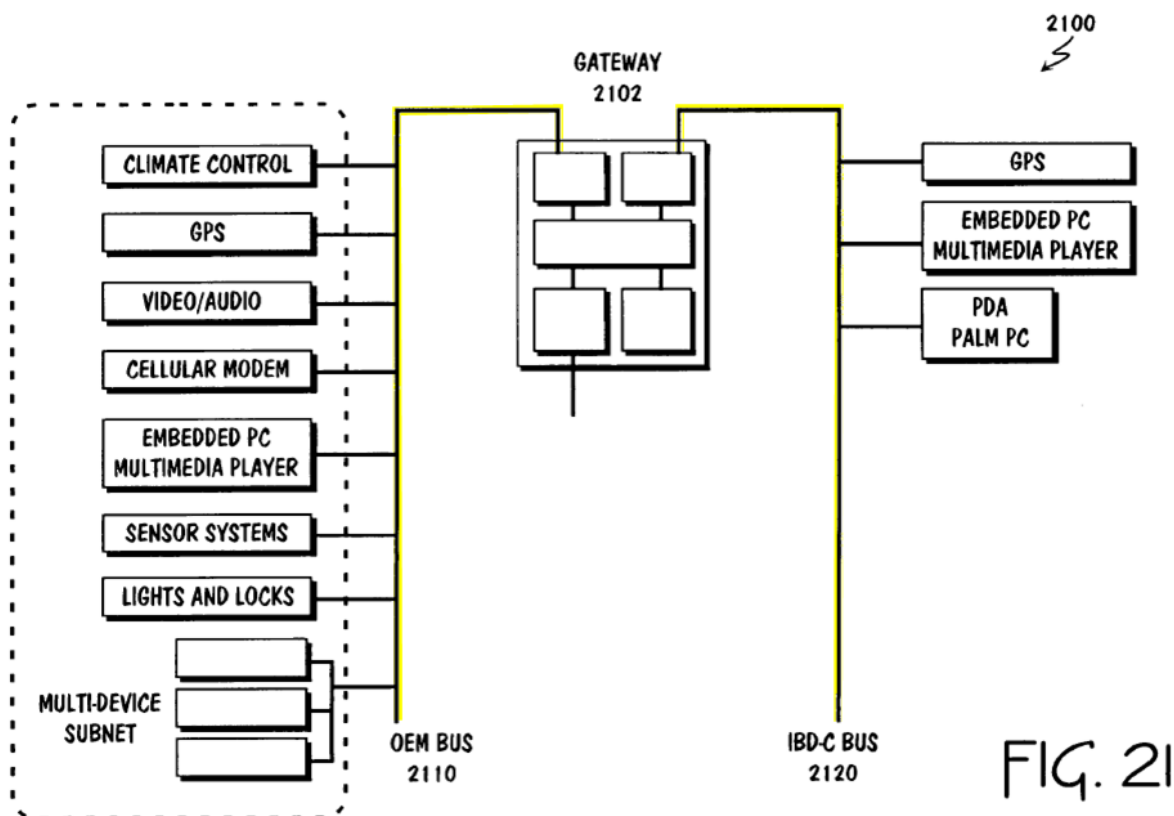
318. Although Trauner does not disclose the use of a vehicle bus, an ordinary artisan would have understood that vehicles at the time of the ‘709 Patent included the use of data buses to connect various devices in the system in order for data to be exchanged between the devices. Indeed, as I describe in the background section

above, at the time of the ‘709 invention, vehicles were often equipped with data buses like the one disclosed in Gelvin.

319. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

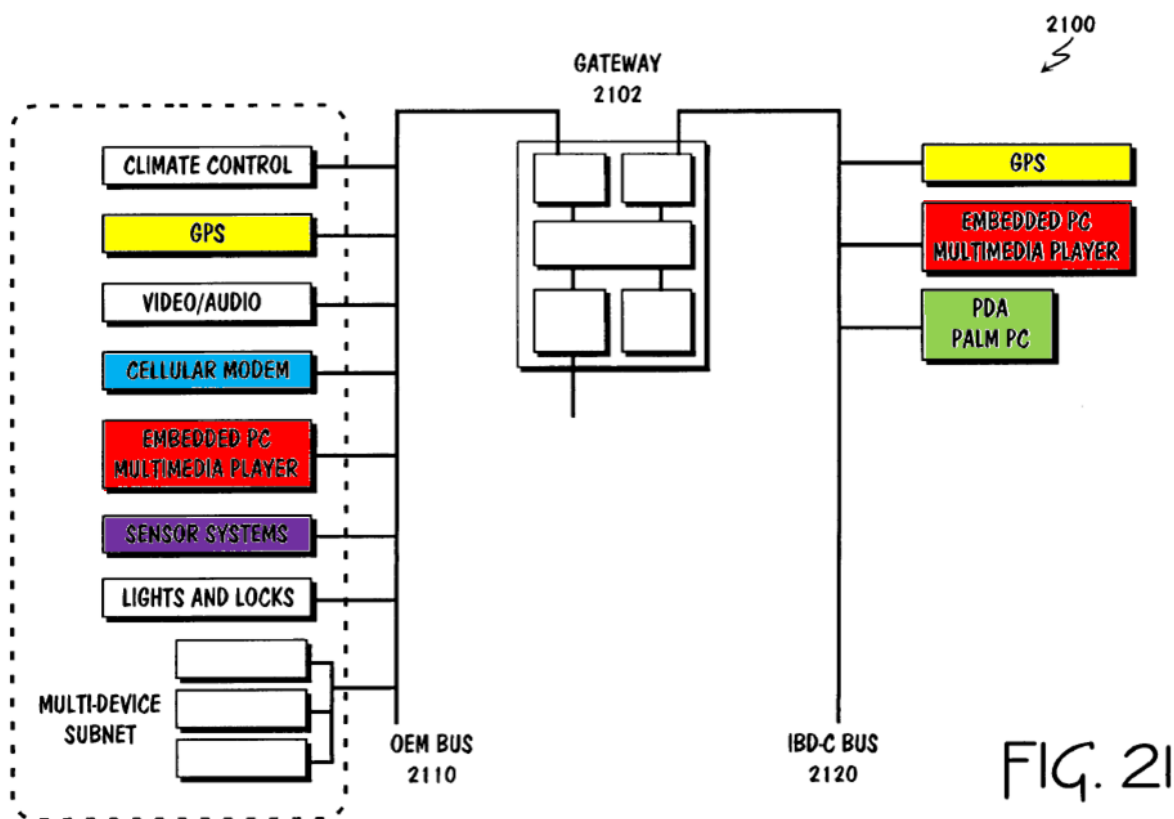
320. As shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires).



Ex. 1027, Gelvin, Fig. 21 (annotated)

321. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Trauner devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices connected to the microcomputer unit of Trauner grows, the number of wires and the number of connectors also grows, thereby adding significant complexity and density to the inputs and outputs of the decision unit. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the microcomputer, with one set of wires interconnecting all the devices. An ordinary

artisan would have understood that such an arrangement significantly reduces the complexity of the interface to the microcomputer, since it would have only a single interface instead of one interface for each device. Indeed, as shown in the annotated version of Figure 21 of Gelvin below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

322. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled

among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited. Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

323. Thus, Gelvin teaches the ability for devices like cellular devices and vehicle sensors, i.e., the devices described in Trauner, to communicate over one or more vehicle buses.

324. Accordingly, it is my opinion that element [14.0] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.1] a first mode of operation and a reduced distractions mode of operation;

325. Trauner discloses a first mode of operation where the driver has complete access to the described system:

In normal use, the driver when stopped would have complete access to the system and the information that would be downloaded.

(Ex. 1029, Trauner at ¶0007.)

326. Trauner next discloses a reduced distractions mode of operation:

However, when the vehicle is in motion the keyboard input and display are inhibited preventing the driver from being distracted while driving.

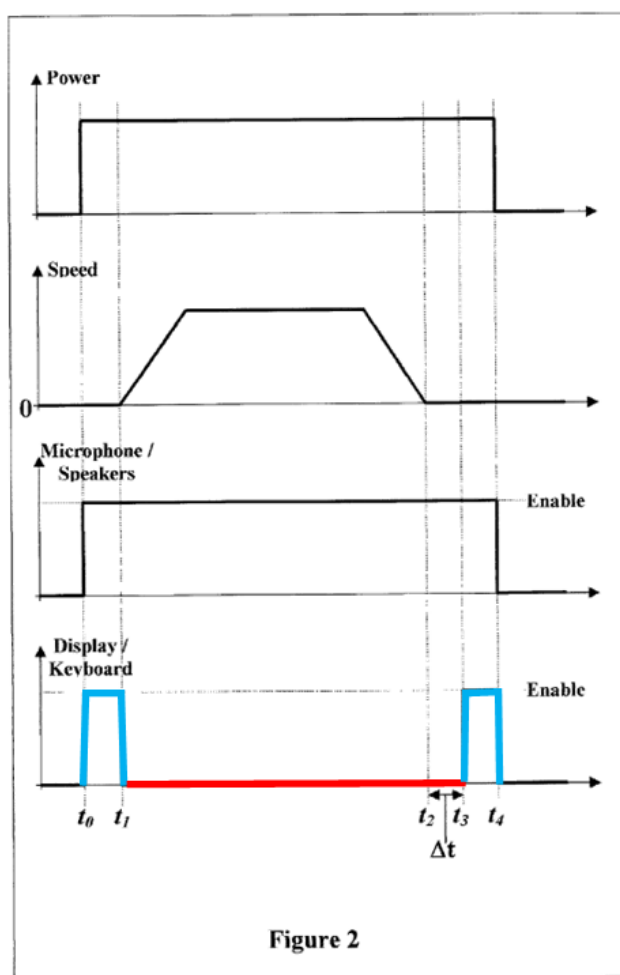
(Ex. 1029, Trauner at ¶0007.)

327. Trauner further discloses the operation of the system:

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. At time t_0 , the driver powers up the system and the vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled and the driver can operate the entire system. At a time t_1 , the driver starts to move and the “Display/Keyboard” state changes to disabled, thereby preventing the driver from looking at the display and using any of the hand activated input devices. *At a time t_2 , the driver has decelerated and is once again stopped. At a time t_3 , which occurs after a predefined minimum time interval Δt , or when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break, or just in any gear or idle, but not*

moving or exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard” state changes to enabled, once again allowing the driver to view the display and use the hand activated input devices. At a time t_4 , the driver turns the system off by either powering the vehicle off by turning the ignition key to the off position, or deactivating a separate system power switch.

(Ex. 1029, Trauner at ¶0020, emphasis added.)



Ex. 1029, Trauner, Figure 2 (annotated)

328. Accordingly, it is my opinion that element [14.1] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.2] the telematics system configured to be operatively coupled with a cellular phone having at least one feature and an output;

329. Trauner discloses that the system is operatively coupled with a cellular phone. Indeed, as shown above, Figure 1 shows “wireless communication device 70,” which Trauner discloses “uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.” (Ex. 1029, Trauner at ¶0016, Fig. 1.) Trauner further discloses that “the driver could request his/her email, voice mail, daily calendar, weather information, etc., to be downloaded while driving.” (Ex. 1029, Trauner at ¶0017.) This further demonstrates that the cell phone capabilities for connecting to the Internet are operable by the driver and the cellular phone has multiple features and outputs such as recovering emails, providing voicemails and weather information, etc.

330. Accordingly, it is my opinion that element [14.2] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.3] the telematics system configured to be operatively coupled with a web server;

331. As discussed above, Trauner discloses that the system provides internet access. For example:

[t]he wireless communication device 70 uses standard cell phone circuitry to allow the system to communicate with cell phones and wireless Internet providers.

(Ex. 1029, Trauner at ¶0016.)

332. In my opinion an ordinary artisan would have understood that this connection with wireless Internet providers would allow the telematic system disclosed in Trauner to be operatively coupled with a variety of servers accessible via the Internet, including web servers.

333. Trauner further discloses that PDAs are used to access the Internet/web. For example:

Internet enabled cell phones and PDAs now allow wireless access to the internet/web. These devices are now used in vehicles to download driving directions, weather information, e-mails, voice mails, and general data.

(Ex. 1029, Trauner at ¶0004.)

334. An ordinary artisan would have understood that in order to “allow access to the []web,” the PDA would connect to a web server (i.e., be “operatively coupled to a web server”), since that is how the “web” operates—to connect and download information. Thus, Trauner also discloses the use of integrated PDA’s to operatively couple the described system with web servers on the Internet to allow for downloading e-mails, weather information, driving directions, etc.

335. Accordingly, it is my opinion that element [14.3] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... ***[14.4] the telematics system being operatively coupled to the motor vehicle's bus and being configured to receive a vehicle transmission information from the bus;***

336. As discussed above, Trauner discloses that “[t]he system 10 includes a microcomputer 20 that controls system operation, ***a vehicle state/motion sensor 30***, an input device 40, a display screen 50, a sound system 60, a wireless communication device 70, and a memory buffer (or alternative storage media, e.g., hard disk, writeable CD) 80.” (Ex. 1029, Trauner at ¶0012, emphasis added.) Hence, Trauner discloses that the system includes, and therefore is operatively coupled to among other devices “vehicle state/motion sensor 30.”

337. Further, Trauner discloses that the system is configured to receive at least transmission information. For example:

[i]n one embodiment, ***the state/motion sensor 30 can include a monitor of the transmission state***. In this case the microcomputer could monitor whether the car was in neutral or park and use this to change the state of the system.

(Ex. 1029, Trauner at ¶0019, emphasis added.)

338. Thus, Trauner expressly discloses that the telematic system can receive transmission information to determine whether to change the state of the system for determining whether to disable functionality.

339. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the system described in Trauner such that devices like the vehicle state/motion sensor could communicate over a vehicle bus, which was a commonly known technology at the time of the '709 Patent. An ordinary artisan would have understood that the vehicle state (e.g., whether the vehicle in park or drive) constitutes vehicle transmission information.

340. Accordingly, it is my opinion that element [14.4] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.5] the telematics system configured to automatically switch between the first mode of operation and the reduced distractions mode of operation, as a result of at least one predetermined condition being met by the vehicle transmission information; and,

341. Trauner discloses automatically switching between a first mode of full operation and a reduced distractions mode based on vehicle transmission information.

[i]n one embodiment, the state/motion sensor 30 can include a monitor of the transmission state. In this case the microcomputer could monitor

whether the car was in neutral or park and use this to change the state of the system.

(Ex. 1029, Trauner at ¶0019.)

342. Trauner further discloses enabling and disabling the keyboard and display based on transmission position.

FIG. 2 shows a timing diagram describing how the different states of the system may operate. In the figure, “Power” represents the state when the system is powered on. This state can change when the driver powers up the car, or simply turns the ignition to the accessory power “on” position, or activates a separate system power on switch. The “Speed” timing diagram shows how the vehicle velocity might change in a normal trip. The “Microphone/Speakers” timing diagram represents the state of the voice and sound components of the system. The “Display/Keyboard” diagram represents the state of the display and hand activated input devices. At time t_0 , the driver powers up the system and the vehicle is stopped and the speed is 0. In this case the “Voice/Sound” and “Display/Keyboard” are both enabled and the driver can operate the entire system. At a time t_1 , the driver starts to move and the “Display/Keyboard” state changes to disabled, thereby preventing the driver from looking at the display and using any of the hand activated input devices. At a time t_2 , the driver has decelerated and is once again stopped. *At a time t_3 , which occurs after a predefined minimum time interval Δt , or when the driver changes the driving state (e.g., when the driver puts the transmission into park, or neutral with a foot on the break, or just in any gear or idle, but not moving or*

exceeding a predetermined speed e.g., 2 mph), the “Display/Keyboard” state changes to enabled, once again allowing the driver to view the display and use the hand activated input devices.

(Ex. 1029, Trauner at ¶0020, emphasis added.)

343. Thus, Trauner discloses that when the vehicle is in park the driver has full use of the keyboard input and display, but when the vehicle is in drive (and moving) (vehicle transmission information is provided), those functions are automatically inhibited.

344. Accordingly, it is my opinion that element [14.5] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.6] wherein the telematics system, while operating in the reduced distractions mode of operation, is configured to disable the at least one feature, suppress at least a portion of the output and

345. As discussed above, Trauner discloses that when the vehicle transmission is moved from park to drive, the keyboard and display are disabled. (Ex. 1029, Trauner at ¶¶0019-0020.) Thus, Trauner discloses that the display and keyboard features are disabled and at least the outputs coming from the display are suppressed.

346. Accordingly, it is my opinion that element [14.6] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

... [14.7] *provide at least one indicium to the driver that the reduced distractions mode of operation is active.*

347. Trauner discloses

While moving, the present system can be put into a mode to slowly read the downloaded information via computer voice synthesis. Voice confirmation may be provided that searches have been completed (while the vehicle is in motion).

(Ex. 1029, Trauner at ¶0021.)

348. Thus, Trauner discloses that that the driver is provided voice (audible) notification of downloaded information specifically because the vehicle is moving, and the display is disabled. An ordinary artisan would have understood that these voice synthesis confirmations would have acted as an indicum to the driver that the vehicle is in a reduced distraction mode because these functions are disclosed as occurring when the vehicle is in motion and in a reduced distraction mode.

349. Trauner further renders element [1.7] obvious in view of Krueger, which discloses that “[i]f the telephone function of the car phone 12 or the operability of the car radio 11 is suspended due to the current vehicle speed, *the driver can be optically or acoustically informed of this state* at the same time the signal is transmitted on the data lines 19.1, 19.2.” (Ex. 1026, Krueger at 3:3-7, emphasis added.) Thus, Krueger discloses that at least one of an optical or acoustic

indicium will be provided to the driver by the vehicle indicating that reduced distraction mode is the current state of the vehicle.

350. An ordinary artisan would have recognized the benefits of including a feature to optically or acoustically inform the driver that the vehicle is in reduced functionality mode, i.e. reduced distraction mode. An ordinary artisan would have understood that adding the functionality from Krueger to the system in Trauner would have benefited the system disclosed in Trauner because it would provide the driver notification that the current conditions of the vehicle reflect increased driving risk and thus the driver should increase his or her alertness and avoid distractive behavior. Such an indicium would also assure that the driver did not become confused when certain features were disabled, since the system would be indicating that they had been disabled. This would avoid the driver from becoming concerned that the system was malfunctioning. This could lead to a decrease in driving incidents, such as accidents, and could even save lives. An ordinary artisan would have further been motivated to combine the teachings in Krueger with Trauner given that both references teach methods for distraction avoidance, and thus using certain methods from Krueger to improve Trauner would have been obvious to try as both systems focus on solving the same problem in similar ways.

351. Accordingly, it is my opinion that element [14.7] would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin. It is

further my view based on my analysis above, that claim 14 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Trauner in combination with Gelvin.

C. Ground 3 – Claims 15-16 of the ‘709 Patent are obvious in view of U.S. Patent Publication No. 6,574,531 (“Tan”) in combination with U.S. Patent No. 7,484,008 (“Gelvin”).

1. Rationale to Combine Tan and Gelvin

352. An ordinary artisan would have found it obvious to combine the vehicle bus disclosed in Gelvin with the various operable devices and sensors disclosed in Tan such that the devices in Tan (e.g., sensors 21, vehicle computer system 10) could more efficiently communicate with one another. Indeed, as I describe in the background section above, at the time of the ‘709 Patent, vehicles were often equipped with data buses like the one disclosed in Gelvin. The idea of utilizing such a data bus to connect the operable devices and sensors in Tan would have been an obvious modification to the Tan system.

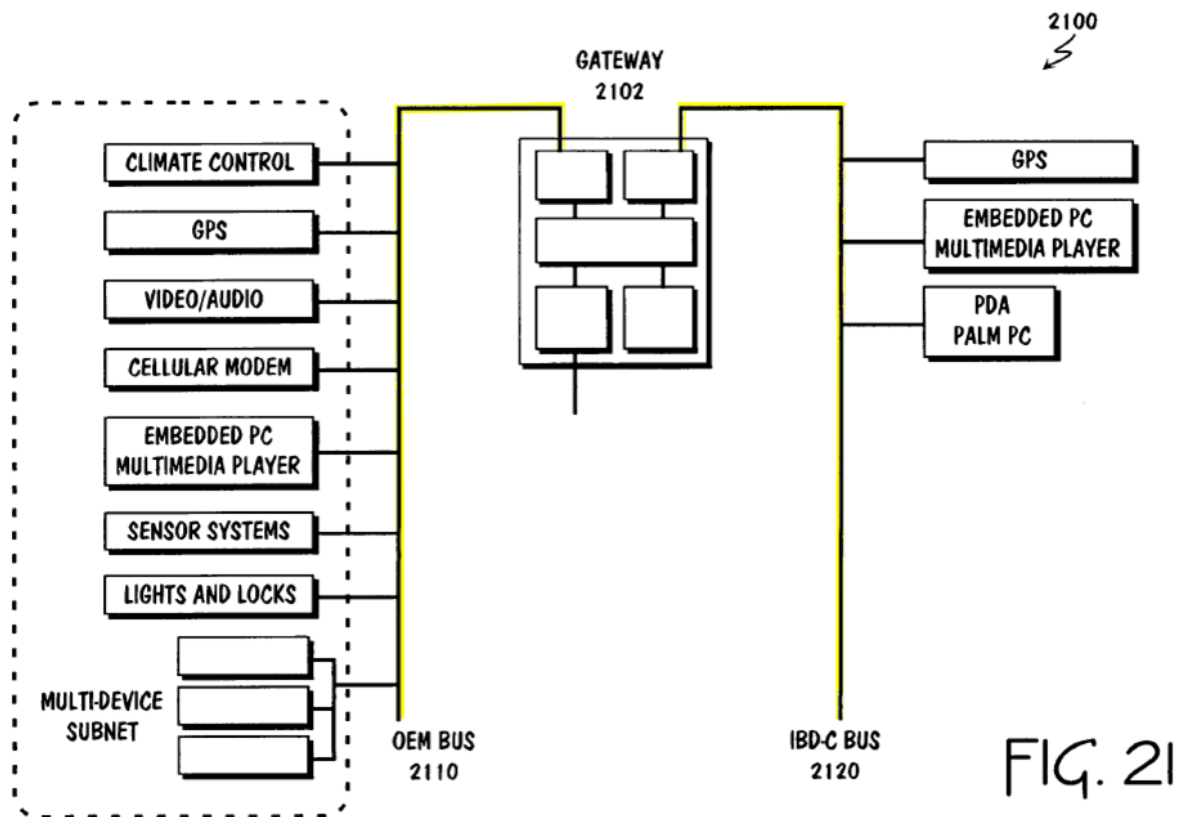
353. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the ‘709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)

- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

354. An ordinary artisan would have understood that the benefits described in Gelvin for utilizing such a data bus would have benefited the system in Tan. Indeed, Tan teaches that the sensors can determine whether the vehicle is in motion and are connected—presumably by wires—to the vehicle computer. (Ex. 1025, Tan at 4:4-9.)

355. On the other hand, as shown below, the data buses (shown in yellow) disclosed in Gelvin utilize a single wire—allowing the devices to coexist and share data without any intermediaries.



Ex. 1027, Gelvin, Fig. 21 (annotated)

356. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Tan devices—leading to the use of less wire and materials as the ability for all the devices to be able to communicate directly to one another rather than need to communicate through the vehicle computer system.

357. An analysis of the *KSR* Factors supports my conclusion that an ordinary artisan would have found it obvious to combine the teachings of Gelvin with the teachings of Tan.

358. *The combination of familiar elements according to known methods to yield predictable results:* As discussed above, the use of vehicle data bus was common at the time of the '709 Patent filing. Therefore, an ordinary artisan would have expected that combining the data bus teachings disclosed in Gelvin with the system disclosed in Tan would have yielded the predictable result of connecting the operable devices and sensors in Tan together such that they could communicate directly with one another while using less wire and other materials.

359. *The technique has been used to improve other vehicles:* As discussed in Gelvin, the concept of using a data bus to connect various components in a vehicle together can lead to improvements such as reduced materials and the creation of a standard mode of communication between the different components. (Ex. 1027, Gelvin at 1:54-2:17.) An ordinary artisan would have understood that the benefits taught in Gelvin could have similarly improved the system described in Tan so that the different components and sensors described in Tan would have been able to communicate with one another in a standard mode while reducing unnecessary waste of materials and wiring.

360. *The teachings fit together like pieces of a puzzle:* In this case the data bus disclosed in Gelvin would be able to fit together like pieces of a puzzle. Indeed, Figure 21 shows the data bus with the same, or similar components, as are described in Tan—including Video/Audio, Cellular modem, Embedded PC, and Sensor

Systems. (Ex. 1027, Gelvin at Fig. 21, 27:53-65.) Hence, Gelvin effectively depicts how its teachings would fit together with the teachings of Tan like a puzzle to form a combination consisting of the system disclosed in Tan utilizing a data bus like the data bus described in Gelvin.

361. *It is obvious to try the combination:* As discussed above, there are multiple benefits to utilizing a data bus like the data bus described in Gelvin—including reducing wiring, allowing multiple devices to communicate directly with one another, and creating a standard communication protocol that leads to more compatibility amongst a variety of devices. Because of these benefits to using a vehicle data bus, coupled with the fact that many vehicles at the time of the ‘709 Patent were already using data buses, an ordinary artisan would have found it obvious to try and combine the data bus disclosed in Gelvin with the system described in Tan.

362. Thus, an ordinary artisan would have been motivated to use the data bus disclosed in Gelvin with the system disclosed in Tan.

2. Analysis of Claims 15 and 16

a. Claim 15

... [15.0] *A telematics system for a motor vehicle, wherein the motor vehicle has a bus and the telematics system is operable by a driver of the motor vehicle, the telematics system comprising:*

363. Tan discloses a vehicle computer system that can have limited functionality such that the computer can function without causing distraction to the vehicle operator:

A vehicle computer system and method of providing information to an occupant of a vehicle that minimizes complete feature lock out are provided. *The operating system of the computer is adapted to selectively display full and limited functionality versions of a particular screen, preferably based on whether the vehicle is in motion.* A text-to-speech engine can automatically generate audio based on a particular screen once motion is detected. *The availability of a limited functionality version of the screen and audio, either independently or together, allow a vehicle occupant to retrieve information from the computer system without distraction.*

(Ex. 1025, Tan at Abstract, emphasis added.)

364. Tan discloses a vehicle computer system that receives inputs from a vehicle occupant and can output information, which can interact with external networks such as the Internet and utilizes integrated mobile phones and integrated personal computer:

FIG. 1 illustrates a vehicle computer system 10 that incorporates a preferred embodiment of the present invention. *The vehicle computer system 10 can be any device capable of receiving input from an occupant of the vehicle and displaying or otherwise outputting information.* Examples of vehicle computer systems suitable for use with the present invention include radios, *integrated mobile phones, and integrated personal computers.* The present invention is particularly well-suited for incorporation into navigational computers that allow an occupant of the vehicle to input an address or location to be mapped and displayed by the computer. Also, *the present invention is particularly well-suited for incorporation into systems that interact with external computer networks, such as the Internet, to retrieve information of interest to an occupant of the vehicle,* such as news stories and/or electronic mail. Other examples of vehicle computer systems include televisions, video display terminals, and entertainment systems.

(Ex. 1025, Tan at 2:38-55, emphasis added.)

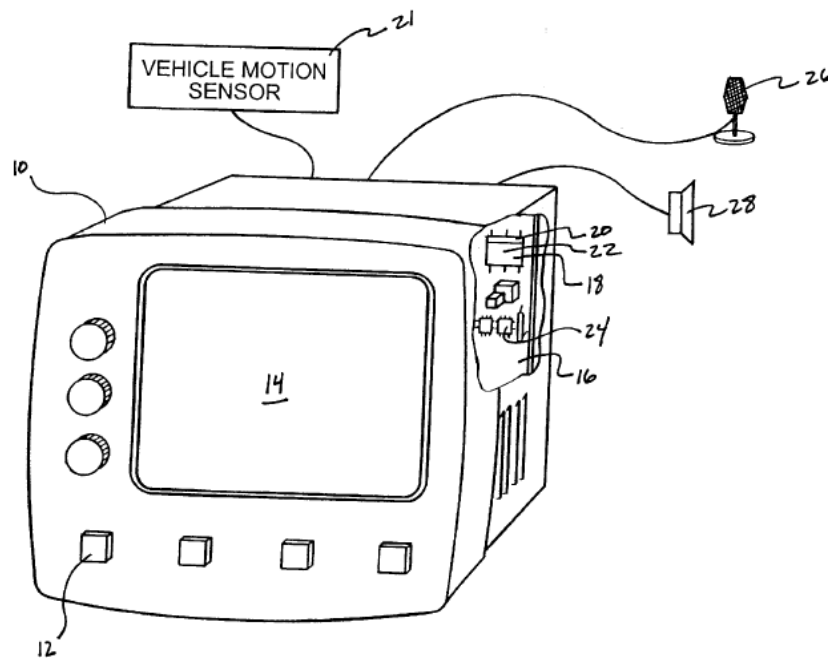


FIG. 1

Ex. 1025, Tan, Fig. 1

365. The ‘709 Patent states that the “telematic device” can be a “telephone, PDA, computer, and the like.” (Ex. 1001, ‘709 Patent at 16:62-63.) Tan describes the vehicle computer system as being a computer and including integrated mobile phone. (Ex. 1025, Tan at 2:44-46.) Therefore, it is my opinion that the vehicle computer system described in Tan constitutes the claimed “telematic system.”

366. Tan further discloses that the system “preferably includes one or more sensors 21 capable of determining whether the vehicle is in motion. The sensors 21 are preferably associated with the axles, wheels, speedometer, parking brake or any other component of the vehicle that indicates vehicle motion or lack thereof.” (Ex.

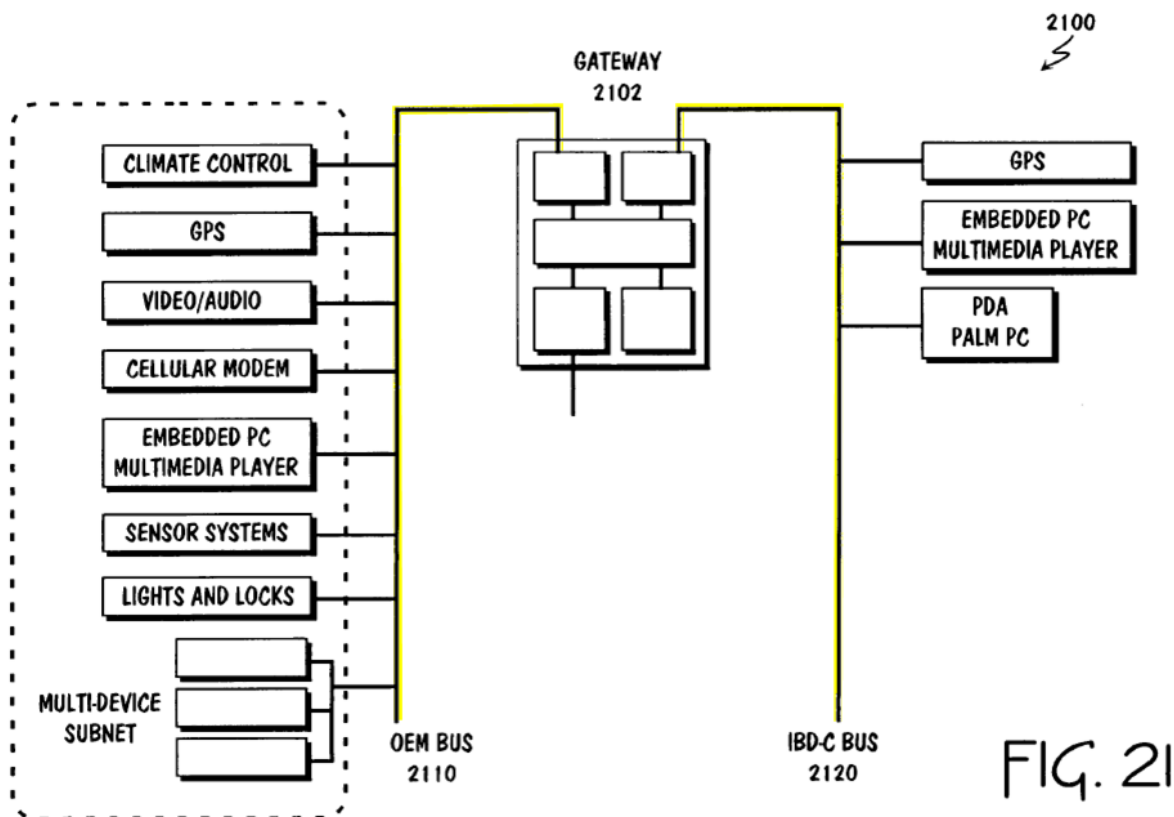
1025, Tan at 4:4-9.) Hence, Tan discloses a system that includes sensors that are in communication with the vehicle computer.

367. While Tan does not expressly disclose the use of a vehicle bus to connect the sensor, vehicle computer, and other described devices, it would have been obvious to an ordinary artisan to connect the devices described in Tan using a bus. For example, as I discuss in more detail above, it would have been obvious to combine the data bus described in Gelvin with the system disclosed in Tan.

368. Gelvin describes several benefits to using a data bus, which an ordinary artisan would have appreciated at the time of the '709 invention:

- The ability for “sensors, actuators and computing elements for controlling the operations can all be linked in a common environment” eliminating the need for separate connections and environments for each device. (Ex. 1027, Gelvin at 1:54-56.)
- Reducing “the wiring within the vehicle,” which “allows for cost reduction in that the number of different kind of interfaces is vastly reduced.” (Ex. 1027, Gelvin at 1:56-58.)
- Creation of a standard bus so that several different types of vehicle components can be included on the bus and communicate with one another. (Ex. 1027, Gelvin at 1:59-2:17.)

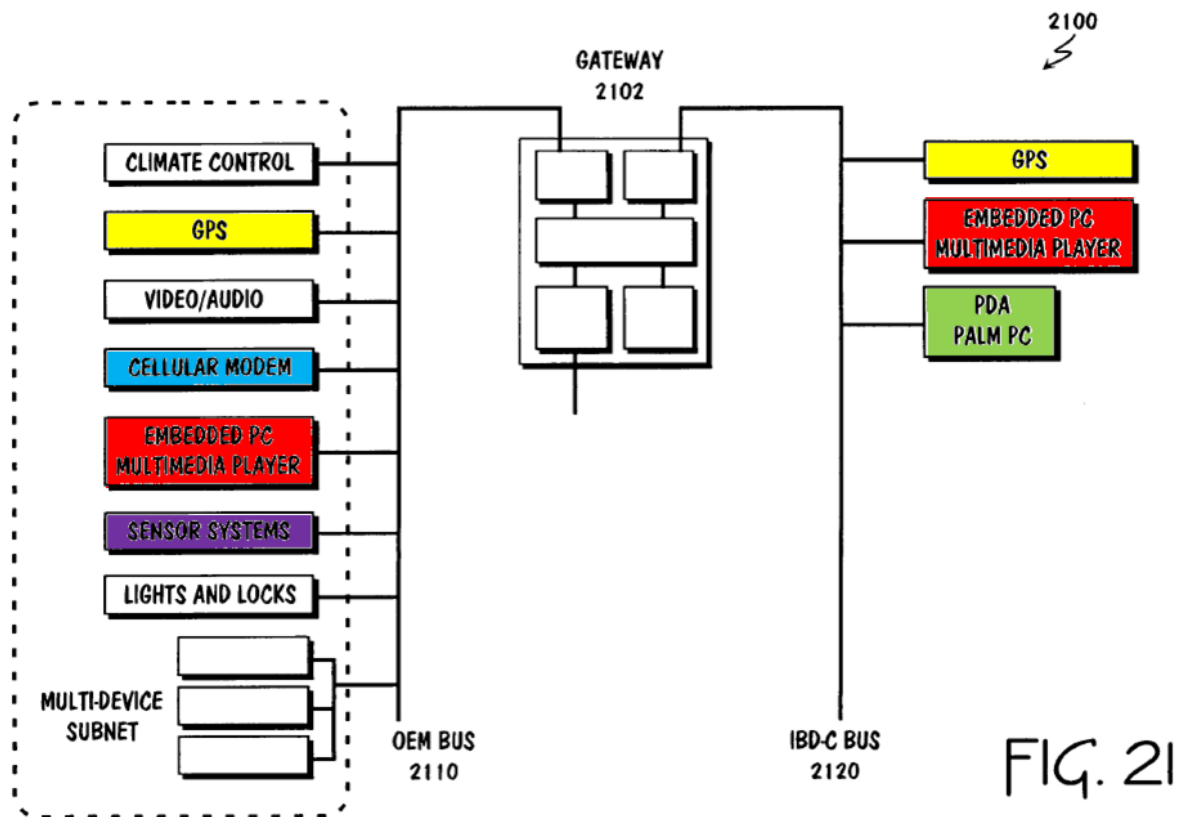
369. As shown below, the data buses (shown in yellow) disclosed in Gelvin use a single set of common wires, allowing the devices to interact and share data over a single physical medium (e.g., a set of one or more common wires).



Ex. 1027, Gelvin, Fig. 21 (annotated)

370. As discussed in Gelvin, an ordinary artisan would have understood the benefit of using a single data bus to connect all the Tan devices—leading to the use of less wiring, connectors, and materials. Moreover, an ordinary artisan would have understood that as the number of devices connected to the vehicle computer unit of Tan grows, the number of wires and the number of connectors also grows, thereby

adding significant complexity and density to the inputs and outputs of the decision unit. An ordinary artisan would have understood that by using a data bus this complexity could be reduced to a single connector on each device, including the vehicle computer system, with one set of wires interconnecting all of the devices. An ordinary artisan would have understood that such an arrangement significantly reduces the complexity of the interface to the vehicle computer, since it would have only a single interface instead of one interface for each device. Indeed, as shown in the annotated version of Figure 21 of Gelvin below, Gelvin teaches the use of a vehicle bus to connect vehicle modules such as GPS (yellow), cellular modem (blue), embedded PC (red), PDA (green) and sensor systems (purple).



Ex. 1027, Gelvin, Fig. 21 (annotated)

371. Gelvin further discloses:

FIG. 21 is a WINS vehicle internetwork 2100 of an embodiment. The vehicle internetwork 2100 includes at least one gateway 2102 coupled among an OEM network 2110 (depicted as a single bus, but not so limited) and an IDB-C bus 2120. Vehicle functions supported on the OEM network 2110 include climate control systems, positioning systems like Global Positioning System (GPS), video/audio systems, cellular systems, embedded PC multimedia systems, vehicle sensor systems accessed via the OEM OBD-II port, and control of lighting, door locks, and other functions via the SCP bus, but are not so limited.

Devices supported on the IDB-C bus 2120 include, for example, GPS units, PC-based multimedia devices, and PDAs.

(Ex. 1027, Gelvin at 27:53-65.)

372. Thus, Gelvin teaches the ability for devices like, GPS devices, cellular devices, and vehicle sensors, like the devices described in Tan, to communicate over one or more vehicle buses.

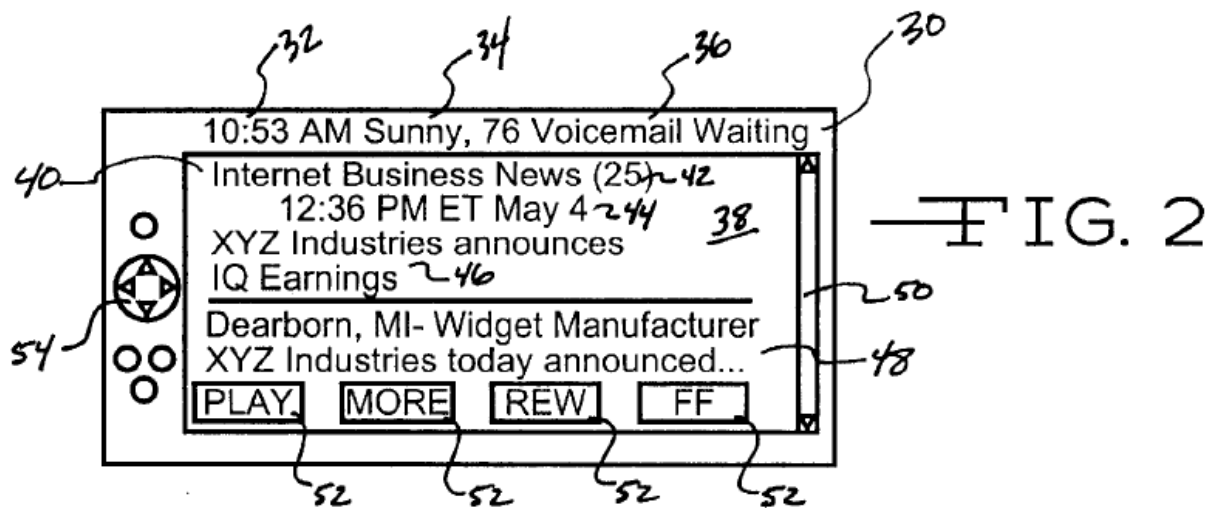
373. Accordingly, it is my opinion that element [15.0] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.1] a first mode of operation, a second mode of operation, and a third mode of operation each being respectively configured to operate a first, a second, and a third set of telematics features;

374. As shown below in Figure 2, Tan discloses a first mode of operation in which the full functionality of the Internet news screen is provided. (Ex. 1025, Tan at 4:10-38, 2:19-21.) Tan discloses

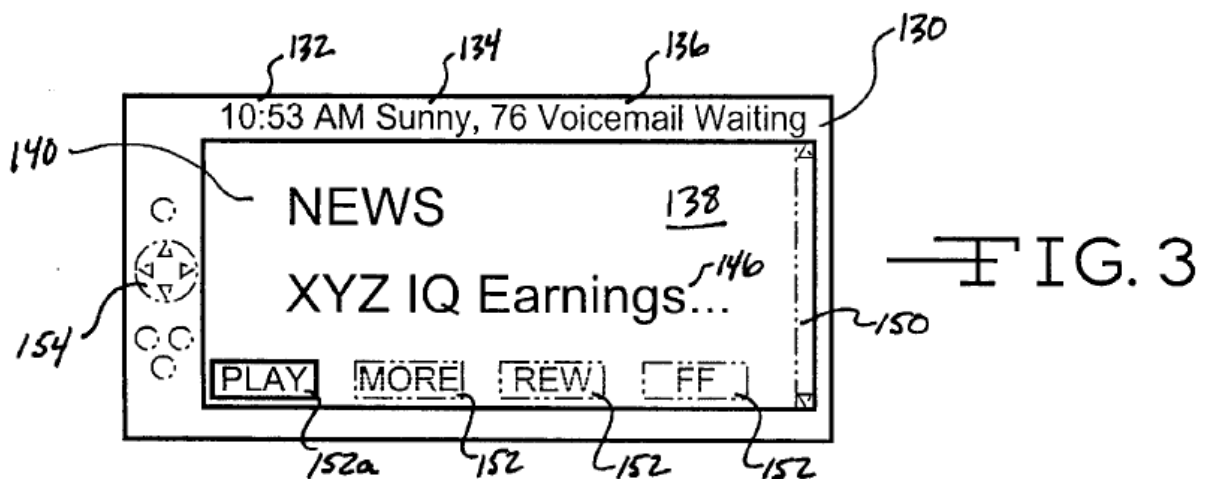
the full functionality version 30 displays complete information for common features of the system, such as the clock 32, weather summary 34, and voice mail indicator 36. Also, in the content window 38, the full functionality version 30 displays the complete contents of the news article.

(Ex. 1025, Tan at 4:15-20, emphasis added.)



Ex. 1025, Tan, Fig. 2

375. As shown below in Figure 3, Tan discloses a second mode of operation in which a limited functionality of the Internet new screen is provided. (Ex. 1025, Tan at 2:22-24, 4:35-60.)



Ex. 1025, Tan, Fig. 3

376. For this screen Tan discloses:

The content window 138 of the *limited functionality version 130 preferably contains abbreviated or truncated versions of some of the information presented in the full functionality version*. For example, the figure illustrates a limited functionality version 130 that only includes a brief category name 140 and a brief title 146. Preferably, these items are displayed in a larger font, allowing for quick retrieval of the information displayed on the screen. As shown in the figure, the interactive features of the screen are preferably inactivated, such as the scroll bar 150, touch button 152, and directional navigator 154. One or more touch button 152a may remain active to allow the triggering of a feature that requires minimal interaction with the system, such as the text-to-speech engine.

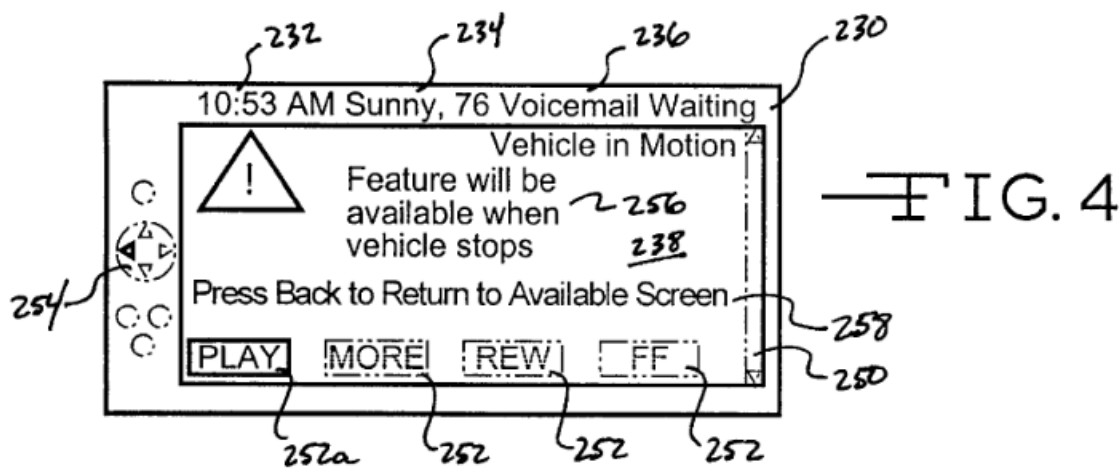
(Ex. 1025, Tan at 4:47-60, emphasis added.)

377. As shown below in Figure 4, Tan discloses a third mode of operation, which is a “common screen for displaying on the output when a limited functionality version of the screen is not available.” (Ex. 1025, Tan at 4:61-63.) Tan discloses that the common screen is used when the limited functionality screen is unavailable. For example:

The common screen 230 preferably provides notice 256 to an occupant of the vehicle that they have reached a point at which a limited functionality version of the screen is not available. Also preferably, the common screen includes a notice 258 as to how to return to the last available limited functionality version in the hierarchy of the menu or program structure.

(Ex. 1025, Tan at 5:1-7, emphasis added.)

378. Tan discloses in this third mode of operation that the device operates the feature of notifying the driver that the vehicle is in motion and provides information on how to return back to the limited functionality screen.



Ex. 1025, Tan, Fig. 4

379. Accordingly, it is my opinion that element [15.1] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.2] wherein at least the first set of telematics features is disabled in the second mode of operation and at least the second set of telematics features is disabled in the third mode of operation;

380. Tan discloses that in the limited functionality screen of Figure 2, in the claimed “second mode of operation,” features that are available in the full

functionality screen, in the claimed “first mode of operation, are disabled. Specifically, Tan discloses:

The content window 138 of the limited functionality version 130 *preferably contains abbreviated or truncated versions of some of the information presented in the full functionality version*. For example, the figure illustrates a limited functionality version 130 that only includes a brief category name 140 and a brief title 146. Preferably, these items are displayed in a larger font, allowing for quick retrieval of the information displayed on the screen. As shown in the figure, the interactive features of the screen are preferable inactivated, such as the scroll bar 150, touch button 152, and directional navigator 154.

(Ex. 1025, Tan at 4:46-57, emphasis added.)

381. Hence, in the second mode of operation, Tan discloses that certain informational displays are abbreviated or truncated. In other words, the full versions of the informational display are disabled. Further, Tan discloses that interactive features of the screen are disabled in the limited functionality screen (second mode of operation).

382. Tan discloses that in the common screen, in the third mode of operation, features from the limited functionality screen, the second mode of operation, are disabled. Indeed, Tan discloses that “[t]he system also preferably includes a common screen *for displaying on the output when a limited functionality version of the screen is not available*.” (Ex. 1025, Tan at 4:61-63, emphasis added.) Hence, the

common screen exists when the limited functionality screen is not available, i.e. is disabled.

383. Accordingly, it is my opinion that element [15.2] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.3] the telematics system configured to be operatively coupled with a cellular phone;

384. Tan discloses a vehicle computer system, which can interact with external networks such as the Internet and utilizes integrated mobile phones. Tan discloses:

The vehicle computer system 10 can be any device capable of receiving input from an occupant of the vehicle and displaying or otherwise outputting information. *Examples of vehicle computer systems suitable for use with the present invention include* radios, *integrated mobile phones*, and integrated personal computers.

(Ex. 1025, Tan at 2:41-45, emphasis added.)

385. Accordingly, it is my opinion that element [15.3] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.4] the telematics system configured to be operatively coupled with a web server;

386. Tan discloses that the vehicle computer system can be operatively coupled to the Internet to retrieve information for the vehicle occupant:

[]the present invention is particularly well-suited for incorporation into systems that *interact with external computer networks, such as the Internet*, to retrieve information of interest to an occupant of the vehicle, such as news stories and/or electronic mail.

(Ex. 1025, Tan at 2:49-54, emphasis added.)

387. In my opinion, an ordinary artisan would have understood that the interacting with the Internet in order to “retrieve information of interest to an occupant” would have included coupling with web servers in order to communicate with and download information from the various Internet-based web servers that provide such information.

388. Accordingly, it is my opinion that element [15.4] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.5] the telematics system being operatively coupled to the motor vehicle's bus and being configured to receive at least one of a vehicle transmission information and a vehicle movement information from the bus;

389. Tan discloses the use of motion sensors to send data to the operating system of the vehicle computer system:

Preferably, the operating system selectively chooses which version of the screen to display based on whether the vehicle is in motion. The operating system can receive data related to vehicle motion from a motion sensor placed appropriately in the vehicle, as described above.

(Ex. 1025, Tan at 5:16-20.)

390. Tan further discloses that the disclosed vehicle includes sensors for determining when the vehicle is in motion. For example Tan discloses the use of:

one more sensors 21 capable of determining whether the vehicle is in motion. The sensors 21 are preferably associated with the axles, wheels, speedometer, parking brake or any other component of the vehicle that indicates vehicle motion or lack thereof.

(Ex. 1025, Tan at 4:4-9.)

391. As I discuss above, it would have been obvious to an ordinary artisan to combine the vehicle bus technology disclosed in Gelvin with the system in Tan such that the sensors and other devices discussed in Tan could communicate over a vehicle bus to the vehicle computer system, which was a commonly known technology at the time of the '709 Patent.

392. Accordingly, it is my opinion that element [15.5] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

... [15.6] the telematics system configured to automatically switch between the first, the second, and the third modes of operation based on at least one of the transmission information and the vehicle movement information.

393. As discussed above, Tan teaches that the display will switch between a full functionality screen (Figure 2), a limited functionality screen (Figure 3), and a

common screen that disables the limited functionality screen (Figure 4). (Ex. 1025, Tan at 4:10-5:7, Figs. 2-4.) Although Tan does not state whether the system switches to these modes automatically, an ordinary artisan would expect that the switching occurs automatically to assure that the concerning distractions are avoided as soon as possible when the vehicle is in use. In my opinion an ordinary artisan would have understood this to be the case, since the objective of Tan's different screens is to avoid distracting the driver, and such an artisan would have understood that requiring the driver to manually switch between these screens would *increase* distraction. As a result, an ordinary artisan would have found it obvious to (and would have assumed that) Tan's screen switching would be automatic.

394. Also, Tan discloses that in the context of switching into "text-to-speech" mode the "operating system *automatically* initiates the generation of audio, through the text-to-speech engine, based on the information associated with the screen currently being displayed as soon as the sensor detects motion of the vehicle." (Ex. 1025, Tan at 5:41-45, emphasis added.) This further indicates, using this text-to-speech example, that the disclosed vehicle computer system automatically switches into these limited functionality modes as soon as movement of the vehicle is sensed to ensure that the distraction reduction methods are implemented as soon as possible.

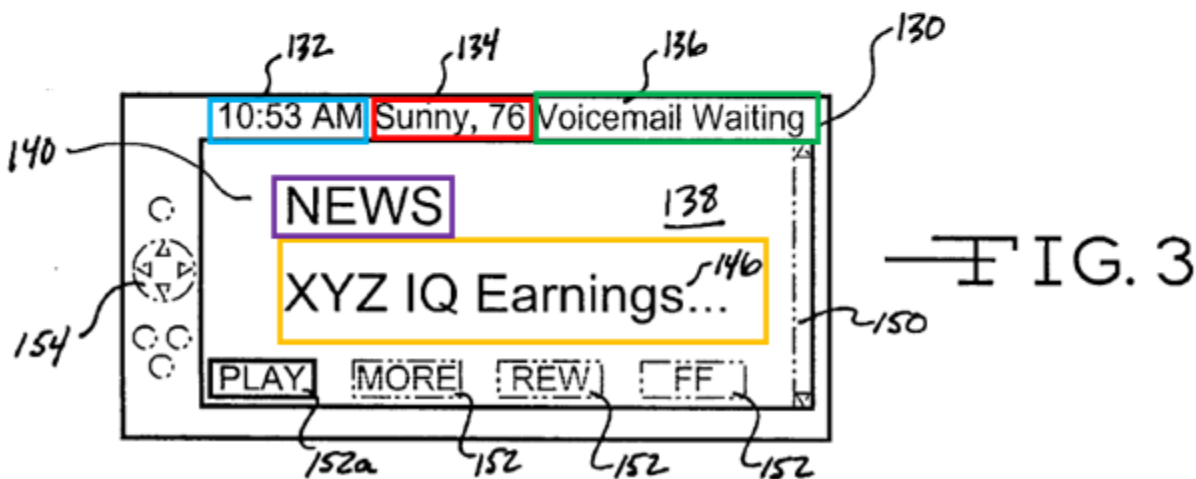
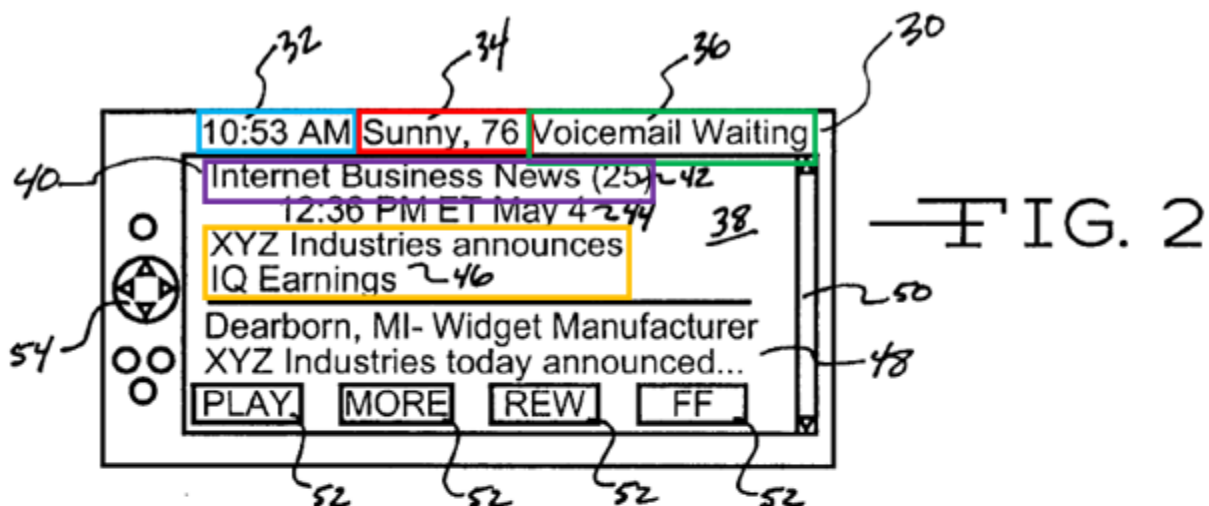
395. Accordingly, it is my opinion that element [15.6] would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin. It is further my view based on my analysis above, that claim 15 of the ‘709 Patent would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

b. Claim 16

... [16] The telematics system of claim 15, wherein the first and the second sets of telematics features respectively include a first and a second output format for substantially the same information, and the first output format is disabled in the second set.

396. As shown below in Figures 2 and 3 of Tan, both the first output associated with the full functionality display (Figure 2) and the output associated with the limited functionality display (Figure 3), include an output format for substantially the same information. Indeed, both formats include the “clock” (blue box), “weather summary” (red box) and “voice mail indicator” (green box). Additionally, they both display “news category” (purple box) and the story title (orange box), however, in the limited functionality screen (second output) the first output format for this information is disabled. Indeed, Tan states that “the figure illustrates a limited functionality version 130 that only includes a brief category name 140 and a brief title 146.” (Ex. 1025, Tan at 4:50-52.) Thus, Tan teaches that both output formats include substantially the same information, i.e., clock, weather

summary, voice mail indicator, story title and new category, but the first output format is disabled in the second set of features shown in the second output format—specifically with respect to the “new category” and story title displays.



Ex. 1025, Tan, Figs. 2 and 3 (annotated)

397. Accordingly, it is my view based on my analysis above, that claim 16 of the '709 Patent would have been obvious to an ordinary artisan in view of Tan in combination with Gelvin.

VIII. Conclusion

398. In my opinion, all the elements of the challenged claim limitations are disclosed by the references discussed above and that the claims are unpatentable in view of these prior art references.

399. I reserve the right to supplement my opinions to address any information obtained, or positions taken, based on any new information that comes to light throughout this proceeding.

I declare under penalty of perjury that the foregoing is true and accurate to the best of my ability.

Executed on: 8/6/2021



Scott Andrews