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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

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INVENTOR(S)					
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<input type="checkbox"/> Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (280 characters max)					
STMC GATEWAY					
<div>Direct all correspondence to: CORRESPONDENCE ADDRESS</div> <div><input checked="" type="checkbox"/> Customer Number <input style="width: 100px;" type="text" value="25006"/> → <div>PATENT TRADEMARK OFFICE Place Customer Number Bar Code Label here</div></div> <div>OR <input style="width: 150px;" type="text" value="Type Customer Number here"/></div> <div><input type="checkbox"/> Firm or Individual Name</div> <div>Address</div> <div>Address</div> <div>City</div> <div>State</div> <div>ZIP</div> <div>Country</div> <div>Telephone</div> <div>Fax</div>					
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification	Number of Pages	<input style="width: 50px;" type="text" value="81"/>	<input type="checkbox"/> CD(s), Number	<input style="width: 100px;" type="text"/>	
<input type="checkbox"/> Drawing(s)	Number of Sheets	<input style="width: 50px;" type="text"/>	<input type="checkbox"/> Other (specify)	<input style="width: 100px;" type="text"/>	
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)					
<input checked="" type="checkbox"/>	Applicant claims small entity status. See 37 CFR 1.27.			FILING FEE AMOUNT (\$)	
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<input type="checkbox"/>	Payment by credit card. Form PTO-2038 is attached.				
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/>	No				
<input type="checkbox"/>	Yes, the name of the U.S. Government agency and the Government contract number are _____				

Respectfully submitted,

Date

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This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C.

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FORD EX. 1034, p. 1

STMC Gateway

PATENT PENDING No. 60/336,293

The achievement of a

Safe
Assures driver Intent
Simple
Accessible
High Availability
Universal
Portable
Cost Effective

Driver Telematics Controls

Project Document
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Background

What is Telematics?

Computing usage is on the rise. We currently use computers knowingly in many places and during many activities. For example, we use them in the office, at home and in the car or on the planes. Other less obvious use is at ATM, Self Checkout, Pay at the Pump and so on. This is referred to as **Pervasive computing**.

The current trend is certain to add computers to appliances and machines that have not changed much since they were first invented. Such appliances range from the light bulbs in the house to the refrigerator, the stove and even the bath tub.

Telematics is a recently coined term. It refers to the addition of Information, Computing, Communications and Entertainment Technologies into the car driving experience. Telematics is then, a Pervasive computing while in a vehicle, e.g. truck, Sedan, Motorcycle etc.

Is it needed?

Yes. Adding Telematics technology into the vehicle is not a side show to the driving experience. While Telematics may not be as essential as let say an engine to make a vehicle run, Telematics is an engine for the driving experience of today's technologically connected and informed world.

Tremendous amount of man/woman hours are spent behind the wheels. Maximizing use of our time when commuting to work, or while driving on a long business trip will positively impact our productivity. Depending on what we do with this extra productivity, we will impact our quality of life.

In many cases, using Telematics is not to Maximize productivity, but it is an integrated part of the driving person job function, e.g. Sales person, Attorney, Consultants, Truck delivery, express mail, Soccer Moms heading to a new unfamiliar field, Home care nurse heading to a new patient etc.,

Not having Telematics in the car today is almost as disadvantageous as not having an Internet and e-mail accounts. The immediate future will begin to highlight such disadvantages as those who take advantage of it, will speed by their counterparts due to their Telematics access.

Pervasive Computing & Communication are the trend, and no one person, a company or a nation can afford to be left behind.

How to achieve Telematics?

We have used Telematics since early 90's by integrating various off the shelf products into a **single process** (Not product). We used Cell Phone, Pager, GPS Navigation, Notebook, Palm Pilot, and Internet connection.

The Challenge was in staying in touch and staying alive. Unlike sitting behind a desk, computing and communication on the go is a very complex juggle, and the near misses and Road Warriors stories that we know off was enough to convince us of the need for a safe way to integrate Telematics into the driving experience.

Safe Telematics is not going to be achieved by turning off Telematics while driving, or by using parking lots or rest areas on a highway for conducting business and by some random, one solution fits all.

Designing of an intelligent device to help with this problem, requires the evaluation of the driving experience in light of the Telematics influx, and treat both as interdependent elements of one **System**.

This **System** consists of, the vehicle, the infrastructure used by the vehicle, the driver, the personal driving experience and purpose, the driving environment (In the car and outside the car), Incorporating existing laws and common safe driving etiquette into the driving process while using Telematics.

The Driving Systems, (Man, Machine, Environment-Infrastructure, Regulation- Infrastructure, History)

Criterion

An assessment of the situation shows that a reasonable solution is required to contain the following qualities:

Safe
Assures driver Intent
Simple
Accessible
High Availability
Universal
Portable
Cost Effective

These terms sound simple and easy. To implements these ideals, we need to explain them first. The best context for such explanation is to treat such device as an assistant vs. as a technology. Its main function would be to ease the work load and distraction of the driver.

Safe

A product is considered safe when it does not cause any harm to the user or to others when used for its intended purpose. The product should also take into account unusual circumstances when a product may be used in a foreign environment and under diverse and dynamic situation.

In the case of Telematics, Safety requires that the driver stays focused on the driving as a main task and that he gets involved in Telematics only when he is competent and confident in the driving environment. To do so, requires that the driver has an intelligent assistant to help him in the right time and do not disturb him in the wrong time. This assistant will relief the driver to **"Keep eyes on the road, Hands at the wheel at 10&10"**

Additionally, the assistant confirms information before submitting to the manager to assure that he is not getting any false positives

Assures driver Intent

Like any good assistant, the device assisting the driver in the Telematics environment will authenticate his manager requests and enforce them. No pizza delivery during meetings, no coffee with cream while what's needed is Tea.

Simple

While driving, a driver main focus and cognitive thinking must remain on the driving act. Any additional activity should be simple to perform. Again, a good assistant will anticipate his manager's request, from experience, and take a simple hint as to what to do and not to do.

Accessible

The assistant is there when they're needed. They support the manager and conform to his schedule and not the other way around. The assistant will communicate with the manager on the manager's terms, not the other way around.

High Availability

The assistant will be where the manager is, and will communicate with the manager on the manager's terms, not the other way around.

Universal

The Assistant will fulfill a known and understandable role. No surprises, no unusual characteristics, will not change attitude and functionality outside the known parameter just because of a different week day, or a different office room, etc.

Portable

The Assistant can travel with the manager to a local meeting or around the globe. Even when staying at home, the assistant can still support the manager who is traveling by providing him with all necessary and customary services.

Cost Effective

No inflexibility. It will not require more then one assistant per manager. If the manager is on a different floor, in a different branch, the same assistant will remain on the job. If an assistant lacks or need a new skill, the assistant will be able to add that skill on, and there will not be a need to release him from service and to get another assistant.

Who is in the Market

Automotive Companies
 Major Tier one automotive suppliers
 Big name Electronics Giants
 Major Telecommunications Company
 after Market entrepreneurs
 Joint ventures among Telematics service providers and other IT leading companies

What is on the Market

GPS Navigation systems of various sophistication/complexity
 (Built in or After Market)

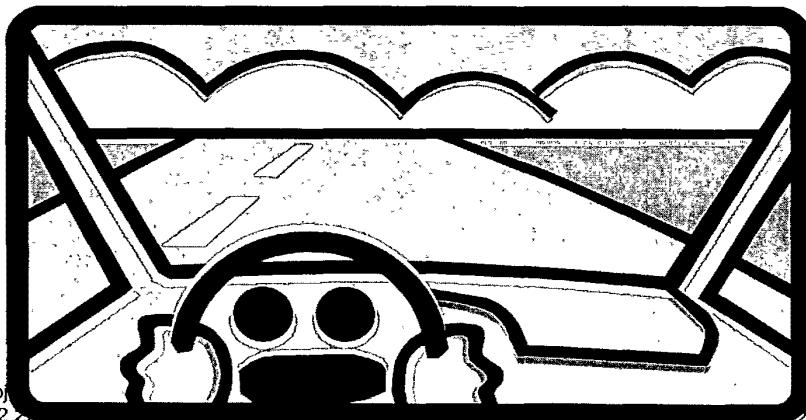
Cell Phones and accessories with various configurations
 (Built in or After Market)

PDA's, Notebook PC's and accessories for mobility
 (Built in or After Market)

Wireless Always On Internet access
 (Built in or After Market)

Concierge service providers, where a live operator will provide assistance to driver, at the touch of a button.

Telematics services aimed at the driver, the manufacturer of an automobile, and a whole range of industries to promote new products and support methods never before possible. These are an automated version of the Concierge service and mostly work in the background. They can interact with the driver via live operator as well as via speech recognition and other interfaces.



Case Study

This presentation is using the in car Radio as a Case Study/Benchmark and to show the lack of, significant, universally applicable, cost effective progress on resolving safe controls of peripherals in vehicles in general.

Radios and their entertainment successors have long been a source of distraction to drivers. I remember seeing a Michigan State Police TV Ad; back in the 70's, describing how a man wanted to change a tune and ended up changing the life of a family by killing their young daughter because he was too distracted with the radio.

The story in the ad, as tragic as it is, did not stop drivers from continuing to take their hands off the wheels and eyes off the road to change the radio to their favorite station.

Why? Because, they were not offered any alternative methods. Yet, they were offered the enticement.

And now with the advent of Telematics, the radio is one of many culprits in this situation. CD's, Tape decks, Cellular phones, Pagers, PDA's, AutoNavigation, Internet and e-mail access, etc. All stand alone equipments with a mind of their own.

Although Telematics devices and Consumers Electronics are not the sole culprit in driver distraction, they represent a considerable concern. But unlike other sources of distraction, e.g. Shaving or putting on makeup while driving, etc. They also can represent a solution to the very problems they cause.

The driver distraction issue is being pushed up to national and global debate level. It is a cause to be solved, with grass root proponents and virtually no opponents.

What we need to control

The Telematics equipment that is prevalent today is the following:

1. Cell Phones, (Including text messaging)
2. In Car Navigation Aid, (Full map or just Arrows)
3. Pagers, (Including Text Messaging)
4. PDA, (Including Wireless e-mail and Internet access, getting reminders of, Calling up or setting appointments or agenda)
5. Notebook, (Including Wireless e-mail and Internet access, getting reminders of, Calling up or setting appointments or agenda)
6. In Vehicle access to the Internet, e.g. Shopping, Reservations etc
7. In Vehicle access to Personal or Business LAN, WAN
8. In Vehicle access to e-mail
9. Information e.g. about nearest facility, Hospital, Gas Station etc.
10. Audio and video equipment, e.g. Radio, Music CD, DVD, Books on tapes etc.
11. Environmental Controls

Current Telematics components and challenges to safe usage

The following is a list of current Telematics products available on the market. Below each of the categories noted in bold characters, we will show what the associated challenges and shortcoming of such devices as it relates to the safe use while driving. The theme we aim to live up to is **"Eyes on the road, Hands at the wheel at 10&10"**

Touch Screens Input (Auto Navigations)

1. Lower than Eye Level
2. May or may not require a vehicle to be parked to change settings
3. More distracting and involved to operate than a radio
4. Does Not support look ahead, hands at 10:10, (10&2)
5. No relationship or restriction on vehicle and driver/driving condition

Knobs and buttons Input (Auto Navigations)

1. Off to the side
2. Lower than Eye Level
3. May or may not require a vehicle to be parked to change settings
4. More distracting to operate than a radio
5. Does Not support look ahead, hands at 10:10, (10&2)
6. No relationship or restriction on vehicle and driver/driving condition

Cell Phones

1. Hand Held
2. Head set
3. Some are voice activated
4. Docking base/Hand free (which leaves driver hands free to engage in additional tasks and increases the opportunity for distraction).
5. Still require hands off steering wheel, Possibly eyes off road
6. No relationship or restriction on vehicle and driver/driving condition
7. Distracting to receive/initiate calls
8. Does not support look ahead, hands at 10:10, (10&2)

PDA's

1. Hand Held
2. More distracting to operate than a radio
3. Usually stowed away, or on person
4. No relationship or restriction on vehicle and driver/driving condition
5. Does Not support look ahead, hands at 10:10, (10&2)
6. No relationship or restriction on vehicle and driver/driving condition

Pagers

1. Hand Held
2. More distracting to operate than a radio
3. Usually stowed away, or on person
4. No relationship or restriction on vehicle and driver/driving condition
5. Does Not support look ahead, hands at 10:10, (10&2)
6. No relationship or restriction on vehicle and driver/driving condition

Notebooks PC

1. Off to the side Lower then Eye Level
2. Docking base/On passenger seat
3. More distracting to operate than a radio
4. Does Not support look ahead, hands at 10:10, (10&2) No relationship or restriction on vehicle and driver/driving condition

Concierge systems

1. Off to the side
2. Partially support look ahead, hands at 10:10, (10&2). (Require at least one hand off steering wheel, eyes off road)
3. Functionalities and services are voice activated, (Accessibility concern)
No relationship or restriction on vehicle and driver/driving condition

What is being done to over come these challenges?

Current Solutions:

1. Speech Recognition:

The most significant achievement is the advent of speech recognition. We experimented with this technology in the 80's and discounted its importance and effectiveness quickly. The technical challenges where not the main discouragement, and they have since been turned to miniscule or near none existing problem. Hardware and Software Cost remains a significant factor, and the other important factor is the diversity in the languages which causes further subdivision of the market. Last but not least, the Hand free approach offered by the Speech driven interface, **leaves driver hands free to engage in additional tasks and increases the opportunity for distraction. It also have accessibility issues for speech impaired and sickness impaired individuals**

2. Concierge Service:

Usually found in Luxury cars, Concierge services are now beginning to move down stream. This service relieves the driver from having to look at a screen to discern position and opens the possibility to many new services that can potentially be added. **Like speech driven interface, it leaves driver hands free to engage in additional tasks and increases the opportunity for distraction. It also have accessibility issues for speech impaired and sickness impaired individuals**

3. Other Fancy interfaces:

An array of layered menus on graphical touch screen or push buttons interface that is as distracting if not more distracting and involved then simple levers and buttons in the current systems. On some vehicles, such interfaces account for hundreds of layered functions or alternatively hundreds of buttons, switches and levers.

What is being done to over come these challenges?

Solutions short coming: the case of Speech Recognition

1. Safe

- 1.1. Backseat drivers issuing commands advertently or inadvertently. Audio from other internal & external sources, e.g., radio etc.
- 1.2. Does not take into effect the entire driving System
- 1.3. Leaves driver hands free to engage in additional tasks and increases the opportunity for distraction.

2. Assures driver Intent

- 2.1. Backseat drivers issuing commands advertently or inadvertently Audio from other internal & external sources
- 2.2. Missed commands and noises contributing to unwanted activations or added cognitive involvement from driver

3. Simple

The Problem with speech recognition is the same problem that faced DOS and helped push GUI like Mac and Windows into success. This means:

- 3.1. Drivers have to remember a lot of commands to achieve simple tasks.
- 3.2. Drivers have to be mindful of Syntax

4. Accessible

- 4.1. Drivers have to be able to speak, (No illness/disability)

5. Highly Available

- 5.1. No Open Windows/ No wind noise/ No Audio from other internal sources.

6. Universal

- 6.1. Driver's Accent (Can be a problem depending on system sophistication)
- 6.2. Vehicle has to speak the language of the Driver, which requires several developments, maintenance and upgrade tracks.
- 6.3. Drivers have to remember commands for different cars
- 6.4. Drivers have to be mindful of Syntax

7. Portable

- 7.1. Investment in equipments and systems that are affixed to a vehicle and can not be used elsewhere

7.2. No portability of driver preferences

8. Cost Effective

- 8.1. The technology has limited applications. Unlike Cellular phone technology, barring a breakthrough in applications, reliable and effective speech recognition is not sufficiently popular to bring down cost
- 8.2. Vehicle has to speak the language of the Driver, which means more development maintenance and upgrade cost
- 8.3. Investment in Hardware are affixed to the vehicle and cost can not be used elsewhere

What is being done to over come these challenges?

Solutions short coming: the case of Concierge Service

1. Safe

- 1.1. Other Communication and Information devices are still stand alone and can still cause distraction to Drivers
- 1.2. Some features like air bag deployment monitoring and vehicle tracking in event of theft or carjacking are a **plus**
- 1.3. Does not take into effect the entire driving environment.

2. Assures driver Intent

- 2.1. Once accessibility issues are addressed. Assuring driver intent is a matter of service quality

3. Simple

- 3.1. No issues. A **plus**

4. Accessible

- 4.1. Driver has to be able to speak and hear, (No illness/disability)

5. Highly Available

- 5.1. Service coverage, Driver has to be able to speak and hear, (No illness/disability)

6. Universal

- 6.1. Advisors have to speak the Driver language, which means more specialized staffing

7. Portable

- 7.1. Investment in equipments and services that are affixed to vehicle and can not be used elsewhere.

8. Cost Effective

- 8.1. Monthly fees associated with the service have to speak the Driver language, which means more staffing cost
- 8.2. Other monthly fees still have to be paid for own portable cellular and ISP providers

9. Privacy

- 9.1. Serious issues.

Conclusion:

At present, the car is becoming a hauler of High tech Gadgets and people. What is missing is the Lack of a universal Driving System approach that integrates with Telematics technologies. What is missing is recognition of **The Driving Systems, (Man, Machine, Environment, Regulation, and History)**

- **Man:** The driver, The Passengers, The Pedestrians, Society
- **Machine:** The car, The Telematics, The infrastructure
- **Environment:** The driving environment (In the car and outside the car and the Infrastructure used)
- **History:** The personal driving experience, the equipment maintenance history
- **Regulation:** The existing laws and common safe driving etiquette into, Society and the Infrastructure regulation)

What is missing is a Safe Telematics Monitoring & Controls. Such controls must assure conditions for Safe operations, Assures driver Intent, Simple, Accessible, High Availability, Universal, Portable and Cost Effective.



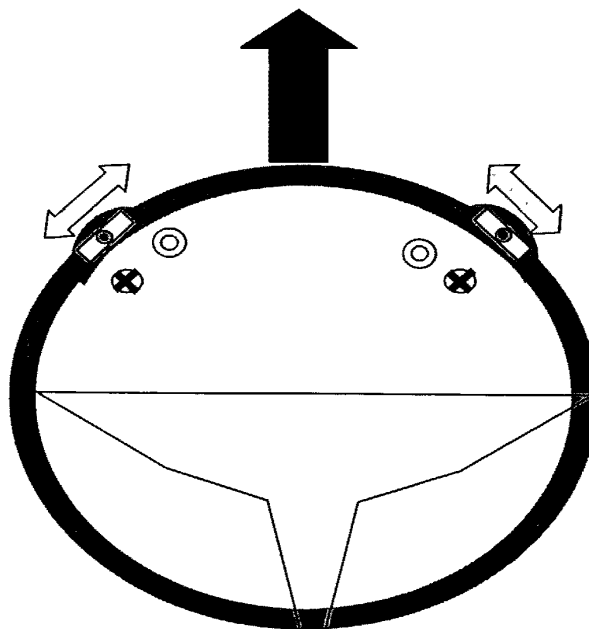
STMC: Concept that meets criterion What is STMC Gateway

It is literally
Eyes on the road



Hands at the wheel at 10:10, (10and2)

1. By placing the controls on the steering wheel, the eyes stay on the road because there's no reason to hunt for controls.
2. By requiring hands to be at the steering wheel while using Telematics, drivers can not engage in a third task, e.g. writing, going through papers etc...



Why is it “Safe “

1. Placing Hands on the steering wheels and @ 10:10, (10:2) is mandatory to initiate or respond to a Telematics activity.
 - 1.1. BENEFIT: Drivers do not engage in additional tasks
 - 1.2. BENEFIT: Proven effective in Industrial Safety
1. Allowing any off the shelf device existing, or to be developed to Dock with the system physically or wirelessly.

Benefit: Consumers can use with their own devices, so operating the device does not require additional cost which is an incentive and a factor.
2. The systems is monitored by a Modular, Dynamic, State Machine logic, that adds, remove, prioritize, enable or block equipments and services by:
 - 2.1. STMC safety categories and operation parameters (Will be explained later)
 - 2.2. Frequency of use (as per each driver habit / pattern)
 - 2.3. Real time Driving conditions and Vehicle safety status
 - 2.4. Driver physiology feed back
 - 2.5. Driver Habits
 - 2.6. Driver Knowledge

Benefit: Decreased cognitive effort AND added convenience
3. Redundant/Sanity Check on status
 - 3.1. The Algorithms do multi check on each signal by comparing the results with other related signals, e.g. RPM & Throttle Position, Speed and Transmission gear and Engine RPM
 - 3.2. If the signals do not coincide as they should, the STMC will assign the more stringent safety category, e.g. B becomes A, D becomes C. etc.

How does it “Assures driver intent“

1. Placing Hands on the steering wheels and @ 10:10, (10:2) is mandatory to initiate or respond to a Telematics activity.
 - 1.1. BENEFIT: 1- No accidental activation in an inopportune time. This is assured by the switching mechanism. (One touch two actions)
 - 1.2. BENEFIT: Any subsequent Voice Commands (If equipped), are authenticated as those of the driver and not of any peripheral sounds or inputs.

Note: (the Hands ON function is not limited or constricted by any timing scheme in compliance with EU recommendations and standards.)

Why is it “Simple”

1. Just a switch or a lever
 - 1.1. Benefit: No need for special training or skills and decreased cognitive effort
2. Any one allowed to drive can operate any version of the device
3. Hands On, awaken the system instantly
 - 3.1. Benefit: Decreased cognitive effort
4. Thumbs down means No, Skip, Cancel
 - 4.1. Benefit: Decreased cognitive effort
5. Thumbs up, means Yes, Select, Activate
 - 5.1. Benefit: Decreased cognitive effort

How is it “High Availability”

1. Does not require Special environment
 - 1.1. Benefit: Open Windows, Crying baby, feuding kids, do not interfere with driver actuation
2. Instantaneous selection
 - 2.1. Benefit: Literally at a finger tip
3. Any one who is able to drive can operate
 - 3.1. Benefit: Sore throat, tired, etc. does not block a user from accessing various functionalities.

How is it “Accessible”

4. Does not require Vocal ability
 - 4.1. Benefit: Naturally inclusive to persons with speech impairment
5. Any one who is able to drive can operate
 - 5.1. Benefit: Sore throat, tired, etc. does not block a user from accessing various functionalities.

Why is it “Universal”

1. No special changes or differences among car manufacturers
 - 1.1. Benefit: Just like a turn signal or a door handle, the shape will change, but the function is easily understood by new customers
2. Global: Any one who is able to drive can operate
 - 2.1. Benefit: Increased safety as drivers do not need to understand differences among different car manufacturers as they shop for a new car or as they drive rental or other person's car.
 - 2.2. Benefit: Decreased cognitive effort

Why is it “Portable”

1. Profile of a driver is constantly being updated by the System. This updated profile includes statistics about the driver driving habits, priorities, patterns, the area and type of roads used etc. All of these are transportable with the driver in the following methods
 - 1.1. By upload to the Phone to be downloaded again at the next trip
 - 1.2. By upload to the PDA to be synchronized again at the next trip
 - 1.3. By upload to a Web site for remote access later from anywhere
 - 1.4. By upload to a magnetic media to be retrieved when using another vehicle
 - 1.5. Sent out via e-mail to be retrieved at the next activation of the profile via automatic login.
 - 1.5.1. Benefit: All the driver experiences are available at any vehicle
 - 1.5.1.1. Rental
 - 1.5.1.2. Loaners
 - 1.5.1.3. New car
 - 1.5.1.4. etc.....
 - 1.6. Customers take their data and their equipments with them. Their investment is not fixed to the vehicle

How is it “Cost effective”

1. One solution fits all
 - 1.1. Benefit: No need for various interface schemes across models and manufacturers
2. Not based on language
 - 2.1. Benefit: No need for separate development tracks for different markets
 - 2.2. Benefit: No concerns with Dialect and accents refinements
3. No need for separate legal compliances and repeated Homologations certifications
 - 3.1. Benefit: Simpler standards and less parts, configurations variance and launches.
4. . Simple and understood technology to implement reliably
 - 4.1. Benefit: Liability reduction
 - 4.2. Benefit: Development cost reduced and spread across Market
5. Universal interface with all consumer Telematics is cost effective because every one can still use the safety advantage with what ever equipment they have assure customer satisfaction.
6. Customers do not have to invest in new equipments for use only in the vehicle

Transferable to other functions

- 1: Can be used to Control Entertainment systems
- 2: Can be used to control A/C and heater



Assessment

We showed in the STMC model that all of the elements of safe Telematics usage and decreased driver distraction. *The Driving Systems, (Man, Machine, Environment, Regulation, History)*

The remaining challenge is in assigning limits to Telematics activities in a way that it will not interfere with safety, nor will it inconvenience a driver in a controllable driving situation. This is done by assessing the over all driving system and weighing it against known risks to the driver and to others.

Our experimentation and experience indicate the following as essential method of evaluating and deploying an STMC. This method is summarized in the following Safety Categories Table.

Categories		Rank			
	Effect	A	B	C	D
1	Likely AND/OR Known to cause distraction AND accidents	X	?	?	?
2	Likely BUT NOT Known to cause distraction AND accidents	?	X	?	?
3	May Cause distraction or accident	?	?	X	?
4	NOT Likely AND NOT Known to cause Distraction AND Accident	?	?	?	X

The Matrix will be used to Assess, (not measure or quantify), the type of work load that a Telematics activity can add to the driving task. Based on the assessment, the result will put the type of controls necessary on such Telematics devices so as to reduce the risk associated with such usage.

The control should aim to allow the driver to use Telematics but under a more favorable driving conditions, e.g., not "zig zaging", Not Driving over Known Speed limits, Not Racing etc. Couple this type of Industry experienced assessors to a smart device that know the drivers patterns and habits, and you get a Safer Telematics experience.

If the driving system activity is border line in terms of known risk or suspected risk, that activity is pushed to the next highest criteria. This is not inconvenience to the user, because the user will still be able to use the said device by compromising on driving options, e.g.:

- Staying in the same lane
- Driving within the speed limit
- Driving slower on Snow/Ice covered roads etc
- Keeping a safe distance from cars to the front of vehicle
- Keeping an eye out for traffic to the rear and both sides of the vehicle
- Refraining from eating/drinking/reading or handling documents
- Keeping both hands where they should be at 10&10 on the steering wheel.

- Additionally, the driving system will evaluate these limits and decrease such limit if they are deemed to be too strict for the normal driving condition of the driver.

Case Study Sedan/Minivan

Based on the Safety Categories table, we have assessed a sedan/minivan criterion in the safety parameters to be monitored and controlled. This Assessment is not valid for Hazardous Material Haulers, School Bus, etc.

1-Clearly separating what's:

1 a- Important for safe driving	Class	A
1a.1- Subject Vehicle	Class	A-S
1a.2- Other Vehicles	Class	A-O
2-a Important to drivers	Class	B
3-a "Nice to Have" to drivers	Class	C
4-a "Important/Nice to Have" to Passengers	Class	D
2- Assuring driver intent	Class	A
3: Simplicity	Class	A
4: Accessibility	Class	A
5: High Availability	Class	A
6: Universality	Class	B
7: Portability	Class	B
8: Privacy	Class	B
9: Cost	Class	C

Some of the interpretations above will apply to all vehicles, while some vehicles like Hazardous Material haulers will have different interpretation of the Safety Categories Table based on Accident Data and regulation related to that field of driving. Both, the Vehicle Manufacturer and the regulatory bodies will have to set such interpretations.



Safety Categories Assessment Table (Sedan/Minivan)					
		Class A	Class B	Class C	Class D
Important for safe driving					
	Subject Vehicle & Driver	X			
	Other Vehicles & Drivers	X			
Important to drivers			X		
"Nice to Have" to drivers				X	
"Important/Nice to Have" to Passengers					X
Assuring driver intent		X			
Simplicity		X			
Accessibility		X			
High Availability		X			
Universality			X		
Portability			X		
Privacy			X		
Cost				X	

1. Important for safe driving Class A- Subject Vehicle

- 1.1. Clear view of the road. (Looking Ahead, Head up, Eyes up)
- 1.2. Correct driver positioning to respond to emergency maneuvers. (Hands @ 10:10, (10&2))
- 1.3. Simplicity of Controls
- 1.4. Accessibility of controls
- 1.5. High Availability of controls
- 1.6. No untimely distraction (No conflict between driving safely and using controls, Telematics or otherwise)
- 1.7. No overwhelming distractions (No conflict between driving safely and using Telematics, No Multiple Telematics requests, Controlling In cabin Activities)
- 1.8. No overloaded activity (No conflict between driving safely and using Telematics)
- 1.9. No Multiple Telematics request
- 1.10. Good driving conditions/habits
- 1.11. Good, (Stable), driver state of mind/physiology
- 1.12. Access to emergency services and information
- 1.13. Finishing the Trip Safely
- 1.14. Driver is not distracted by Passengers Telematics activities:
e.g. Passengers phone on Vibrate or other silent type
- 1.15. Driver does not have to authorize, adjust, or accommodate passengers Telematics activities. E.g. Passengers access to Internet or Favorite CD/Radio station is through their own terminals and with out the need for the Driver to initiate or authorize such activity on an ad hoc basis.
- 1.16. Drivers Telematics activities will take precedents over all others.

- 1.17. Drivers Telematics activities are not restricted by Timing schemes.
- 2. Important for safe driving Class A- Other Vehicle**
 - 2.1. In addition to Important for safe driving, Class A-
 - 2.2. Subject Vehicle Subject Vehicle driver is not Over loaded
 - 2.3. Alerts to the fact that the system in Subject Vehicle is Circumvented
- 3. Assuring Driver Intent Class A- Subject Vehicle**
 - 3.1. No accidental input likely
 - 3.2. No secondary unintended peripheral input likely
 - 3.3. No Backseat driver input likely
 - 3.4. Input Mechanism is tested integrity at start up and continuously throughout operation
 - 3.5. Input Mechanism not triggered by chance touching
 - 3.6. Disabled switches/input media will fail to safe state, not allowing circumventing of system
 - 3.7. Not restricted by a timing scheme
- 4. Simplicity Class A- Subject Vehicle**
 - 4.1. No multiple commands required
 - 4.2. Automatic Intuitive arrangement of Priority functions, e.g. Cruise Controls over Changing a music CD Phone over Radio Volume
 - 4.3. Automatic Intuitive arrangement of mostly used functions for easy and quick access
 - 4.4. Active incoming Telematics is placed at Top Priority to simplify controls
 - 4.5. Controls are simple (Yes/No), (Up /Down), etc.
- 5. Accessibility Class A- Subject Vehicle**
 - 5.1. Can be used if a driver can drive
 - 5.2. Normal vision
 - 5.3. Ability to hear sounds or recognize lights. Discernable Audio is a Plus
 - 5.4. Does not require more then driver limbs
 - 5.5. Can take to account some physical disability. (Loss of a hand etc.)
- 6. High Availability Class A- Subject**
 - 6.1. Self contained and does not depend on real time connection
 - 6.2. Does not depend on Service Coverage area, except for communication
 - 6.3. Replacing any off the shelf (Consumers Electronics) device will not cause down time
- 7. Universality Class B- Subject Vehicle**
 - 7.1. Not dependent on regional or linguistics specialty
 - 7.2. Not dependent on brand or model or specific service
 - 7.3. Interchangeable modules or components, e.g. new cell phone

8. Important to drivers Class B- Subject Vehicle

- 8.1. In addition to All Class A -
- 8.2. Finishing the trip efficiently.
- 8.3. Access to Traffic and Weather
- 8.4. Emergency services
- 8.5. Emergency contacts
- 8.6. Emergency information
- 8.7. Directions
- 8.8. News and entertainment, (In this order)
- 8.9. Override of controls for emergency purposes
- 8.10. Cost is manageable and not prohibitive

9. Portability Class B- Subject Vehicle

- 9.1. In addition to All Class A-S
- 9.2. Allowing any off the shelf device existing, or to be developed to Dock with the system **physically or wirelessly.**
- 9.3. can be updated with new information/program in several ways
 - 9.3.1. Wireless internet
 - 9.3.2. Wireless LAN / WAN
 - 9.3.3. Physical Synchronization with PDA or Cell phone or a combination of both.
 - 9.3.4. Wireless e-mail
 - 9.3.5. other storage media
 - 9.3.6. Locally or Globally
- 9.4. Profile information is transportable via
 - 9.4.1. Wireless internet2- Wireless LAN / WAN
 - 9.4.2. Physical Synchronization with PDA or Cell phone or a combination of both.
 - 9.4.3. Wireless e-mail
 - 9.4.4. other storage media
 - 9.4.5. Locally or Globally
- 9.5. Modules as in Cell phones, Pagers, etc are portable and usable outside the vehicle
- 9.6. Modules as in Cell phones, Pagers, etc are portable and usable in all models and makes of vehicles irrespective of Brands

10.Privacy Class B- Subject Vehicle

- 10.1. In addition to All Class A-S
- 10.2. Easy to control access to information stored or generated by system without the need for a second party
- 10.3. No real time data access is possible to second party without Explicit/implicit authorization or high level of sophisticated technology

11. Cost **Class C- Subject Vehicle**

11.1. Cost will be kept low by using off the shelf modules for Drivers and Passengers electronics

11.1.1. Benefit: Maximizing returns on investments by permitting multiple usage permitting individual modules upgrade or replacement.

11.1.2. One solution fits all

11.1.3. Benefit: No need for various interface schemes across models and manufacturers

12. Drivers "Nice to Have" **Class C- Subject Vehicle**

12.1.1. In addition to All Class A-S and Class B

12.1.2. Contact with the Out Of Cabin World

12.1.3. Note taking/reminders

12.1.4. Phone: Incoming / Outgoing

12.1.5. Voice mail retrieval

12.1.6. Paging: Incoming / Outgoing

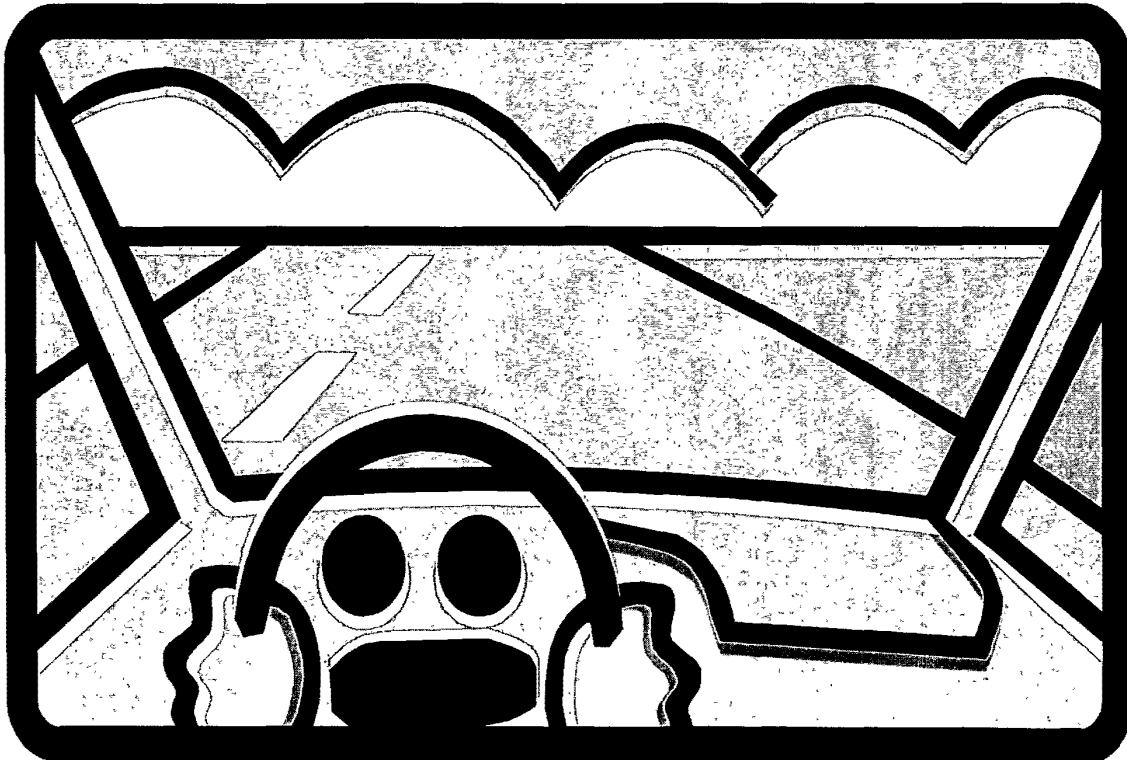
12.1.7. e-mail : Incoming / Text Messaging

12.1.8. Entertainment and News, (In this order)

12.1.9. Good use of the time spent in vehicle

12.2. Important/Nice to Have to Passengers **Class D- Subject Vehicle**

12.2.1. Free access to their own Telematics



DESIGN

The Device: STMC Gateway

The device will consist of: The Driving System, (Man, Machine, Environment, Regulation, and History)

1. User Interface
 - 1.1. Man Machine Interface
2. Connectivity & feed back methods
 - 2.1. Machine Machine
 - 2.2. Man Machine interface
 - 2.3. Machine Environment Interface
3. Configuration schemes
 - 3.1. Machine Machine Interface
4. Algorithm (s) to handle input from controls & enforce driving etiquette
 - 4.1. Man Machine interface
 - 4.2. Machine Machine Interface
 - 4.3. Machine Regulation interface
 - 4.4. Machine Environment Interface
5. Memory medium located at the device or elsewhere.
 - 5.1. Machine History Interface
 - 5.2. Man History Interface

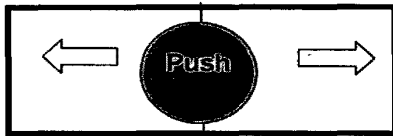


1. User Interface Design

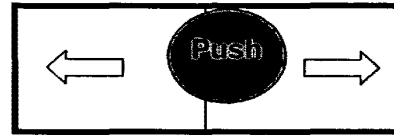
1.1. Controls:

1.1.1. Placing Hands on the steering wheels and @ 10:10, (10&2) is mandatory to initiate, respond or maintain a live Telematics activity.

Mechanical, or Resistive buttons, Type 1



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These Buttons will sit on the surface of the steering mechanism/flush or on a bracket built into or attached to the steering wheel rim facing the driver @ 10:10, (10&2). The Buttons shown here are an example of a Mechanical button with double switching mechanism within a single activation. This is explained in truth table below.

ISorSP	ISorSU	ISorSD	P Present	U OK (Thumb Up)	D Next / Cancel / No (Thumb Down)
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	0	0
1	0	0	1	0	0
1	0	1	1	0	1
1	1	0	1	1	0
1	1	1	0	0	0

Truth Table: double switching mechanism with a single activation

The red buttons:

- Built in sensor that can be used to measure changes in driver physiology.
- Signals are timed and tested at launch and cyclically during operation in a Sanity Check routine to assure no system override
- used to engage system

The red buttons are push In/Out momentary buttons or any other type of switching Mechanism. They can also be incorporated into the surface of the white button so their activation is totally invisible to the driver.

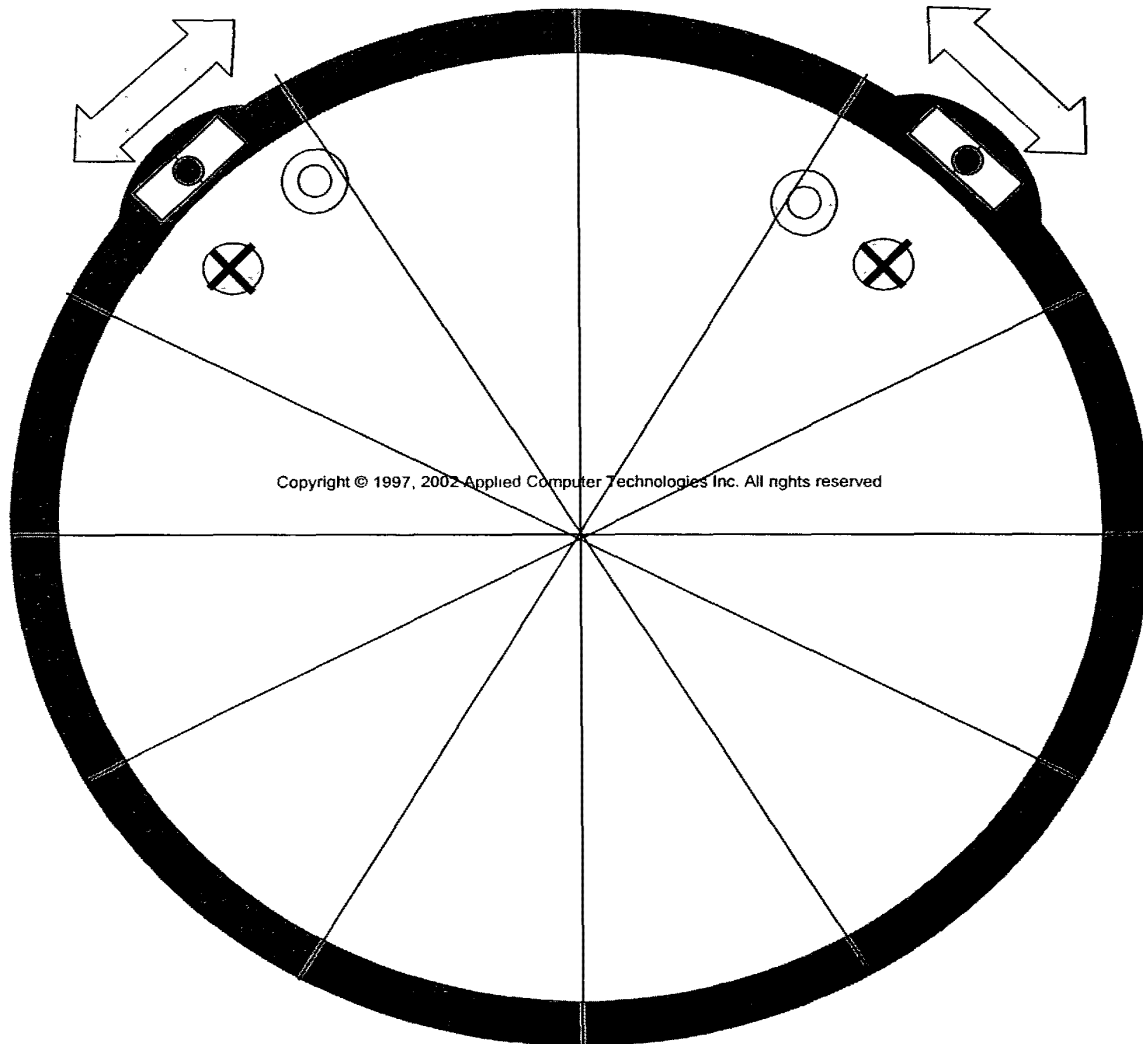
Touch sensitive surfaces are also added to the switches or other parts of the steering wheel to measure changes in driver physiology.

Other methods can be used for sensing driver physiology, e.g. via infrared detection, camera and image/color recognition etc.

Signals from switches are timed to assure no system override (But timing is completely transparent to driver)

The white buttons are slide Up/Down momentary buttons or any other type of switching Mechanism that can achieve the same function. They are used to activate and toggle options. They are free to slide without engaging the actuation (Present) contact, so the input to the system is ignored by the gateway.

Mechanical, or Resistive buttons, Type 1

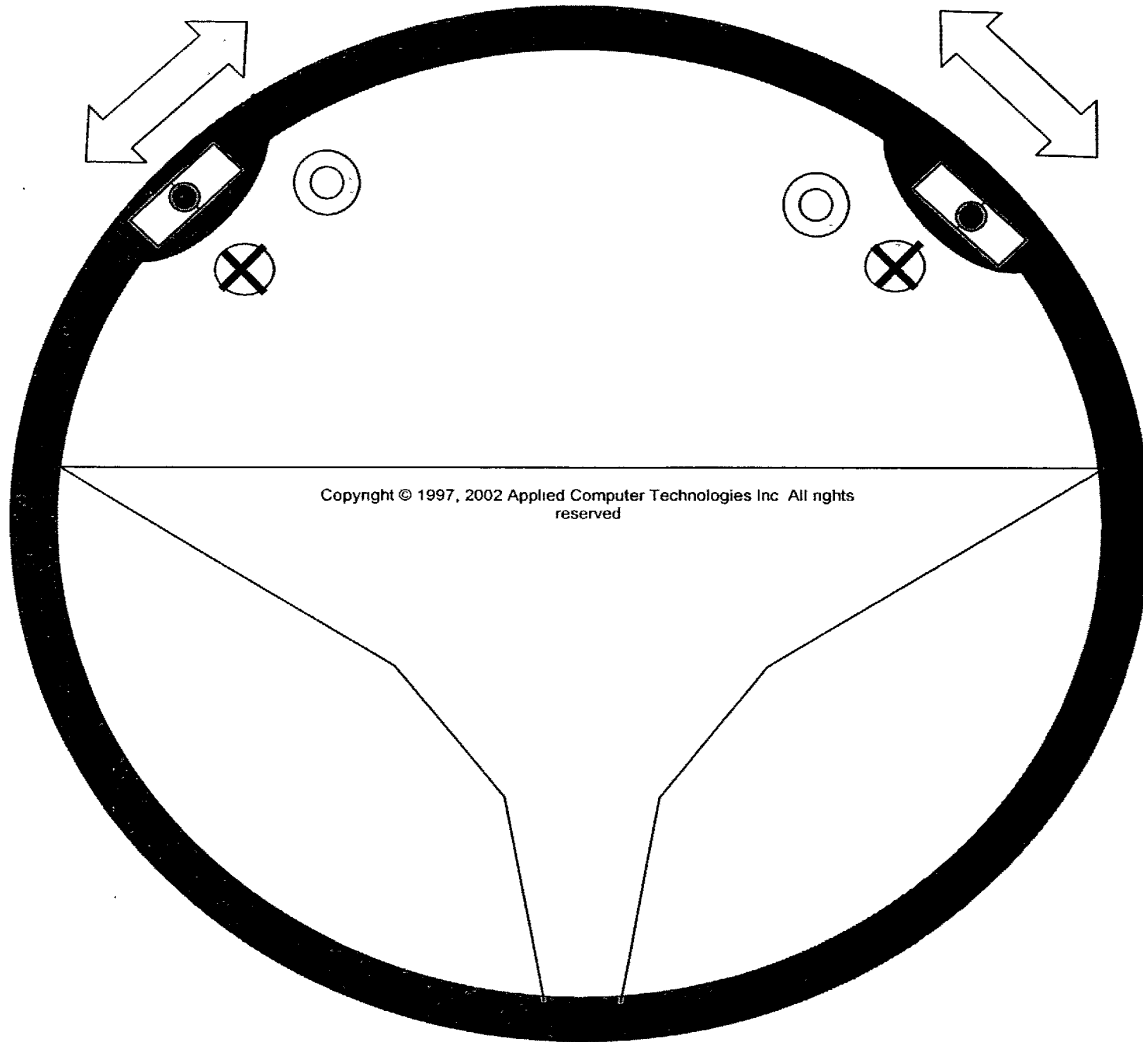


The Controls will be positioned to assure hands are at 10&10, (10 & 2). If the controls are not a rounded steering wheel, then the controls will be placed so they are accessible from the optimum control position

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User Interface Design

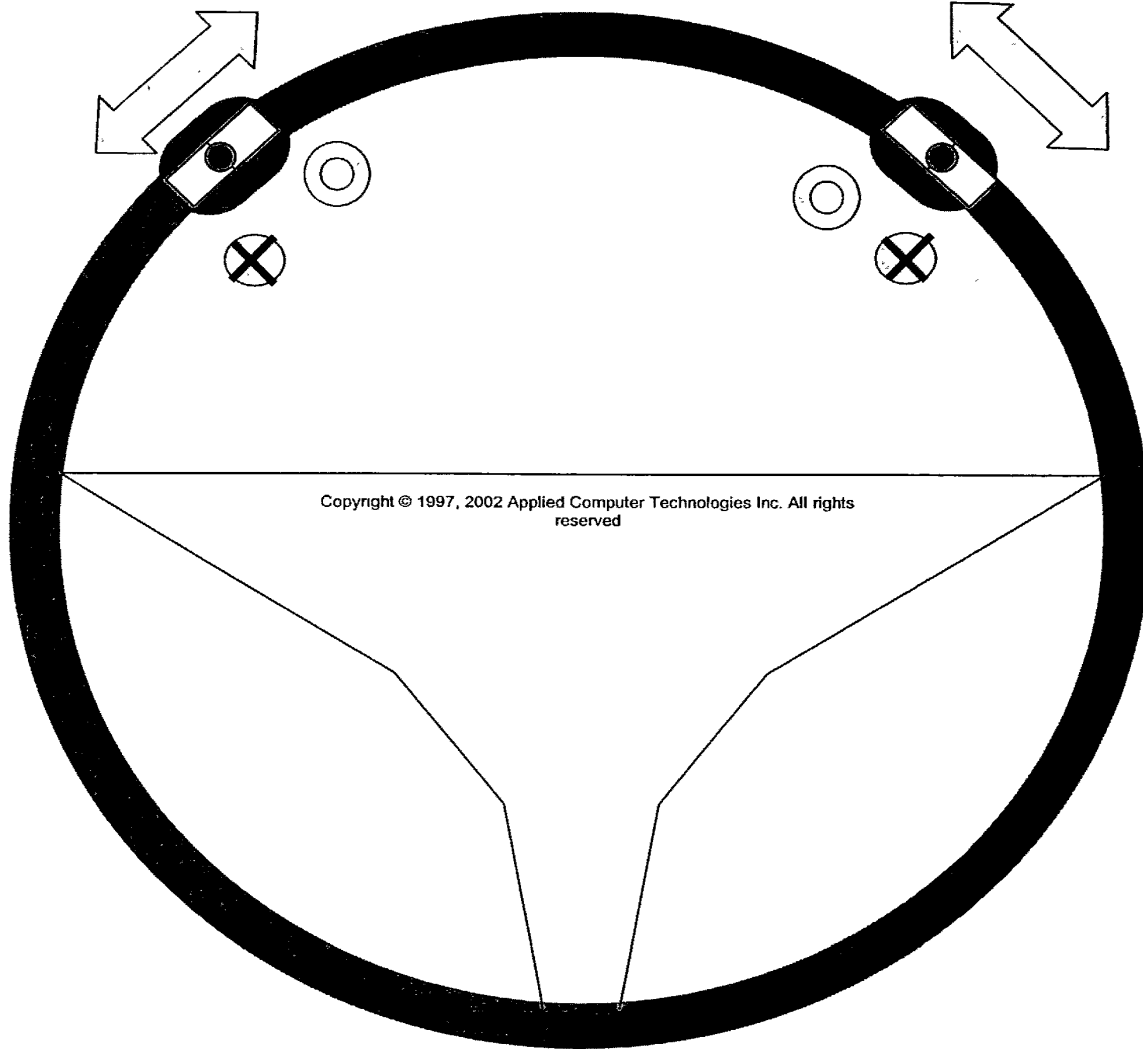
Mechanical, Optical or Resistive buttons, Type 1



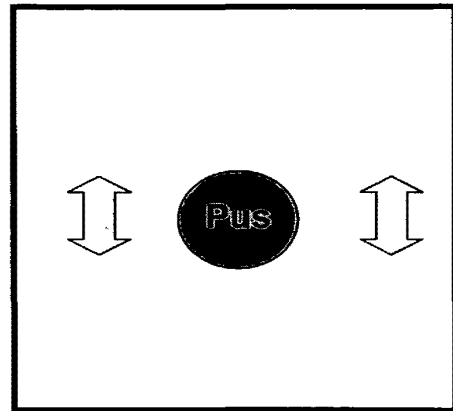
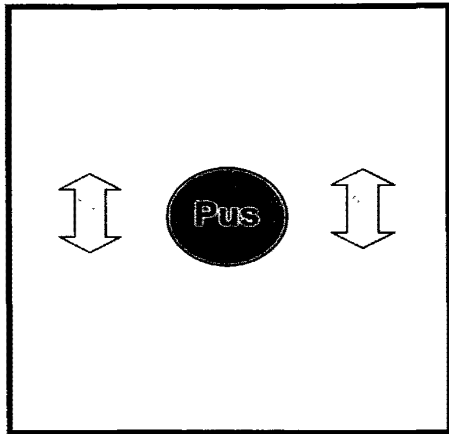
The controls are not limited in shape or configurations, so as long as they accommodate the functional purpose.

User Interface Design

Mechanical, Optical or Resistive buttons, Type 1



Mechanical, Optical_or Resistive buttons, Type 2



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These Buttons will wrap around the steering wheel rim on the surface or flush with the cross section of the steering wheel rim Facing the driver @ 10:10, (10&2). The Buttons shown here is an example of a Mechanical button with double switching mechanism within a double activation. This will be explained in truth table and diagram later.

The red buttons:

- Built in sensor that can be used to measure changes in driver physiology.
- Signals are timed to assure no system override
- used to engage system

The red buttons are push In/Out momentary buttons or any other type of switching Mechanism. They can also be incorporated into the surface of the white button so their activation is totally invisible to the driver.

Touch sensitive surfaces are also added to the switches or other parts of the steering wheel to measure changes in driver physiology.

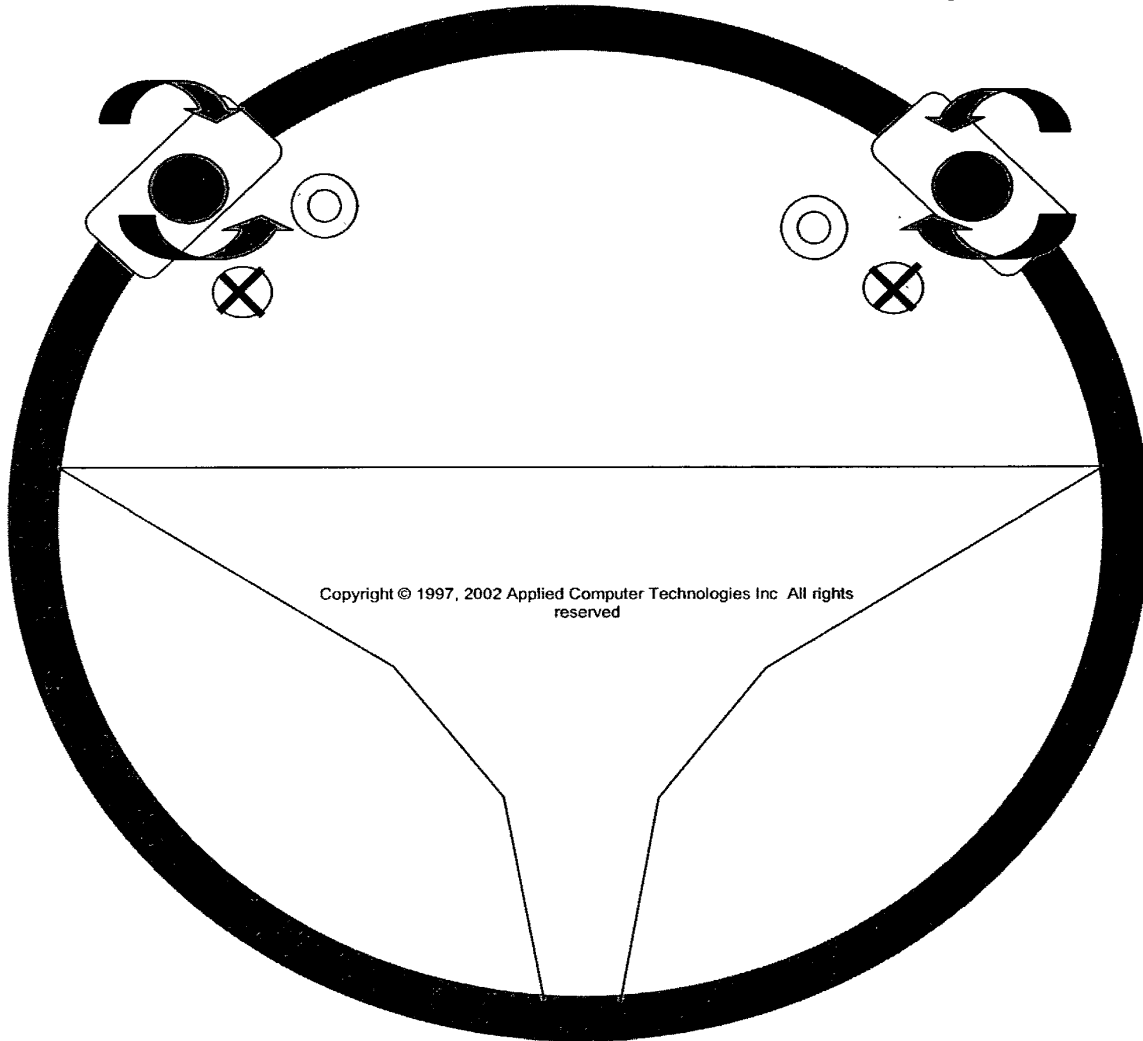
Other methods can be used for sensing driver physiology, e.g. via infrared detection, camera and image/color recognition etc.

Signals from switches are timed to assure no system override (But timing is completely transparent to driver)

The white buttons are:

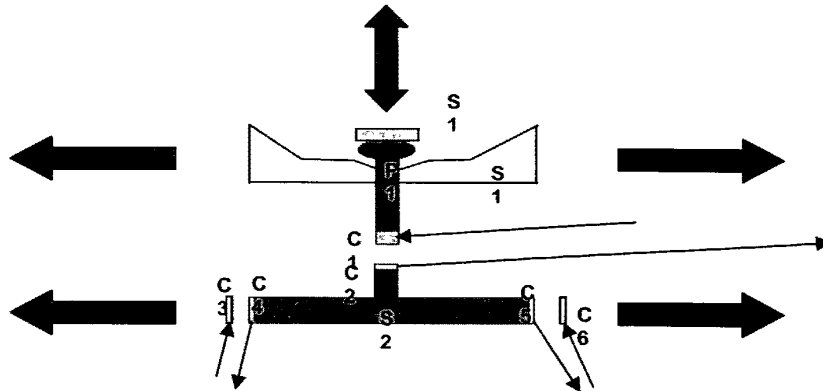
- Twist up/down about the steering rim, momentary buttons
- They are used to activate and toggle options

Mechanical, Optical or Resistive buttons, Type 2



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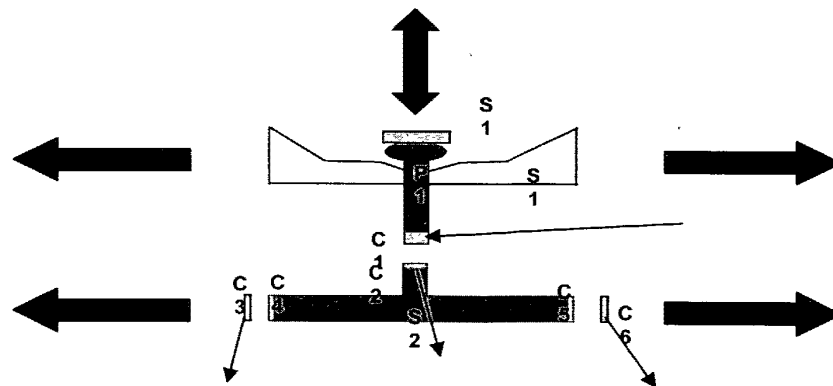
Single Action double switching examples



Single action double switching example 1

When S1 is pressed, P1 closes contacts with C1 and C2. This indicates that the both parts of the switch are engaged. This engagement causes S1 and S2 to be mechanically locked as well generating the Present signal, and consequently, C3 and C4 or C5 and C6 can be engaged to signal Thumb Up or a Thumb Down signal

When S1 is pressed, P1 closes contacts with C1 and C2. This indicates that the both parts of the switch are engaged. This engagement causes S1 and S2 to be mechanically locked as well as, generate the Present signal. The same signal has to pass through C4 to C3 or C5 to C6, and consequently generate signal Thumb Up or a Thumb down signal.



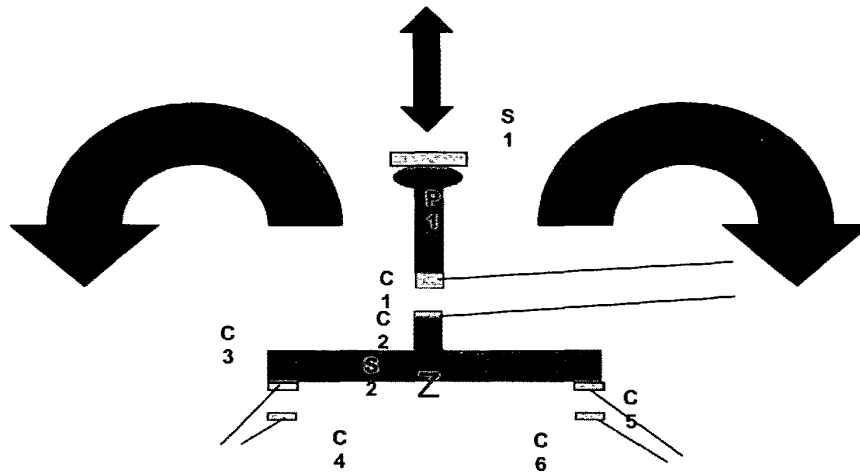
Single action double switching example 2

Differences

Diagram 1 of the switch has a wiring scheme with individual contacts wiring (-), allowing each contact to be individually authenticated to test for wiring integrity(+).

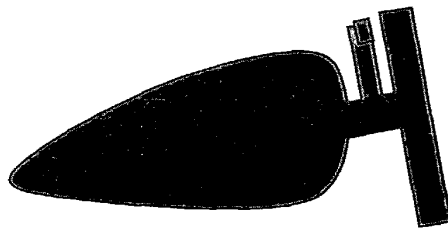
Diagram 2 of the switch has reduced wiring(+), but it does not allow for individual signal testing(-) since all signals are fed from the same source coming through C1.

The same mechanism and wiring schemes can be implemented in different mechanical configuration, e.g. rocking switch instead of sliding switch, twisting or rolling switch etc.

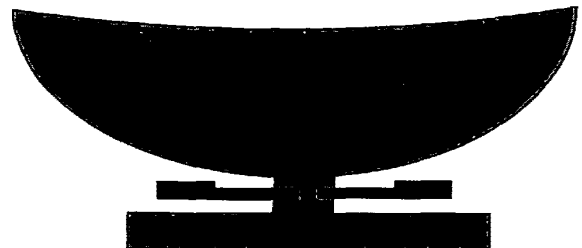


The SorS can also be mounted on stock levers as that turns with the steering wheel to be within easy reach of the driver when hands are @10/10. The disadvantage here is that the hands are not firmly gripping the steering wheel, but maneuvering the steering wheel will NOT cause a loss of activation since these levers will rotate with the steering wheel.

Side View



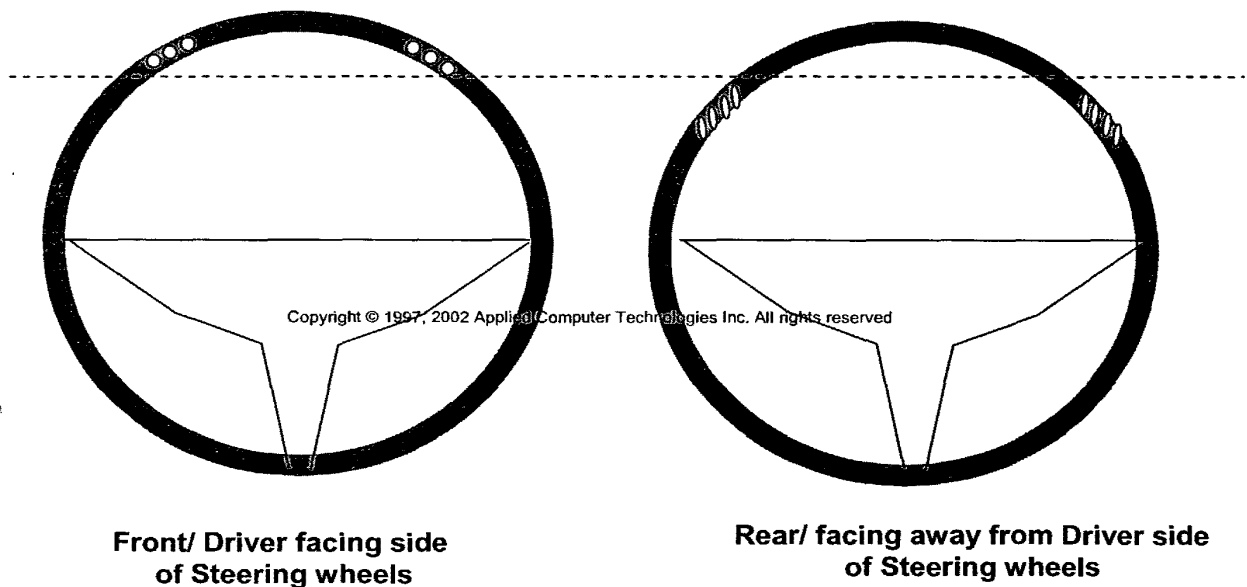
Top View

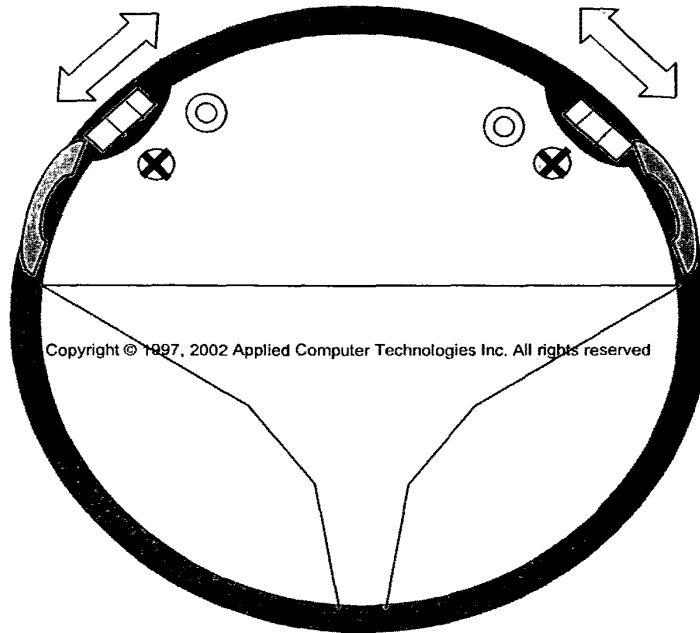


Other types of switches or mechanism can be used to assure driver intent. But, to do so, the switches have to be monitored by an intelligent circuit of program to assure a functional intent. Examples:

- By delaying response to Momentary switches with a minor delay, (*may be illegal in some jurisdiction and can add to driver uncertainty and thus increased cognitive effort*).
- By double taping and holding on a Momentary switch, or other sequence of events monitoring (not as simple as Thumb Up/Down concept)
- By using a Jog switch AND a Momentary switch with a Monitoring circuit
- By using dual Jogging switches with monitoring circuit.

An Example of Touch sensitive SorS configurations





Sensors for Physiology feed back can be collected via other locations on the steering and the single action double switching buttons can be further made transparent to the user.

Other methods of physiology feed back can be implemented using Infra red sensors for temperature changes, etc.

2.



Connectivity & feed back methods

2.1. Machine Machine

- 2.1.1. STMC will allow Telematics devices to dock with the system **physically or wirelessly**, (any off the shelf, or customized device existing, or to be developed)
- 2.1.2. Connectivity protocols will be using commonly applied communication protocols, e.g. CAN, MOD, IEEE Fire Wire, Blue Tooth, 802.11, Serial or USB etc, of any version or from any manufacturer irrespective of the platform.
- 2.1.3. STMC will connect to the vehicle via existing buses protocol or via direct taping to existing, or added sensors. The signals used by STMC can be recalculated to fulfill acceptable purpose, e.g. deceleration, Acceleration, etc...

2.2. Man Machine interface

- 2.2.1. The driver will select preferred method of feed back Voice, Audio, Video or all of the above or any combination thereof.
- 2.2.2. The screen will be a graphic based display and will be a HUD
- 2.2.3. The Voice feed back will be in the language of the driver
- 2.2.4. The driver will be given a chance to add his or her own voice, or some one else's) as an alternative to the built in voice.
- 2.2.5. The sounds will be not be threatening or alarming sounds. Again, the driver can select his or her own sounds.
- 2.2.6. The display, if not using a HUD, will be graphical/Icon and will be displayed and LIT with clear contrast in a position that a driver primary vision will still be focused on the road ahead, and not off the Road. (**Head up, eyes on the road ahead**)
- 2.2.7. The Lighting of any type of display will automatically adjust to the glare or darkness being experienced by the driver
- 2.2.8. The sound or audio feed back will interrupt any other audio in progress, unless it is safety related-it will then proceed following the other audio, and will adjust the volume to overcome any existing noises in the environment of the driver, e.g. open window, loud passenger, etc...

2.3. Machine Environment Interface

- 2.3.1. STMC will get hints of the environmental situation by monitoring the driver's actions with the vehicle.
- 2.3.2. Other feed back will be deduced from running a sanity check on values presented by the vehicle as a result of the driver handling.

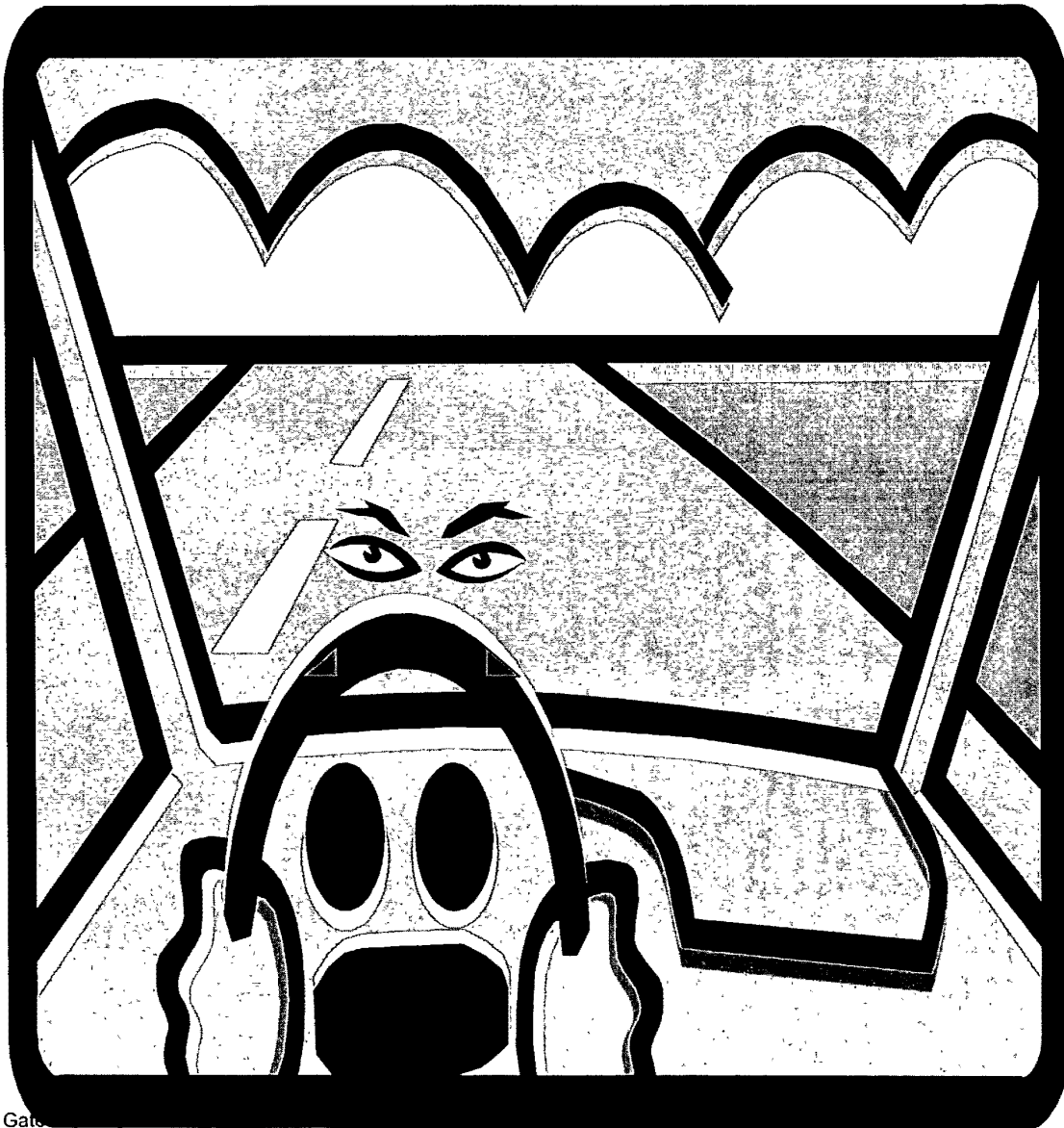


3. Configuration schemes

3.1. Machine Machine Interface

The STMC will be configured in many ways depending on individual model or applications:

- 3.1.1. A stand alone device that contains all necessary Telematics devices and software.
- 3.1.2. The Server/Hub for all Telematics devices.
- 3.1.3. A node or a client on the vehicle bus
- 3.1.4. Can be embedded software in any of the existing CPUs or over several existing CPU's on the vehicle or on any of the portable Telematics devices.
- 3.1.5. any combination of two or more of the above



STMC Gate
Created on 6/5/2002 2:48 PM -
Created by Mouhamad A. Naboulsi,-

Last printed 6/21/2002 9:45 AM
Last saved by System Administrator

4. Algorithm (s)/Intelligence/Program to handle input from controls & enforce driving etiquette

4.1. Man Machine interface

- 4.1.1. Algorithm (s) to handle input from controls and assure that no switch is stuck in one position or is being circumvented to circumvent controls and safety.

Algorithm: Fool proofing/counter circumventing measure/Integrity

Algorithm: Switches Decision

- 4.1.2. Algorithm (s) to read drivers physiology

Algorithm: Driver Biometrics and in Cabin activity

Algorithm: Driver Alcohol level

- 4.1.3. Algorithm (s) to read and interpret driver's actions with the vehicle and other in-cabin activities

Algorithm: Driver Biometrics and in Cabin activity

Algorithm: Predictive Algorithms

- 4.1.4. Algorithm(s) that Monitor the Driving Systems, (Man, Machine, Environment, Regulation, History), that adds, remove, prioritize, enable or block Driver from sending or receiving Telematics by

4.1.4.1.1. STMC safety categories and operation parameters

4.1.4.1.2. Frequency of use (as per each driver habit / pattern)

4.1.4.1.3. Real time Driving conditions

4.1.4.1.4. Driver physiology feed back

4.1.4.1.5. Driving System history

Algorithm: Predictive Algorithms

Algorithm: Profile building

4.2. Machine Machine Interface

- 4.2.1. Algorithms to read the dynamics and the static of the vehicle

- 4.2.2. Algorithms to read and react and activate Telematics and feed back mechanisms to Driver, to Telematics and to vehicle.

- 4.2.3. Algorithms to read and analyze the vehicle dynamics that are effected by environmental changes

Algorithm: Service Monitor

Algorithm: Intelligent Vehicle Features

Algorithm: Vehicle Operation Dynamics

Algorithm: Natural Environment

4.3. Machine Regulation interface

- 4.3.1. Algorithm (s) to read the dynamics and the static of the vehicle and regulate Telematics to meet known driving laws and etiquettes.

Algorithm: MDAS

Algorithm: Time-out Flag after emergencies

Algorithm: Alcohol level

Algorithm: Profile building

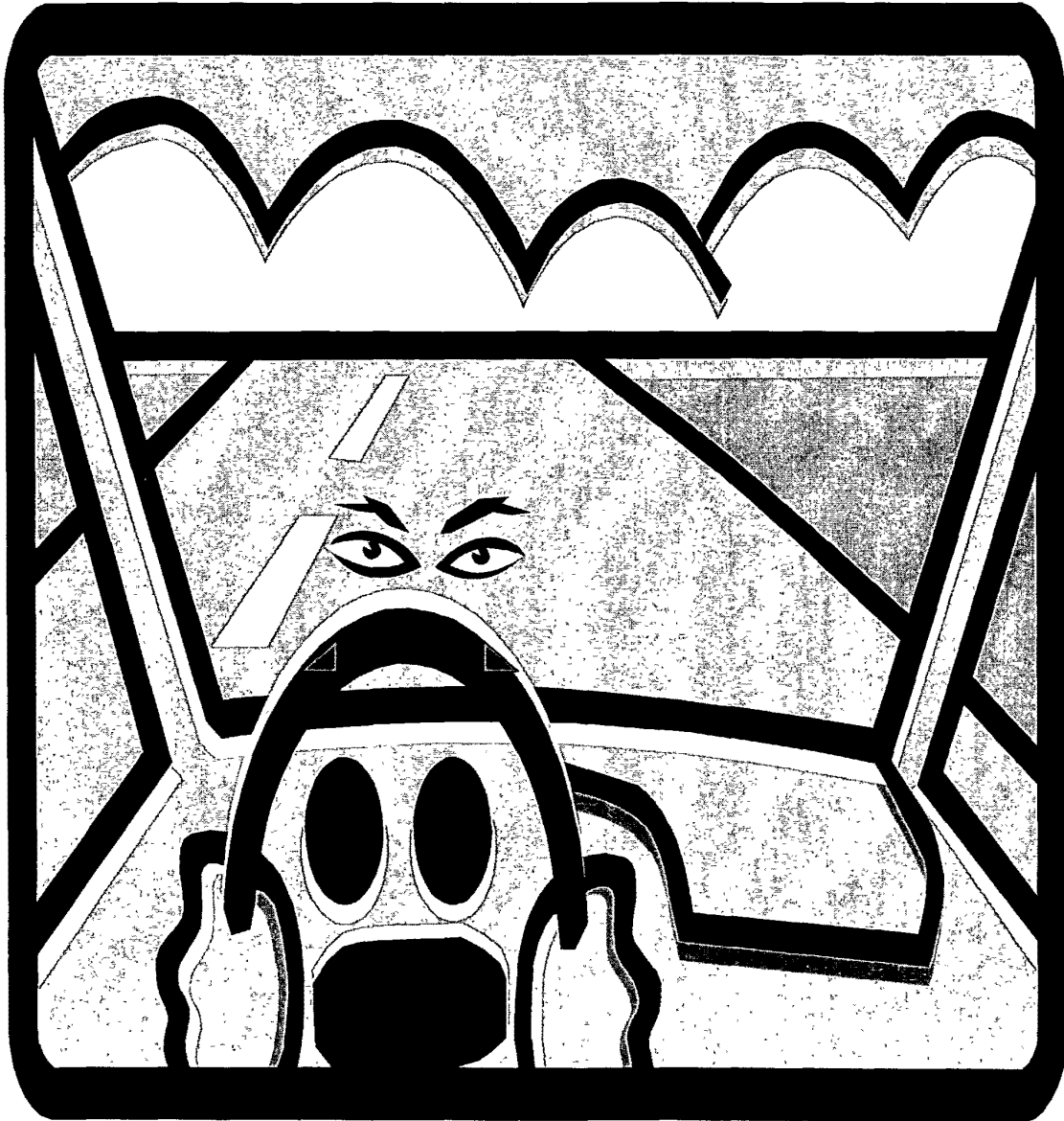
4.4. Machine Environment Interface

4.4.1. Algorithm (s) to read the driver interaction with the vehicle environmental controls and responses to environmental changes, then asses and regulate Telematics to meet STMC safety categories and operation parameters.

Algorithm: Vehicle Operation Dynamics

Algorithm: Driver Biometrics and in Cabin activity

Algorithm: Natural Environment



5. Memory medium located at the device or elsewhere.

5.1. Machine History Interface

5.1.1. STMC will maintain a record of all actions taken by any of the mechanical (Machine), parts of the Driving System, as well as the way those mechanical parts reacted, acted or were used by the driver. These records will be verbatim as well as statistical in nature. Embedded/Fixed machine information will remain in the vehicle and will be sent out (At the owners explicit or implicit approval) to be used by the vehicle manufacturer and other services and regulators to monitor for vehicle quality, or other issues.

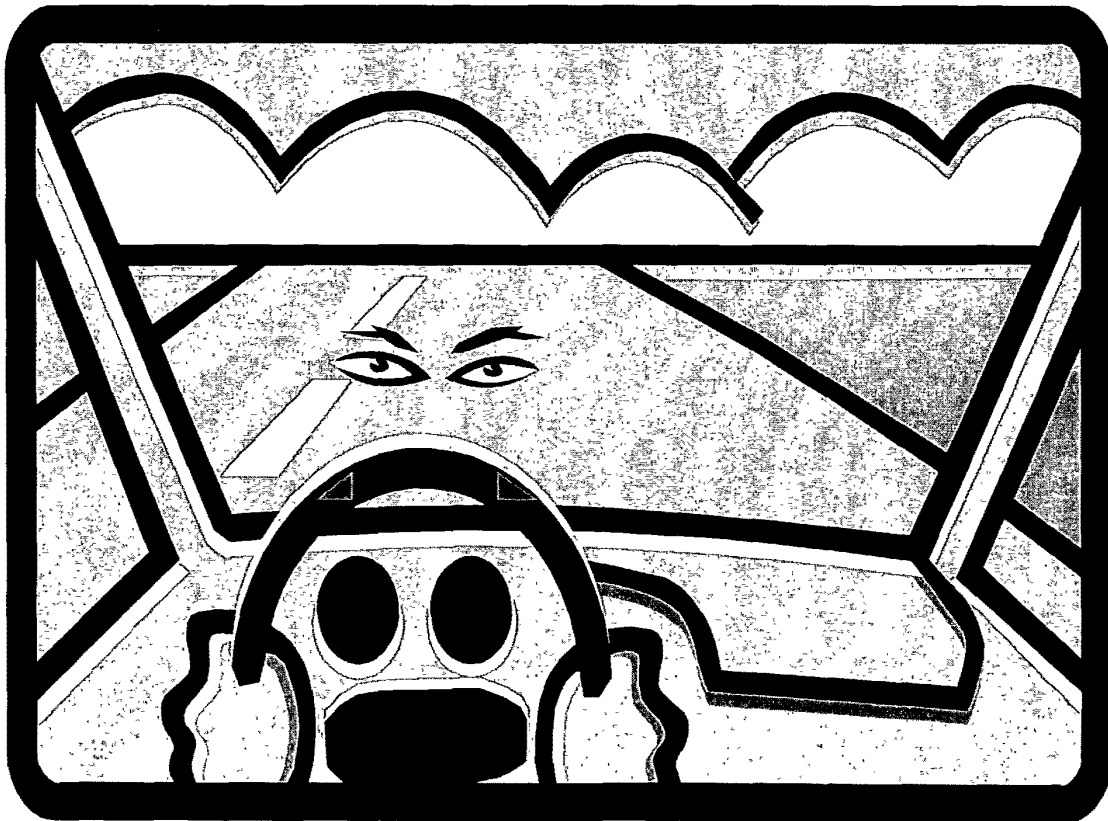
5.2. Man History Interface

5.2.1. STMC will maintain a record of all actions taken by any of the mechanical (Man), parts of the Driving System, as well as the way those mechanical parts reacted, acted or were used. These records will be verbatim as well as statistical in nature.

5.2.2. Specific portion of such history will be transportable and available to the user in other vehicles of the same or different type.

5.2.2.1. Via Phone, PDA, Notebook, Magnetic Media

5.2.2.2. Via LAN / WAN / Internet FTP, e-mail, SMS etc



Claims

[illegible]

NOMENCLATURE AND NEW TERMS

MDAS:	Multiplier, Divider, Adder and Subtractor table
Telematicability:	Describes a state when Telematics can resume if currently blocked
Time-Out Flag, (Distress):	Triggers a delay in Hold, or on Incoming for sometime after a near miss
Time-Out Flag, (Busy):	Triggers a delay in Hold, or on Incoming for sometime after accessory activation

Variables

1. **t-TO_n:**
 - 1.1. **Description:** Variable used to set **Time-Out Flag** duration for different type of vehicles and driving applications. This variable can be effected by MDAS table
 - 1.2. **Unit:** Seconds or any multipliers or unit
 - 1.3. **n represents two different categories:** Distress, Busy. Distress will last longer
2. **ALPHA:**
 - 2.1. **Description:** Steering wheel angle from Zero that is sustained off zero while driving
 - 2.2. **Unit:** Degrees, Gradient or any multipliers or unit
3. **t-ALPHA:**
 - 3.1. **Description:** Time length after **ALPHA** remained at constant, which triggers an alarm
 - 3.2. **Unit:** Seconds or any multipliers or unit
4. **s-Alpha:**
 - 5.3. **Description:** speed when **ALPHA** remained at constant, which triggers an alarm
 - 5.4. **Unit:** MPH or any multipliers or unit
5. **v-LD:**
 - 5.1. **Description:** Velocity at which a car is traveling while crossing lanes
 - 5.2. **Unit:** Seconds or any multipliers or unit
6. **t-LD:**
 - 6.1. **Description:** Time it takes a car at **v-LD** speed to complete a line change
 - 6.2. **Unit:** Seconds or any multipliers or unit
7. **x-LD:**
 - 7.1. **Description:** The Width of One freeway lane + concerned Vehicle width
 - 7.2. **Unit:** Meters, Yards, Inches, or any multiplier of such units
8. **t-KB:**
 - 8.1. **Description:** The time both P switches need to be pressed before the keyboard or other means of data entry is allowed to function. It will be followed by a **t-TO_b**
 - 8.2. **Unit:** Seconds or any multipliers or unit
9. **n-n** number of times in **T-n** number of seconds:
 - 9.1. **Description:** **n-n** refers to the number of allowed occurrences while **T** refers to the time span in which those occurrences take place
 - 9.2. **Unit:** **n-n** is a counting unit, **T-n** is in Seconds or any multipliers or unit
 - 9.3. **Note:** **n** is any of the associated specific signals
10. **vsu-MS @ si-Alpha:**
 - 10.1. **Description:** **v-MS** is speed range at an inclined road, Uphill, where it is still considered safe while **i-Alpha** is the road inclination
 - 10.2. **Unit:** **v-MS** is any unit of **speed** while **i-Alpha** is in degree, gradient or other units or their multiples
11. **vsu-Es @ si-Alpha:**
 - 11.1. **Description:** **v-es** is speed range at an inclined road, Uphill, where it is considered Unsafe while **i-Alpha** is the road inclination

- 11.2. **Unit: v-MS** is any unit of **speed** while **i-Alpha** is in degree, gradient or other units or their multiples
12. **vsd-MS @ si-Alpha:**
 - 12.1. **Description:** **v-MS** is speed range at an inclined road, Downhill, where it is still considered safe while **i-Alpha** is the road inclination
 - 12.2. **Unit: v-MS** is any unit of **speed** while **i-Alpha** is in degree, gradient or other units or their multiples
13. **vsd-Es @ si-Alpha:**
 - 13.1. **Description:** **v-es** is speed range at an inclined road, Downhill, where it is considered Unsafe while **i-Alpha** is the road inclination
 - 13.2. **Unit: v-MS** is any unit of **speed** while **i-Alpha** is in degree, gradient or other units or their multiples
14. **vbr-MS @ bi-Alpha:**
 - 14.1. **Description:** **v-MS** is speed range at an inclined road, Downhill, where it is still considered safe while **bi-Alpha** is the road inclination
 - 14.2. **Unit: v-MS** is any unit of **speed** while **bi-Alpha** is in degree, gradient or other units or their multiples
15. **vbl-Es @ bi-Alpha:**
 - 15.1. **Description:** **v-Es** is speed range at an inclined road, Downhill, where it is considered Unsafe while **i-Alpha** is the road inclination
 - 15.2. **Unit: v-MS** is any unit of **speed** while **i-Alpha** is in degree, gradient or other units or their multiples
16. **v- A, t-A:**
 - 16.1. **Description:** **v- A** is a speed that will be achieved in less then **t-A** if acceleration rate is maintained or increased
 - 16.2. **Unit: v- A** is any unit of **speed** while **t-A** is in Seconds or any multipliers or unit
17. **t-SRC:**
 - 17.1. **Description:** The rate of steering wheel angle correction/change Vs. time
 - 17.2. **Unit: Angle Measuring unit / time measure unit**
18. **t-PD:**
 - 18.1. **Description:** Time it takes to displace gas pedal
 - 18.2. **Unit:** Seconds or any multipliers or unit
19. **x-PD:**
 - 19.1. **Description:** Distance of pedal displacement
 - 19.2. **Unit:** Cm, Degrees, Gradient or any multipliers or unit
20. **t-THR:**
 - 20.1. **Description:** Time it takes to displace throttle
 - 20.2. **Unit:** Seconds or any multipliers or unit
21. **x-THR:**
 - 21.1. **Description:** Distance of Throttle displacement
 - 21.2. **Unit:** Cm, Degrees, Gradient or any multipliers or unit

22. t-LC:

- 22.1. **Description:** length of time that will trigger long call alert
- 22.2. **Unit:** Seconds or any multipliers or unit

23. v-FS:

- 23.1. **Description:** Speed set to be Minimum freeway speed
- 23.2. **Unit:** MPH, Km/H or any multipliers or unit

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Features Summary	
Active Driver and Passengers	Telematics devices are docked wirelessly or physically to the system.
Passengers Telematics	remain under their controls, (No driver Intervention/distractions), but distracting noises/activities are turned off with priority given to driver Telematics
At Start up Announces and display current day/time month to assure that system and / or data are not tampered with.	
Driver preference Menu	
Programmable functions Menu	For routine tasks
Navigation software Interaction Management	(while driving)
Email client Management	(while driving)
Web Browser Management	(while driving)
Voice Recorder Management	(while driving)
Contacts Book Management	(while driving)
Phone Management	(while driving)
Pager/SMS Management	(while driving)
Any other STMC compliant application, or application with features assessed as safe under STMC	
Telematicability speed feed back, (Dynamic Telematics limitation)	
Driver choose feed back format	
Driver Tick mark :	
Manual:	Driver to record near misses
Automatic:	System logged in for drifts correction and harsh deceleration and maneuvering
* Both are tied to time of day, day of week, and to type of Telematics in progress. When a phone conversation in taking place, the number is noted as well for future restrictions.	
Learning Mode Management	(while driving)
Profile Transportability	
Accident Occurred Auto call /email notification	(No user intervention required)
Long calls anti distraction feature, Smart Speaker anti distraction feature, Intelligent Notification Via Smart Mirrors	
Device over ride is possible but within the STMC Safety Categories requirement	
Simple emergency dial out Voice call and Data Call	

+++++User Features+++++

- 1- Active Driver and Passengers Telematics devices are docked wirelessly or physically to the system. Consequently, all Telematics in the car are controlled by the system. The system will give priorities to Drivers request and will suppress all other Telematics to eliminate distraction to driver, e.g. Ring Vs. Vibrate, Ring Volume, etc..
 - a. The Driver Telematics and computer equipment and Applications on the equipment will be controlled with access limited/governed by the system
- 2- At Start up Announces and display:
 - a. Current day/time month to assure that system is not tampered with.
 - b. Name of Driver
- 3- Driver preference Menu: May be carried out on another computer
 - a. Right Handed Vs. Left Handed
 - b. Cigarettes preference
 - c. Child crying preference
 - d. Feed back preference, Audio, Video or both.
 - e. Maximum Speed limit
 - f. Other parameters that are allowed to be changed by drivers
 - g. Tick Mark adding/Removal/Editing/Setup
 - h. Applications Manual Priority Setup Menu
 - i. Devices Manual Priority Setup Menu
 - j. Applications Automatic Most used Applications/Submenus/priority
 - k. Devices Automatic Most used Applications/Submenus/priority
 - l. Application that Drivers are using (loading different programs/driver)
 - i. (Sub menus programming)
 - m. Intelligent Equipment List
 - i. ABS
 - ii. ESP
 - iii. Intelligent Cruise Control
 - iv. Traction Control
 - v. Collision Warning (Front)
 - vi. Collision Warning (Rear)
 - vii. Manual or AT Transmission
 - viii. Max speed allowed by Local Laws, (If Applicable to Market).
- 4- Programmable functions Menu For routine tasks: This feature can save and execute specific tasks routinely. These tasks can be scheduled,
 - a. By time: Simple schedule of one or more events at a pre-determined date and time or at a certain or varying frequency.
 - b. By actions/Events: Startup, Mid trip, After Parking etc...
 - c. At demand: The Routine task becomes an application in the main menu

Some of the tasks that can be carried out are:

- i. Read E-Mail
- ii. Play Voice Mail
- iii. Browse and read pre-specified web pages

- iv. Send a standard acknowledgment / greetings / Meeting acceptance /
 Reservations / etc for digitally detectible items
- 5. Will integrate, monitor and control any other STMC compliant application, or application with
 features assessed as safe under STMC. Below are some common examples of such
 applications and features.
 - 5.1. Navigation software Interaction while driving
 - 5.1.1. Will Allow display of points of interest / one type at a time
 - 5.1.2. Emergency : Hospital, Drs. Offices, Pharmacy, Police, Fire engines
 - 5.1.3. Service: Gas stations, Garages, Car Washes, Auto parts
 - 5.1.4. Accommodations: Hotels, Bed & Breakfasts, Restaurant
 - 5.1.5. Various Views of Information
 - 5.1.6. Zoom In
 - 5.1.7. Zoom Out
 - 5.1.8. Instructions Only
 - 5.1.9. Combination
 - 5.2. Email client
 - 5.2.1. Will read New e-mail in mail box
 - 5.2.2. Skip to next
 - 5.2.3. Go to Previous
 - 5.2.4. Pause
 - 5.2.5. Play/Continue
 - 5.2.6. Will send accident notifications
 - 5.2.7. Will send DUI-DWI notifications
 - 5.2.8. Will send Driver needs help notifications
 - 5.2.9. Will send Vehicle Status notifications
 - 5.2.10. Will send voice messages as attachments
 - 5.3. Web Browser
 - 5.3.1. Will go to a Pre specified web page
 - 5.3.2. Will navigate major categories, Weather, Traffic, News, Stock
 - 5.3.3. Will sub navigate Each Major Category
 - 5.4. Voice Recorder
 - 5.4.1. Will Record memos
 - 5.4.2. Will playback memos
 - 5.4.3. Will e-mail memos
 - 5.4.4. Will store memos for synchronization with PDA/Floppy/Phone etc...
 - 5.5. Contacts Book
 - 5.5.1. Will Retrieve numbers
 - 5.5.2. Will retrieve e-mail address and pass on to e-mail client
 - 5.5.3. Will arrange numbers Priorities based on how often they're used
 - 5.5.4. Prioritize or programmable auto handling for selected numbers based on
 time/Menu to priorities Incoming Calls.

5.6. Phone

- 5.6.1. Will answer calls
- 5.6.2. Will Drop Calls
- 5.6.3. Will redial last number called
- 5.6.4. Will return calls (Last number Called In)
- 5.6.5. Will put caller on hold (automatically)
- 5.6.6. Will retrieve Voice Mail
- 5.6.7. Will accept number from pager to call
- 5.6.8. Will send accident notification
- 5.6.9. Will allow Phone conferencing
- 5.6.10. Privacy Mode

5.7. Pager/SMS

- 5.7.1. Will Get number & Pass on to Driver / Phone
- 5.7.2. Will get SMS and read

- 6- Telematicability speed is conveyed to the driver when driving and conditions are not optimal to allow driver a choice between maintaining current driving habit or the systems recommended driving habit.
- 7- Conveyance of the information to the driver can be displayed / announced or it can be a Graphical representation of things the driver can affect.
- 8- Add a Driver tick mark so a driver can review events data and block future Telematics at similar conditions.
- 9- Learning Mode: Learns Road critical stops @ drivers discretion and alert and assist driver when Telematics are in use
 - a. Signs "Must stop " & Speed warnings
 - i. (P)Traffic light
 - ii. (P)Railroad crossings
 - iii. (P)School zone
 - i. (P)Stop Sign
 - b. Announcement
 - iv. Traffic light
 - v. Railroad crossings
 - vi. School zone
 - ii. Stop Sign
 - c. Actuation (Assist to decrease driver work load)
 - i. Brings down Sun Visor when in same time place it was brought down before and weather, time of day or date of day in the year is relevant.
 - ii. Activate signals when on a routine/stored trip
 - iii. Drive into the Sun, or Sun in Rear View Mirror auto help, by recognizing Longitude and Latitude, and date of day and time of day, heading and bearing.

- 10- Profile Transportability to any mobile device or media, e.g. Cell, PDA, Floppy, Memory stick, e-mail etc....
 - a. PDA
 - b. Floppy / Flash / Magnetic media
 - c. Phone (Tone)
 - d. Web file FTP
- 11- Auto call /e-mail after an accident with a list of information that are critical to locate accident site and prepare Medical emergency teams for the call. (Can be aborted by user)
 - a. In addition to the driver normal profile add:
 - i. Longitude
 - ii. Latitude
 - iii. Number of Passengers
 - iv. Child seat in use
 - v. Dog Strap in use
 - vi. Vehicle ID
 - vii. Vehicle Plate
 - viii. Roll over Flag
 - ix. Fire/Smoke Flag
 - x. Last 2 Minutes of Telemetries, (Only in the e-mail).
- 12- Smart Speaker: Incoming calls are routed to a speaker that reflects and bounce sounds of front windshield at driver Look Ahead, Eye Level. Or simulate such action so a drivers sub-cognitively focuses on the windshield just like he would do if he is carrying a conversation with another person
- 13- Long Calls anti distraction measure, which will attract the driver attention after a period of time to look to Rear and Side view mirrors by lights, and switching speakers sound to each mirror every so often.
- 14- The Application can be over ruled by activating the Emergency Flashing Lights
- 15- Simple Emergency Dial out
 - a. Voice Call: achieved by holding both SorS into the up position for t-E time.
 - b. Data Call: Achieved by holding both SorS into the up position for t-E time, in addition to emergency flasher activation. The output of this function is an e-mail + Voice in data format

++++
 Algorithms +++++

1. Time-Out Flag after emergencies

(From Incoming or Ongoing, and various by situation.) It began during an incident and stays for a time, (**t-TOd**) is for distress as listed below. (**t-TOb**) is for accessory activations and coffee cup/food tray etc., after the conditions are over.

- 1.1. Sudden brakes w/steering changes (**t-TOd**)
- 1.2. Hard Braking w/out steering maneuvers (**t-TOd**)
- 1.3. Emergency countdown abort (**t-TOd**)
- 1.4. After 90 degree turn angle or greater (**t-TOb**)
- 1.5. turn signal is ON (**t-TOb**)
- 1.6. Slalom detection algorithm (**t-TOd**)
- 1.7. High beam light Flashing(**t-TOd**)

Flag =1 No Time-Out

Flag =0 Time-Out

2. Predictive Algorithms (P)

- 2.1. On ramp / Off Ramp detection:

Flag =1 No Time-Out

Flag =0 On Ramp/Off Ramp triggers **Time-Out Flag**

- 2.2. Maintaining the steering wheel at an angle **ALPHA** of the outside Zero & Tolerance is an indication of long Blind View ahead

Flag = 1 If time is < **t-ALPHA** Seconds

Flag = 0 If time is > **t-ALPHA** Seconds

- 2.3. Lateral Distance / Speed: Can you cross a lane at this Sudden Steering angle in less then a 2 Second? **LD** is a changing variable depending on national or local highway codes as well as the width of the vehicle.

Flag =1 If time is > **t-LD** Seconds

Flag =0 If time is < **t-LD** Seconds Drift alert & triggers **Time-Out Flag**

3. Fool proofing/counter circumventing measure/Integrity (P)

- 3.1. SorS Fool proofing/counter circumventing measure/Integrity

- 3.1.1. Test SorS Switches @ Start

Flag=1 Test Passed

Flag=0 Test Failed (Aborts application)

- 3.1.2. Test Park/Drive / Reverse Switches @ Start

Flag=1 Test Passed

Flag=0 Test Failed (Aborts application)

- 3.1.3. Test SorS Switches Signal stuck low/High during operation Flag=0 or Flag =1

Flag=1 Test Passed

Flag=0 Test Failed (Aborts application)

- 3.2. Data Log Integrity

- 3.2.1. Forbid Time/Date Change to a time date earlier then already on Log

Forbid Time/Date change while system is already pass confirmation of Date, Time, and Day etc.

4. Driver Biometrics and in Cabin activity

- 4.1. If a cup is removed for an extended period, (t-CR), it will be removed as a factor.
 Flag=1 Cup Present and Monitored
 Flag=0 Cup Is Not Present (If Monitored within time)
- 4.2. If a food is removed for an extended period, (t-FR), it will be removed as a factor
 Flag=1 Food Present and Monitored Passed
 Flag=0 Food Is Not Present (If Monitored within X time), afterward cup is ignored
- 4.3. Baby is crying Monitor
 Flag=1 If Baby is Not crying
 Flag=0 If Baby is crying
- 4.4. Determine if situation is getting stressful during Telematics or is stressful before Telematics. statistically coupled with time & day and other factors
 - 4.4.1. Heart rate Monitor Stats builder Is monitored during Telematics on or off and statistically coupled with time & day and other routines Flag=0 or Flag =1 based on **MDAS** defined level. statistically coupled with time & day and other factors
 - 4.4.2. Temperature Monitor Stats builder. Is monitored during Telematics on or off and statistically coupled with time & day and other routines Flag=0 or Flag =1 based on **MDAS** defined level. statistically coupled with time & day and other factors
 - 4.4.3. Pressure on Steering Wheel / Gripping. Is monitored during Telematics on or off and statistically coupled with time & day and other factors Flag=0 or Flag =1 based on **MDAS** defined level.
 - 4.4.4. Driver sound level. Is monitored during Telematics on or off and statistically coupled with time & day and other factors Flag=0 or Flag =1 based on **MDAS** defined level
- 4.5. Disable/Enable Keyboard or other entry means (Unless both Present buttons are pressed)
 Flag=1 If either or both **Present** switches are OFF
 Flag=0 If both **Present** switches are ON for **t-KB** seconds (But **Time-Out Flag, Busy, (t-TOB)** will be triggered)
- 4.6. Report any accessories activation by driver, e.g. Windows, radios, Lighter etc...
 Flag=1 If activity Not present
 Flag=0 If activity is present
- 4.7. Seatbelt Engaged
 Flag=1 If Seatbelt Engaged
 Flag=0 If Seatbelt NOT Engaged
- 4.8. Cigarette smoke in Cabin. Flag=0 or Flag =1 (Can be configured per driver preference)
 Flag=1 If Smoke is Not present
 Flag=0 If Smoke is present

4.9. Distractions

- 4.9.1. Long calls: Sound from phone calls Should Change location to attract Driver attention to Important locations every so often, only when **Safe Flag** is ON If Proximity sensors is tripped, then sound is directed to the mirror that best shows what's going on. Other blinking LED/Buzzers can also be used:
- 4.9.2. Intelligent Side view mirrors (R & L)
- 4.9.3. Intelligent Rear view mirror
- 4.9.4. Reflect right of the Windshield At driver Expected Eyesight level

Flag = 1 If call is < 1 Minute

Flag = 0 If call is > 1 minute

4.10. Alcohol level

4.10.1. System will

- 4.10.1.1. Call predefined phone numbers
- 4.10.1.2. Send a standard Email notes for help (Send a Driver under Influence alert).
- 4.10.1.3. Will allow specific Incoming calls through
- 4.10.1.4. Limit Maximum Speed,
- 4.10.1.5. Turn Emergency lights on

Flag = 1 if level is Zero to moderate

Flag = 0 if level is High (A per each local laws)

5. Profile Building (This will be uploaded to Phone/Storage media/PDA/FTP)

5.1. Standard Profile (Configured by Driver) (To Phone)

- 5.1.1.1. Name, Age
- 5.1.1.2. Gender
- 5.1.1.3. To Notify in Emergency: Name, Number
- 5.1.1.4. Address 1: Street, Number "Space" Apt Number
- 5.1.1.5. Address 2: State "Space" Country, Zip code
- 5.1.1.6. Driver Medical Records Key: Name/Md, IP Address
- 5.1.1.7. Drivers for devices used by Driver and where to get them from, Via Wireless web, or via Cell phone dialing out: Name/Dr, IP Address.
- 5.1.1.8. Traffic Violations:
 - 5.1.1.8.1. A: Accident
 - 5.1.1.8.2. L: Traffic Light Violation
 - 5.1.1.8.3. S: Stop Sign, School Bus, etc..
 - 5.1.1.8.4. V: Speed Violation
 - 5.1.1.8.5. U: Driving Under the Influence
- 5.1.1.9. Software used by Driver (e.g. Different Manufacturer, IE Vs Netscape), and Configuration of Telematics subscriptions, Numbers 1-9
- 5.1.1.10. Drivers Preferences:
 - 5.1.1.10.1.1.1. Driver: RH/LH-1Bit
 - 5.1.1.10.1.1.2. Baby Crying Distracting: Y/N-1Bit
 - 5.1.1.10.1.1.3. Cigarette Bothers driver: Y/N-1Bit,
 - 5.1.1.10.1.1.4. Application Priority: Manual/Auto-1Bit
 - 5.1.1.10.1.1.5. Feed back: Audio, Video, Both-1Bit
 - 5.1.1.10.1.1.6. Learning Mode: ON/OFF-1Bit
 - 5.1.1.10.1.1.7. Voice mail # & Password
- 5.1.1.11. Geographical Knowledge from GPS History

5.2. MDAS & MDAS update (Configured by manufacturer and updated by system-Part of Portable Profile)

- 5.2.1. Collect near misses data, (By using near Misses Tick Mark from FEATURES) and by automatically flagging Harsh steering and Braking
- 5.2.2. Auto Trans shifting pattern
- 5.2.3. Manual trans shift/skill
- 5.2.4. Avg. , Max, Min, Outliers, Upper limits, Lower limits, or any other Statistical calculations that can detect and determine trends, and deviation from such trends of anomalies of all monitored signals e.g.
 - 5.2.4.1. Similar Stats for
 - 5.2.4.1.1. Heart rate
 - 5.2.4.1.2. temperature
 - 5.2.4.1.3. Steering wheel pressure
 - 5.2.4.1.4. Driver loudness during Telematics
 - 5.2.4.1.5. Driver Loudness W/Out Telematics
 - 5.2.4.1.6. Travel distance / Trips Length in time
 - 5.2.4.1.7. # of stops/Durations
 - 5.2.4.1.8. # of Steering turns of 90 Degree or more
 - 5.2.4.1.9. # of trips / day/ per week day etc.
 - 5.2.4.1.10. Traffic Violation History, (Effects MDAS values)
 - 5.2.4.1.11. Trips Time of day / Day of Week
 - 5.2.4.1.12. Proximities of driving to other cars
 - 5.2.4.1.13. Speed

5.3. Emergency Profile contents:

- 5.3.1. Emergency profile to transmit after an accident
 - 5.3.1.1. Name
 - 5.3.1.2. Gender
 - 5.3.1.3. Driver Medical Records Key, or key medical facts
 - 5.3.1.4. Age
 - 5.3.1.5. To Notify in Emergency
 - 5.3.1.6. Address
 - 5.3.1.7. #of passengers
 - 5.3.1.8. Child seat(s) in use
 - 5.3.1.9. Intelligent Dog Strap On (Type of Dog)
 - 5.3.1.10. Rollover Detection
 - 5.3.1.11. Smoke Detection
 - 5.3.1.12. Current Latitude Longitude Altitude
 - 5.3.1.13. Last 2 Minutes of telemetries (In e-mail only), or in Data burst using Tone
 - 5.3.1.14. Vehicle ID/VIN/Plate

Same data will be transmitted in event of intentional call using Emergency Dial out **Data Call**

- 6. **MDAS:** A Table of all signals used to calculate allowable deviation from standard practices in support of drivers regular driving habits and regular traffic situation. It contains all activated signal along with their adjusted values based on real time driving conditions. Some of the signals in MDAS will veto all other decisions and block Telematics. Other signals can also block Telematics, but based on a total assessment score.

7. Intelligent Vehicle features

7.1. If Equipped/active, Then **MDAS** Score increased per feature

7.2. Intelligent cruise control

Flag = 1 if Not triggered **X-ic** number of times in **T-ic** number of seconds

Flag = 0 if triggered **X-ic** number of times in **T-ic** number of seconds

7.2.1. Take into account Service Monitor score

7.2.2. Take into account Weather Flag

7.3. Front Proximity sensor Algorithm

Flag = 1 If distance to Collision is >= to recommended @SPEED

Flag = 0 If distance to Collision is less then recommended @SPEED

7.3.1. Proximity sensor input is Neutral when Intelligent Cruise control in use. (Distance to collision is adjustable by **MDAS** table)

7.3.2. Take into account Service Monitor score

7.3.3. Take into account Weather Flag

7.4. Rear Proximity sensor Algorithm (Sounds Alarm)

Flag = 2 If distance to Collision is >= to recommended @SPEED

Flag = 1 If distance to Collision is less then recommended @SPEED

Flag = 0 If distance to Collision is decreasing @SPEED

7.5. ESP activation frequency

Flag = 1 if Not triggered **X-esp** number of times in **T-esp** number of seconds

Flag = 0 if triggered **X-esp** number of times in **T-esp** number of seconds

7.5.1. Take into account Service Monitor score

7.5.2. Take into account Weather Flag

7.6. Traction control activation frequency Flag = 0 or Flag=1

Flag = 1 if Not triggered **X-tc** number of times in **T-tc** number of seconds

Flag = 0 if triggered **X-tc** number of times in **T-tc** number of seconds

7.6.1. Take into account Service Monitor score

7.6.2. Take into account Weather Flag

7.7. ABS activation

If Not triggered Flag = 1

If triggered Flag = 0

7.8. Emergency Vehicle Approaching

(Will cause Telematics to go on Hold. Can be reset by driver)

Flag = 1 if No vehicle approaching

Flag = 0 if Vehicle is approaching.

8. Service monitor: No Flag. Calculates the effect of above on the total service monitor number, and then changes it. The Service Monitor values is taken into consideration along with tire when Calculating distance to stop.

8.1. How many time the breaks are pressed

8.2. How many time Wheels locked up

8.3. Tire pressure

9. **Natural Environment**

9.1. **Lighting/Time of day**

9.1.1. Night time Driving
Flag = 1 if Not Night time
Flag = 0 if Night time

9.1.2. High beam always on
Flag = 1 if Not On
Flag = 0 if Always ON

9.1.3. Take into account Service Monitor score

9.1.4. Take into account Weather Flag

9.2. **Weather related Algorithm**

9.2.1.1. Wiper On/Speed
Flag = 2 if Not On
Flag = 1 if on Mist/Slow
Flag = 0 if Always ON

9.2.1.2. Fog light is On
Flag = 1 if Not On
Flag = 0 if Always ON

9.2.1.3. Temperature setting in Car (Blower On/Off)
Flag = 1 if temperature is set to moderate
Flag = 0 if Temperature is set to Extreme (MAX HOT OR MAX COLD)

9.2.1.4. Signals from Intelligent vehicle Flag
Flag = 1 If Intelligent Vehicle Monitor Flag is 1
Flag = 0 If Intelligent Vehicle Monitor Flag is 0

9.2.1.5. Into the Sun Or Sun in Rear view mirror Algorithm
Flag = 1 if NO
Flag = 0 if Yes

10. **Vehicle Operation Dynamics**

10.1. **Steering Zero point Profile**

This is to determine which reading from the steering wheel is to be used as a zero point. Data is collected over the life of service and statistically adjusted to keep up with aging tires etc. This is also important to take into account the road crown and not consider the offset steering to be a part of long invisible road ahead.

10.2. **Inclinometer and speed**

Flag = 1 if speed is moderate, **v-Ms @ i-Alpha**

Flag = 0 if speed is Extreme, **v-Es @ i-Alpha**

10.2.1. Take into account Intelligent vehicle flag

10.2.2. Take into account Service Monitor score

10.2.3. Take into account Weather Flag

10.3. Acceleration Profile

Based on Pedal, Throttle displacement, RPM change, Trans Fluid pressure in fly wheel, etc. It will calculate time/distance to 60 MPH (Freeway speed) and It will calculate time/distance current speed to Zero

Flag = 1 if speed will Not reach **v- A** MPH in less then **t-A** Seconds

Flag = 0 if speed will reach **v- A** MPH in less then **t-A** Seconds

10.4. Straight Ahead Vector (F)

will plot a straight ahead (depending on the road twist and turns) vector and monitor for driver compliance or reaction to not complying with the vector. Turning signals and other normal indication of deviations will indicate a planned change of direction and the Flag stays @1
 Flags & Trigger TBD

10.5. Slalom detection algorithm

Causes **Time-Out** Flag during and certain amount of time after

10.5.1. steering wheel turning Changing frequency at speed that is sufficient to indicate a complete lane change

Flag = 1 if Not triggered **X-s** number of times in **T-s** number of seconds

Flag = 0 if triggered **X-s** number of times in **T-s** number of seconds, **Time-Out** Flag

10.5.2. Lateral G-force Value

10.5.3. Take into account Service Monitor score

10.5.4. Take into account Weather Flag

10.6. Driving Drift (P)

10.6.1. (P) Speed Rate of steering angle change in a one direction while using Telematics.
t-SRC

10.6.2. Easing off pedal completely or very slowly, or pushing on the pedal progressively but very slowly, for more then **t-E** Flag=1 or Flag =0. When 1 it triggers a **Time-Out** Flag AND a Warning.

Flag =1 No Time-Out

Flag =0 Time-Out

11. Accident Occurred Algorithm

11.1. Distance from Speed to Zero is smaller then expected (taking into accounts weather, Service Monitor etc.

11.2. G-force

11.3. Staling after hard breaking

11.4. Any Airbag deployment

11.5. Rollover indicator

11.6. Fire/Smoke Indicator

Flag=1 if none of above is True

Flag=0 if any of above is True

12. Switches Decision Algorithm

- | | | | |
|-------|---------------------------------------|------------------|----------------|
| 12.1. | For Applications: | Two Thumbs UP | Yes/Select |
| 12.2. | For Applications: | Right Thumb Down | NO/Skip |
| 12.3. | For Incoming: | Two Thumbs UP | Yes/Accept |
| 12.4. | For Incoming: | Two Thumbs Down | NO/Drop/Ignore |
| 12.5. | For Sub Application Menu: | Left Thumb Up | Yes/Select |
| 12.6. | For Sub Application Menu: | Left Thumb Down | NO/Skip |
| 12.7. | When in Sub Category, or in Any page: | Both Thumbs Down | Go to EasySurf |

13. Sanity Check Algorithm

- 13.1. This algorithm will compare data from various sources to assure that they are what they appear to be individually. If the information does not agree as to the status of any part of the driving system, the Algorithm will determine the correct state and set that flag ON. The rest of the system will then handle the rest of the operation accordingly.
- 13.1.1. For Example, a vehicle speed is indicated to be V while the RPM from the Tachometer is indicated to be RPM of $V + V_d$, and the Trans indicate a similar data in terms of Gear selection as the Tachometer.
- 13.1.1.1. V speed
- 13.1.1.2. RPM of V RPM of Speed V
- 13.1.1.3. V_d is a variable of speed that is higher than the expected speed
- 13.1.1.4. RPM of $V + V_d$ RPM of speed higher than speed V
- 13.1.2. This should indicate the vehicle is experiencing serious slippage of either the transmission or of that of the wheels against the road. And the Vehicle dynamics Algorithm will takeover to handle the situation in terms of Telematics permissibility at this situation.

Signal source/name	Signal	Type	How
Parking Gear engaged	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Drive Gear engaged	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Reverse Gear engaged	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Clutch Depressed (M/T Only)	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Gear in Neutral (M/T Only)	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Turning signal Left	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Turning signal Right	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Emergency Flasher	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Lighting condition Night/Day	Yes/No	Digital/Bus	Limit switch of any type or from Bus
High beam light	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Fog Lamp activated (Front /Rear)	Yes/No	Digital/Bus	Limit switch of any type or from Bus
HVAC Setting	Position and change/Value	Analog/timer/Bus/Binary	Limit switch of any type or from Bus
Wiper setting (several)	Position	Digital/Time/Bus	Limit switch of any type or from Bus + time
Driver Seat Belt	Yes/No	Digital/Bus	Limit switch of any type or from Bus
*Intelligent Cup Holder	Yes/No	Digital/Bus	Limit switch of any type or from Bus + time
**Intelligent Food tray	Yes/No	Digital/Bus	Limit switch of any type or from Bus + time
Child Crying	Yes/No	Analog/Bus/Binary	Voice and sound filter
Dog Strap	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Cigarette smoke	Yes/No	Analog/Bus/Binary	Smoke detector
Accessories activation Any driver accessible adjustment manual or electrical Plus passenger equipment that may affect safety, e.g. doors ajar etc...	Yes/No	Digital/Analog/Bus	Limit switch of any type or from Bus

Signal source/name	Signal	Type	How
Number of Passengers (Every seat belt in the vehicle will be checked to count the number of passengers AND/OR seat sensors)	Count	Digital/Bus/Analog	From Seat sensors and seat belts buckled
Total Vehicle Weight	Count + Math	Digital/Bus/Analog Information	From Manufacturer information and from total # of passengers
Service Monitor	Count+ Math	Digital/Bus/Analog Information	From actual life time expectancy of brakes and tires based on history of use and maintenance
Vehicle speed	Vehicle speed	Communication /Bus	From GPS or Vehicle bus
Heading	GPS	Communication /Bus	From GPS or Vehicle bus
Bearing	GPS	Communication /Bus	From GPS or Vehicle bus
Latitude	GPS	Communication /Bus	From GPS or Vehicle bus
Longitude	GPS	Communication /Bus	From GPS or Vehicle bus
Altitude	GPS	Communication /Bus	From GPS or Vehicle bus
Distance	GPS	Communication /Bus	From GPS or Vehicle bus
Proximity Alarm, Front rear blind spot, etc	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Digital/Bus	Via sensor or from Bus
***Emergency Vehicle Approaching	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Digital/Bus	Via sensor or from Bus
Brake activation	Yes/No	Digital/Bus	Limit switch of any type or from Bus Via brake pedal switch/Lamp/special switch
G Force/Two planes	Analog	Analog/Bus	From a G Force Module
Steering Angle	Position and change	Analog A/D/Bus	Via position sensor to be added to the steering wheel and column or from Bus
Inclinometer	Position and change	Analog A/D/Bus	Via sensor or from Bus
Roll/Bank	Position and change	Analog A/D/Bus	Via sensor or from Bus
Rollover sensor	Position and change	Analog A/D/Bus	Via sensor or from Bus

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Signal source/name	Signal	Type	How
Airbag deployment	Yes/No	Digital/Bus/ Analog	Limit switch of any type or from Bus
ABS activation signal	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Intelligent cruise control	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Traction Control signal	Yes/No	Digital/Bus	Limit switch of any type or from Bus
ESP Program signal	From ESP Control light,	Digital/Bus	Limit switch of any type or from Bus
Transmission Shift UP	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Transmission Shift Down	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Manual Transmission	Yes/No	Digital/Bus	Limit switch of any type or from Bus
Throttle position/time	Count+ Math	Analog/Bus	Variable distance traveled sensor + timer
Gas Pedal position/time	Count+ Math	Analog/Bus	Variable distance traveled sensor + timer
Tachometer-Engine RPM (Or any speed linked shaft RPM)	Count+ Math	Count+ Math	Variable distance traveled sensor + timer
Automatic Transmission Flywheel dynamic	Count+ Math	Analog/Bus	Variable distance traveled sensor + timer Change in Pressure sensor + time Change in Centripetal force + Time
Tires Pressure, FR, FL, RR, RL	4 Signals	Analog/Bus/Transceiver	
ISORS P	Yes/No	Digital/Bus	switch of any type or from Bus
ISORS U	Yes/No	Digital/Bus	switch of any type or from Bus
ISORS D	Yes/No	Digital/Bus	switch of any type or from Bus
SSORS P	Yes/No	Digital/Bus	switch of any type or from Bus
SSORS U	Yes/No	Digital/Bus	switch of any type or from Bus
SSORS D	Yes/No	Digital/Bus	switch of any type or from Bus

Signal source/name	Signal	Type	How
Alcohol Level	Digital/Data/Analog/(Yes/No)	Communication/Analog/Di gital	Via sensor
Heart Rate	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Di gital	Via sensor
Pressure on Steering wheel	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Di gital	Via sensor
Driver Temperature	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Di gital	Via sensor
Voice Monitor	Digital/Data/Analog/(Yes/No)/change	Communication/Analog/Di gital	Via sensor
Visual and/Audio feed back from all installed applications,	As per configuration	function/Sensors of any type	e.g. e-mail, Navigation, Web browser, Pager, Cell phone, Wireless network, PIM, etc

Additional Anti distraction devices

Intelligent cup holder

*The Intelligent cup holder and the Intelligent Food tray are two new devices that will monitor the driver access to food or drink while operating a vehicle. The devices provide the convenience of positioning such items in a reasonably sturdy matter, then they will report Off/On conditions of the drink cup or the food to monitor driver preoccupation with food and increased distraction from the driving task.

The Intelligent cup holder will be one of several configuration (Basically On/Off proximity switch of any type (Mechanical/Optical/Inductive/spring displacement/semiconductor/Piezoe pressure, etc..) and an intelligent monitoring scheme to assure that it will not be fooled by a driver.
 The Cup holder may also include a mechanism to lock a cup in place so as to prevent usage while the driver is overloaded or under unsafe driving conditions. Such Mechanism may be using Nano muscles, solenoid, magnet, Vacuum or similar mechanical schemes.

Intelligent food tray

The Intelligent food tray will be one of several configuration (Basically weight sensing of any type by Mechanical/Optical/Inductive/spring displacement/semiconductor / Piezzo pressure, etc.) and an intelligent monitoring scheme to assure that it will not be fooled by a driver)

Emergency Vehicle detector

The vehicle will have a microphone and a light sensitive detector.

The Microphone will be unidirectional and will have a filter that will enable the screening out all but the known emergency vehicles sirens.

The light sensitive detector will detect flashes and changes in light from the emergency vehicle lights.

Both of these detectors will send out the results directly to an alarm of some sort or through an embedded onboard computer

Intelligent Inside & Outside rear view mirrors

Outside rear view Mirrors

Rear Collision alarm feature

There will be a buzzer and a flashing light from the inside of the cabin where the Mirrors are fixed or should be seen through that spot by a driver.

The Light will turn yellow if the driver set up a signal to turn in that mirror direction, and the Proximity alarm indicated the existence of an obstacle in the blind spot. The Light will turn RED and FLASHES and the Buzzer will go off if the driver persisted.

Blind spot collision avoidance feature

When a driver turn the right signal on, the next Momentary pull up or Momentary push down at the lever will twist the corresponding mirror further out to scan the blind spot.

Inside rear view mirrors

If the rear collision detector detected a vehicle too close, (But at a stable distance) for the weather conditions and the speed, the Light at the mirror will turn yellow to attract the driver attention to the approaching vehicle.

If the rear collision detector detected a vehicle closing within an unsafe distance at too fast of a speed for the weather condition, the light at the mirror will turn red and flashes and the Buzzer will go off to warn the driver.

Intelligent speaker controls- Anti distraction

The controls are engaged during Long conversations. Initially, they bounce the sound to emanate from the windshield at driver eye level.

When a phone call is longer then one minute, the control will direct sounds to Side View Mirrors and rear view mirrors along with a the blink of a light to attract driver attention to inspect the traffic to his sides and behind him.

This is also **instantly** implemented irrespective of the call length if a proximity alarm is triggered from rear or either side of the vehicle.

Traffic Red Light Detector

The vehicle will have a light sensitive detector. The light sensitive detectors will only detect RED light. It will be positioned or stacked or using a lens, to be able to discern the height of the red light source. These detectors will send out the results directly to an alarm of some sort or through an embedded onboard computer. If a vehicle speed is too fast to be too fast to stop on time. The Alarm will preferably be a call to action.

	Signal	Type	How
SorS output commands	SorS Input commands	Digital, total of six Bits/Bus	P: Present U: OK /Select/Accept, (Thumb Up) D: Next / Skip/Cancel /No (Thumb Down) 1. (When Controlling Non Telematics devices: e.g. HVAC, Radio, Cruise, Seats Heater, etc...) 2. 3. This one will be handled via I/O and software
STMC Gateway commands	STMC Gateway command	Digital/Bus/Analog	1. Logically determined operation for feed back to driver or to other systems interfaced with the STMC e.g. Adjusting display intensity, reversing or changing display colors to match ambient lighting conditions, adjusting volume to overcome existing environmental noises, silencing a Radio or similar Audio to allow for cellular communication or an alarm to be issued or voiced Via Intelligent Speaker, or Intelligent internal external rear view mirrors., etc... 2. This one will be handled via I/O and software

+++++Operational Conditions+++++

1. When the system is booted,
2. The OS will load the profile from Phone/Magnetic Media/e-mail/SMS/Webpage
3. The OS will load the Applications specific to the driver as per Profile
4. The OS will set up predefined communications and controls as configured by system/regulations to Applications and other detected/connected devices
5. The OS will pas any relevant profiles to the Driving system components, e.g. Vehicles, Telematics, etc...
6. The OS will test for always ON/Off SorS
7. The OS will test for always ON/Off Park Drive and Reverse
8. The OS will run through a Manual Switch test with the driver (Optional)
9. The program will check Tire Pressures
 - 9.1.1. If Wrong: alert the driver
 - 9.1.2. The OS will change the MASD variable to accord
 - 9.1.3. *Option to Go to setup
10. The OS will check on the Passengers/ Numbers-Weight
11. The OS will check for critical safety equipment Service Monitor, e.g. # of Brake activation, Number of Wheel Lock up
 - 11.1.1. If out of spec: alert the driver
 - 11.1.2. The OS will change the MASD variable to accord
 - 11.1.3. *Option to Go to setup
12. The OS will display/present/activate the highest priority application-Device as selected by driver preferences (Automatic based on use/Frequency, or as set up by user)
13. The application will include the executing of a cocktail of functions Timed, Programmed or Ad HOC or triggered by an external factor. These functions will including accessing the functionality of Applications, Devices or a combinations of both.
14. The System will respond to Driver selections as per SorS truth table, where:
 - 14.1. SSorS button is used to Toggle and select applications
 - 14.2. ISorS button is used to Toggle and select the menu of the selected applications
 - 14.3. Both SorS will be use to accept or Reject Incoming Telematics
 - 14.4. Both SorS will be used to select an application
 - 14.5. Only SSorS will be used to reject an application
 - 14.6. Only ISorS will be used to reject menu option
15. The System will Monitor driver heart rates and temperature as well as the pressure exerted on the steering wheel , Driver voice level, and Alcohol level
16. The System will monitor driver activities wile operating other equipments in the vehicle
17. The system will monitor all predefined driver preferences
18. The system will monitor and control passengers Telematics without any intervention from driver, but with priority always given to Drivers Telematics requirement.
19. The system will constantly log activities taken place by any of the tapped driving system.
20. The system will check on safety restraint usage for driver, child seat and Dog/Large pets' collars. And set off relevant alarms and include usage in Logs and profiles.
21. The system will remember activities by the driver Into the Sun Or Sun in Rear view mirror Algorithm
 - 21.1. From date of year
 - 21.2. From time of day
 - 21.3. From Current geographic Longitude/Latitude

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22. The OS will always monitor SorS activities to assure the fool proof countermeasures are in effect.
23. Upon end of the trip, Profile and updated statistical summaries are uploaded to the phone/Magnetic Media/e-mail/SMS/Webpage and cleared from the system.

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Signal/Condition	Dynamic	Static	Allow Incoming	Allow Outgoing	Allow/TODO W/ Ongoing
------------------	---------	--------	----------------	----------------	-----------------------

XXXXXXXXXXXXXXXXXXXX

Parking Gear engaged	-	X	Y	Y	C	Y	NA
Drive Gear engaged	X	X	D	Y	D	D	NA
Reverse Gear engaged	X	X	N	Y	H	N	NA
Clutch Depressed (M/T Only)	X	X	N	Y	H	N	NA
Gear in Neutral (M/T Only)	X	X	D	Y	D	N	NA
Turning signal Left	X	X	D	Y	C	N	NA
Turning signal Right	X	X	N	Y	H	N	Y
Emergency Flasher	X	X	Y	Y	C	N	NA
Lighting condition Night/Day	X	X	D	Y	C	N	NA
High beam light Flashing	X	X	N	Y	H	N	NA
High beam light	X	X	Y	Y	C	N	NA
Fog Lamp activated (Front /Rear)	X	X	Y	Y	C	N	NA
HVAC Setting	X	X	Y	Y	C	N	NA
Wiper setting (several)	X	X	D	Y	D	N	NA
Driver Seat Belt	X	X	N	Y	H	N	NA
*Intelligent Cup Holder	X	X	D	Y	H	N	NA
**Intelligent Food tray	X	X	D	Y	H	N	NA
Child Crying	X	X	D	Y	H	N	NA
Dog Strap	X	X	D	Y	H	N	NA
Cigarette smoke	X	X	D	Y	H	N	NA
Accessories activation	X	X	D	Y	H	N	NA
Vehicle speed	X	X	D	Y	H	Y	NA
Proximity Alarm, Front rear blind spot, etc	X	X	D	Y	H	N	NA
***Emergency Vehicle Approaching	X	X	N	Y	H	N	NA
Brake activation	X	X	D	Y	D	N	NA
G Force/Two planes	X	X	D	Y	H	N	NA

Steering Angle	X	-	D	D	H	Y	N	NA
Inclinometer	X	-	D	D	H	Y	N	NA
Roll/Bank	X	-	D	D	H	Y	N	NA
Rollover sensor	X	-	Y	D	F	Y	Y	NA
Airbag deployment	X	X	Y	D	F	Y	Y	NA
ABS activation signal	X	-	N	N	H	Y	N	NA
Intelligent cruise control	X	-	N	N	H	Y	N	NA
Traction Control signal	X	-	N	N	H	Y	N	NA
ESP Program signal	X	-	N	N	H	Y	N	NA
Transmission Shift UP	X	-	D	D	D	Y	N	NA
Transmission Shift Down	X	-	D	D	D	Y	N	NA
Throttle position/time	X	-	D	D	D	Y	N	NA
Gas Pedal position/time	X	-	D	D	D	Y	N	NA
Tachometer-Engine RPM (Or any speed linked shaft RPM)	X	-	D	D	D	Y	N	NA
Automatic Transmission Flywheel dynamic	X	-	D	D	D	Y	N	NA
Tires Pressure, FR, FL, RR, RL	X	X	D	D	D	Y	D	NA
ISORS P	X	X	D	D	D	Y	D	NA
ISORS U	X	X	D	D	D	Y	D	NA
ISORS D	X	X	D	D	D	Y	D	NA
SSORS P	X	X	D	D	D	Y	D	NA
SSORS U	X	X	D	D	D	Y	D	NA
SSORS D	X	X	D	D	D	Y	D	NA
Alcohol Level	X	X	D	D	D	Y	D	NA
Heart Rate	X	X	D	D	H	Y	D	NA
Pressure on Steering wheel	X	X	D	D	H	Y	D	NA
Driver Temperature	X	X	D	D	H	Y	D	NA
Voice Monitor	X	X	D	D	H	Y	D	NA
Gear in Reverse	X	X	N	N	H	Y	N	NA
Turn Signal is ON (Either direction) and speed >10	X	X	N	N	H	Y	N	NA

Break On and Speed > than 15 MPH, No ABS kicking in	N	N	H	Y	N	NA
Front Proximity Algorithm Flag is Zero	D	D	H	Y	N	NA
ON / OFF Ramp Algorithm Flag is Zero	N	N	H	Y	N	NA
Steering Wheel angle greater than 45 Degrees in either direction at speed of 15 MPH or more	N	N	H	Y	N	NA
Any Telematics activities in Progress/Phone/Pager/Voice recorder, Hands on SorS	N	N	NA	N	Y	NA
Any SorS is activated, or Stuck ON	N	N	NA	N	Y	NA
Intelligent features Flag, when installed, is set to Zero	N	N	H	Y	N	NA
Emergency Vehicle Approaching	N	N	H	Y	N	NA
Speed exceeds max speed set by law in the general area, e.g., > 70 MPH	N	N	Cutoff	N	Y	NA
Baby crying (As per driver preference)	D	D	D	Y	N	NA
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	N	N	H	Y	N	NA
If cup or food are moved for less t-CR or t-CF	N	N	H	Y	N	NA
If ABS Kicked in	N	N	H	Y	N	NA
If Break is pressed and A/T kicked down quickly or M/T Shifted down.	N	N	H	Y	N	NA
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.	N	N	H	Y	N	NA
As instructed by Drivers editing of Tick Marks events	D	D	D	D	D	NA
Gear put in Reverse	N	N	H	Y	N	NA
PSorS were disengaged	N	N	H	Y	N	NA
Emergency Vehicle Approaching	N	N	H	Y	N	NA
Any changes from Allowable conditions to a Non Allowable condition	N	N	H	Y	N	NA
Steering is Greater then 45 degrees in either way	N	N	H	Y	N	NA
Turn signal came on and speed is Greater then 10 MPH	N	N	H	Y	N	NA

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Break Came on and Speed > than 15 MPH and G force is greater then normal declaration.	N	N	H	Y	N	NA
As instructed by Drivers editing of Tick Marks events	D	D	D	D	D	NA
Gear is in Park	Y	Y	Y	Y	Y	NA
Car is in Drive, Brakes are pressed and speed is 15 Mph or less Excluding when	Y	Y	C	Y	N	NA
ABS Flag is 1						
ESP Flag is 1						
Traction control Flag is 1	Y	Y	Y	Y	N	NA
Emergency Vehicle Approaching and speed is Zero	Y	Y	Y	Y	N	NA
No Telematics activities in Progress	Y	Y	Y	Y	N	NA
Cup holder Flag =1 or Ignored	Y	Y	Y	Y	N	NA
Food Tray Flag =1 or Ignored	Y	Y	Y	Y	N	NA
If Break is pressed and A/T kicked down slowly or M/T Shifted down slowly, then Telematics is not interrupted. Similarly for Acceleration	Y	Y	Y	Y	N	NA

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 M/T 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

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. Turn 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

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

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The System will allow Outgoing Telematics under the following conditions

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The System will be circumvented under the following conditions

1. Emergency Flashers are ON

Common and Industry Terms and Glossary

1	Telematics	
2	Pervasive computing	

Applikompt coined Terms and Glossary

1	The Driving Systems	(Man, Machine, Environment, Regulation, and History)
2	SorS:	Switch or Sensing device used as a Man Machine interface between the driver and the rest of the System Administrator

NMA-10080/03

Claims

- 1 1. A system for controlling the communication between a vehicle
2 driver and telematics systems such as cell phones, pagers, PDAs and the like
3 comprising:
4 means for sensing a variety of operating parameters relating to the
5 vehicle such as speed, steering angle, driver physiology and the like, and
6 providing a level of access between the driver and the various telematics
7 systems as a function of the sensed vehicle and driver conditions.