UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC. and
CENTRAL SECURITY GROUP – NATIONWIDE, INC.,[1]
Petitioners
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner.

Case: IPR2019-01335 & IPR2019-01609

U.S. Patent No. 8,064,935

PETITIONERS' DEMONSTRATIVE

EXHIBITS FOR ORAL ARGUMENT

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[1] Central Security Group – Nationwide, Inc., who filed a petition in IPR2019-01609, has been joined as a petitioner in this proceeding.

Pursuant to the Board's September 16, 2020 Order (Paper 32) Petitioners Resideo Technologies, Inc. and Central Security Group – Nationwide, Inc. (collectively, "Petitioners") submit the following demonstratives for use at the oral argument schedule for October 27, 2020.

October 22, 2020
Date

By /S. Benjamin Pleune/
S. Benjamin Pleune (Reg. No. 52,421)

Resideo Technologies, Inc. and Central Security Group – Nationwide, Inc.,
Petitioners,
v.
Ubiquitous Connectivity, LP,
Patent Owner.

U.S. Patent 8,064,935 & 9,602,655
IPR2019-01335, 01336, 01609, 01610

Petitioners' Demonstratives
Under §42.70(b) for October 27, 2020 Oral Argument

Roadmap

1. Overview of the challenged patents
2. 935 Patent
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

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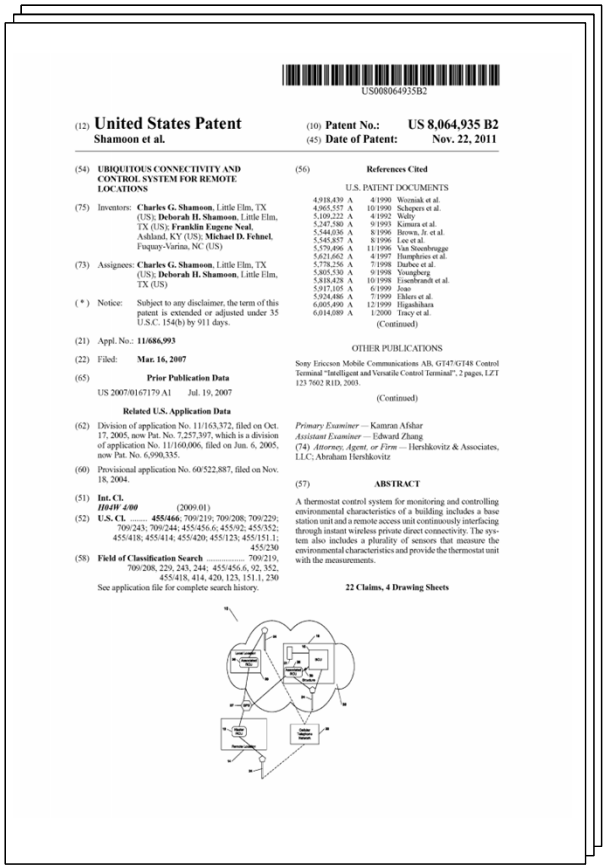
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

The 935 and 655 Patents

The 935 and 655 Patents are related and share a common specification.



US008064935B2

(12) **United States Patent**
Shamoon et al.

(10) **Patent No.: US 8,064,935 B2**
(45) **Date of Patent: Nov. 22, 2011**

(54) **UBIQUITOUS CONNECTIVITY AND CONTROL SYSTEM FOR REMOTE LOCATIONS**

(75) Inventors: **Charles G. Shamoon**, Little Elm, TX (US); **Deborah H. Shamoon**, Little Elm, TX (US); **Franklin Eugene Neal**, Ashland, KY (US); **Michael D. Fehnel**, Fuquay-Varina, NC (US)

(73) Assignees: **Charles G. Shamoon**, Little Elm, TX (US); **Deborah H. Shamoon**, Little Elm, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 911 days.

(21) Appl. No.: **11/686,993**

(22) Filed: **Mar. 16, 2007**

(65) **Prior Publication Data**

US 2007/0167179 A1 Jul. 19, 2007

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(62) Division of application No. 11/163,372, filed on Oct. 17, 2005, now Pat. No. 7,257,397, which is a division of application No. 11/160,006, filed on Jun. 6, 2005, now Pat. No. 6,990,335.

(60) Provisional application No. 60/522,887, filed on Nov. 18, 2004.

(51) **Int. Cl.**
H04W 4/00 (2009.01)

(52) **U.S. Cl.** **455/466**; 709/219; 709/208; 709/229; 709/243; 709/244; 455/456.6; 455/92; 455/552; 455/418; 455/414; 455/420; 455/123; 455/151.1; 455/230

(58) **Field of Classification Search** 709/219, 709/208, 229, 243, 244; 455/456.6, 92, 352, 455/418, 414, 420, 123, 151.1, 230

See application file for complete search history.

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5,778,256	A	7/1998	Darbee et al.
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5,917,105	A	6/1999	Joao
5,924,486	A	7/1999	Ehlers et al.
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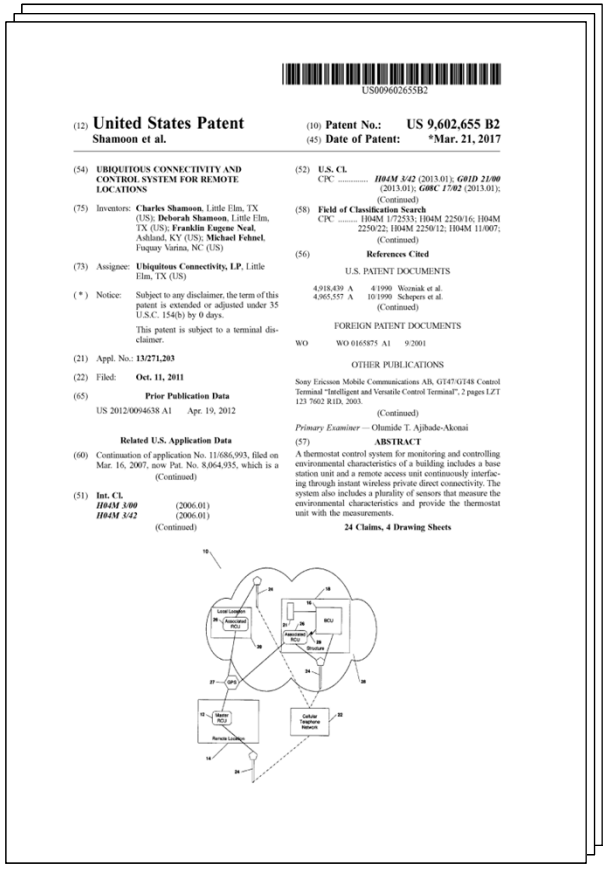
(Continued)

Primary Examiner — Kamran Afshar
Assistant Examiner — Edward Zhang
(74) *Attorney, Agent, or Firm* — Hershkovitz & Associates, LLC; Abraham Hershkovitz

(57) **ABSTRACT**

A thermostat control system for monitoring and controlling environmental characteristics of a building includes a base station unit and a remote access unit continuously interfacing through instant wireless private direct connectivity. The system also includes a plurality of sensors that measure the environmental characteristics and provide the thermostat unit with the measurements.

22 Claims, 4 Drawing Sheets



US009602655B2

(12) **United States Patent**
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(45) **Date of Patent: *Mar. 21, 2017**

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H04M 3/00 (2006.01)
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CPC H04M 1/72533; H04M 2250/16; H04M 2250/22; H04M 2250/12; H04M 11/007;

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Primary Examiner — Olumide T. Ajibade-Akonai

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A thermostat control system for monitoring and controlling environmental characteristics of a building includes a base station unit and a remote access unit continuously interfacing through instant wireless private direct connectivity. The system also includes a plurality of sensors that measure the environmental characteristics and provide the thermostat unit with the measurements.

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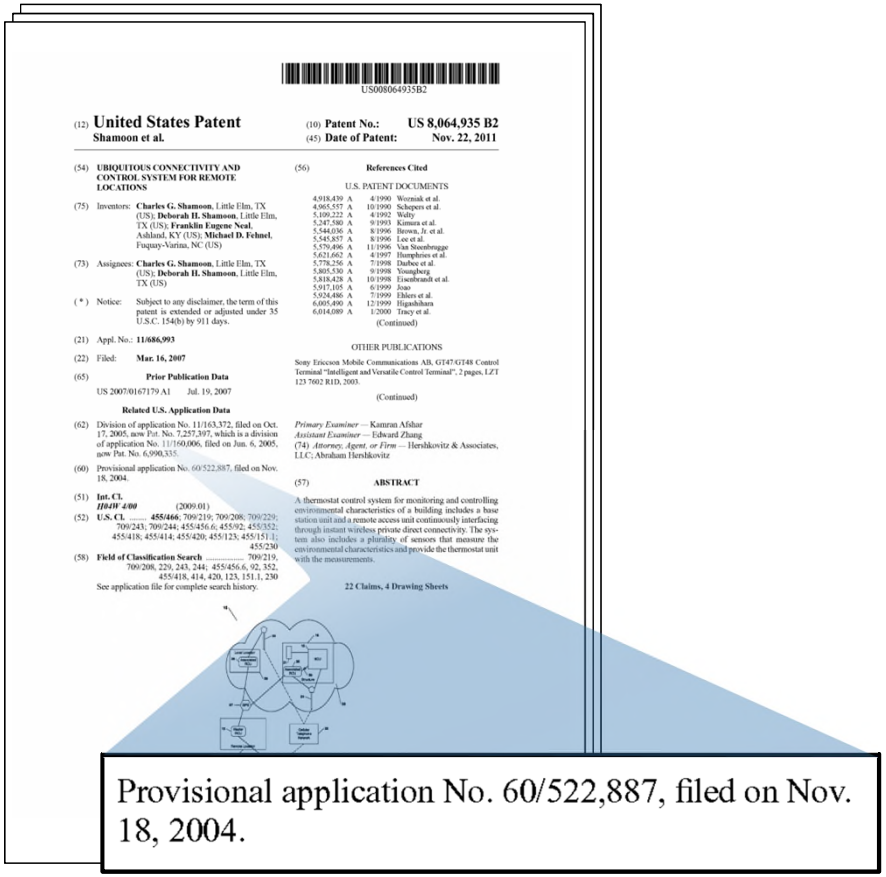
The 935 and 655 Patents claim priority to a provisional application filed November 18, 2004.



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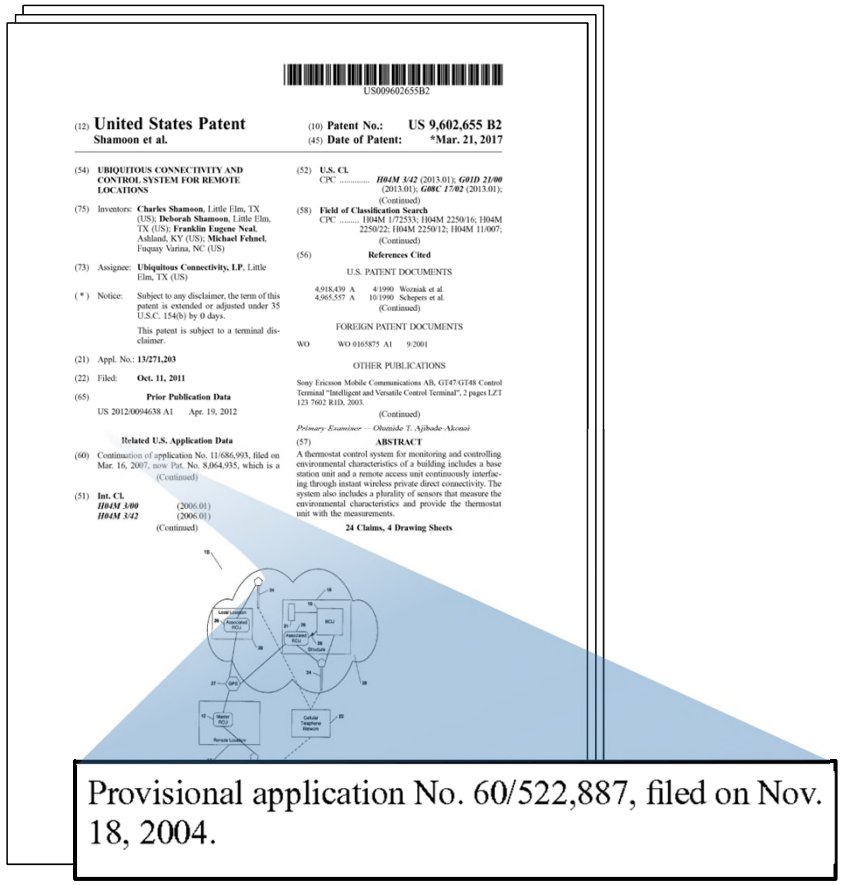

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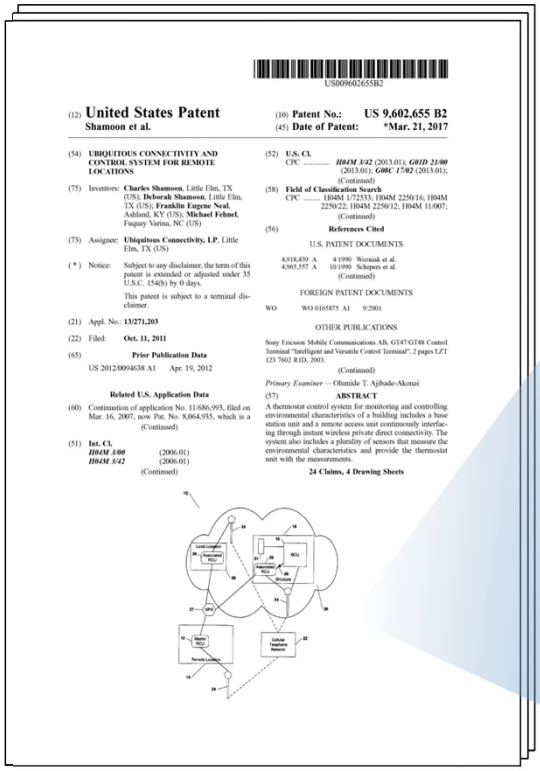

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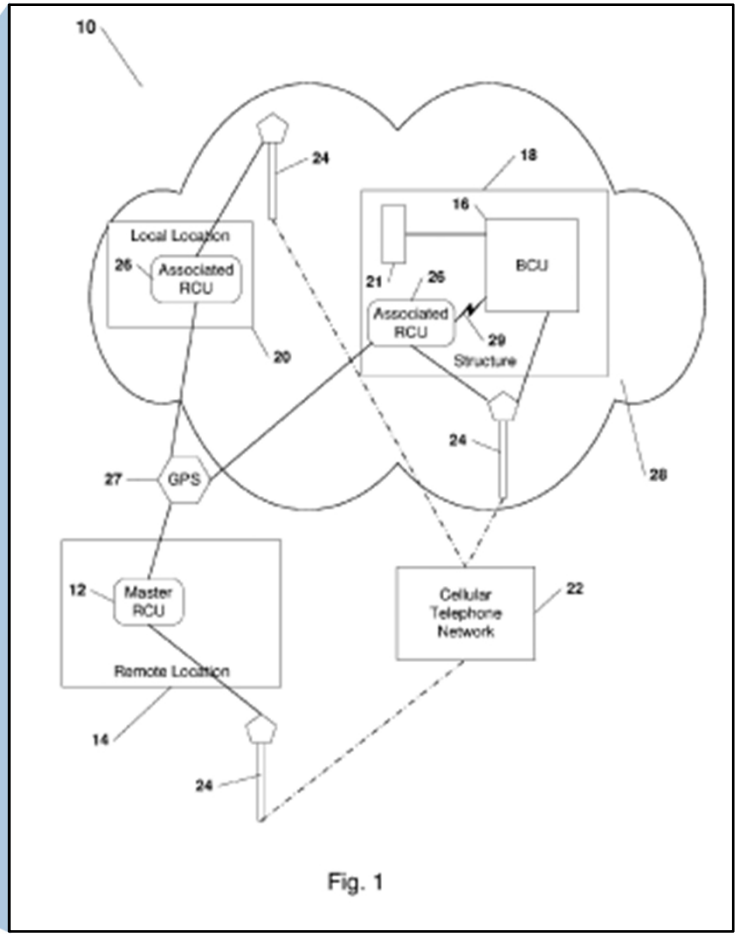


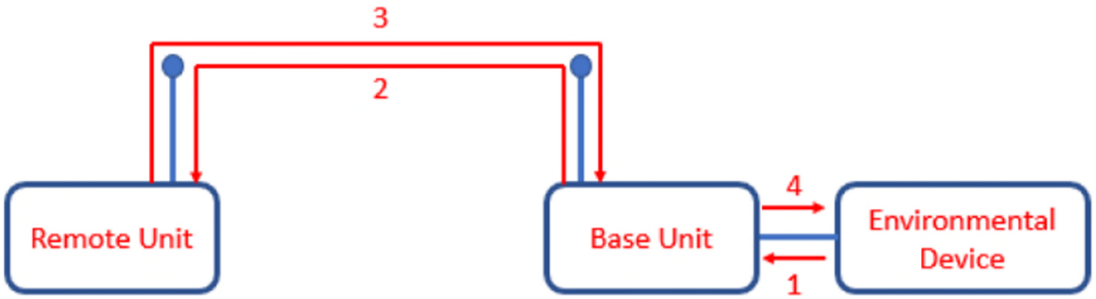
Fig. 1

935 Paper 23[Patent Owner Response] at 2-3.

655 EX1001[655 Patent].

Overview of the Invention

Zatkovich declaration provided:



1. "an environmental device detecting a condition and communicating that condition to the base unit"
2. "base unit 'communicates a second message to the remote unit through the cellular network'"
3. "remote unit . . .'directing the base unit to execute a command,' which takes the form of a 'third message from the remote unit to the base unit'"
4. "the 'command is communicated from the base unit to an environmental device'"

935 EX1003[Jeffay Dec.] at ¶¶139-143.

935 EX1014[Zatkovich 101 Declaration] at 45-47.

Exemplary Claims

Independent Claim 1 of the 935 Patent

1. A wireless system comprising:
an environmental device;
a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;
a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and
a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,
wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,
wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and
wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

Exemplary Claims

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1. A wireless system comprising:
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wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,
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operation of the environmental device.

Oinonen

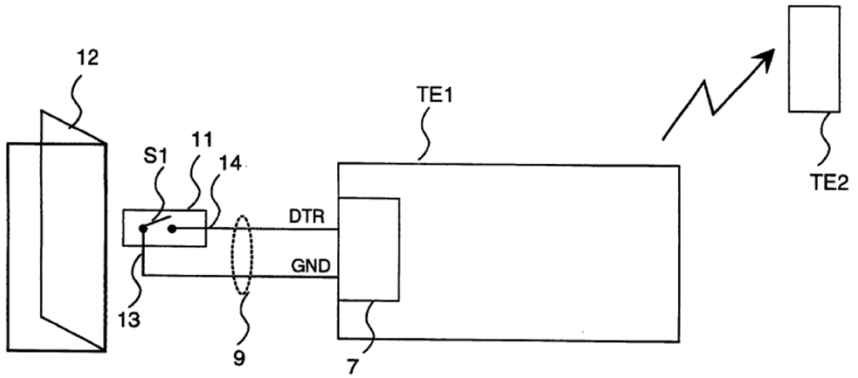


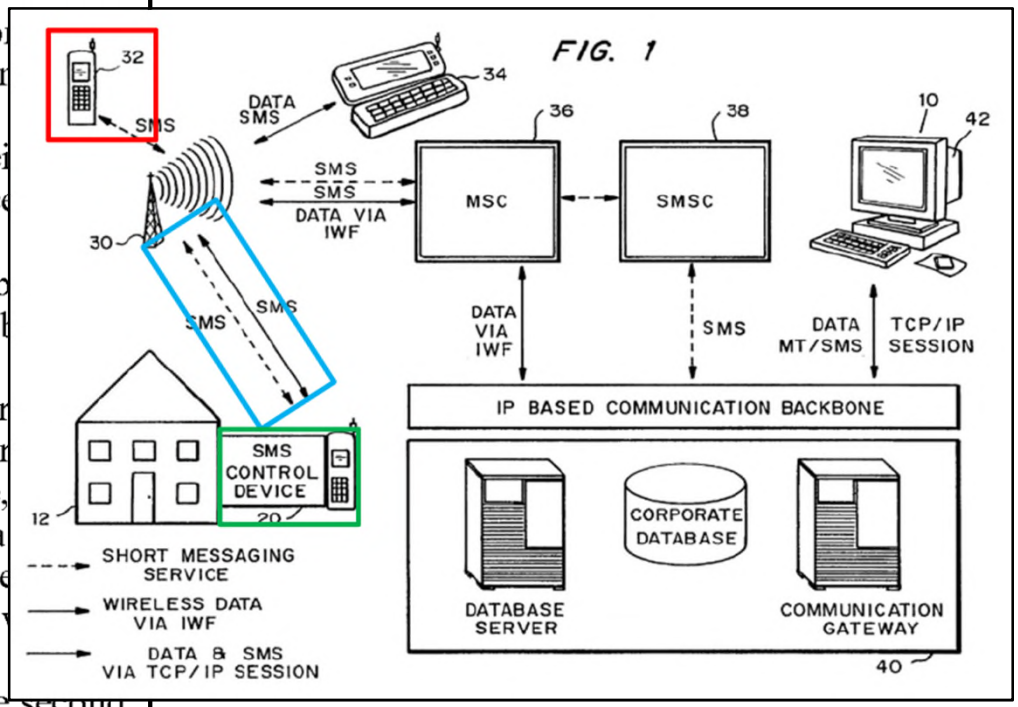
Fig. 4

935 Paper 1[Petition] at 17-18.

Whitley

1. A wireless system comprising:
an environmental device;
a base unit operatively interfaced with the enviro
device and configured to control an operatio
environmental device;
a remote unit having wireless connectivity and be
figured to send and receive short message servic
messages; and
a wireless module operatively interfaced with the b
and configured to provide wireless connectivity
the base unit and the remote unit,
wherein the base unit is configured to send a fi
message, including current environmental infor
to the remote unit through the wireless module,
wherein the remote unit is configured to send a
SMS message, including a command for the
mental device, to the base unit through the
module, and
wherein the base unit is configured to receive the second
SMS message, including the command, and to send the
command to the environmental device to control the
operation of the environmental device.

Whitley

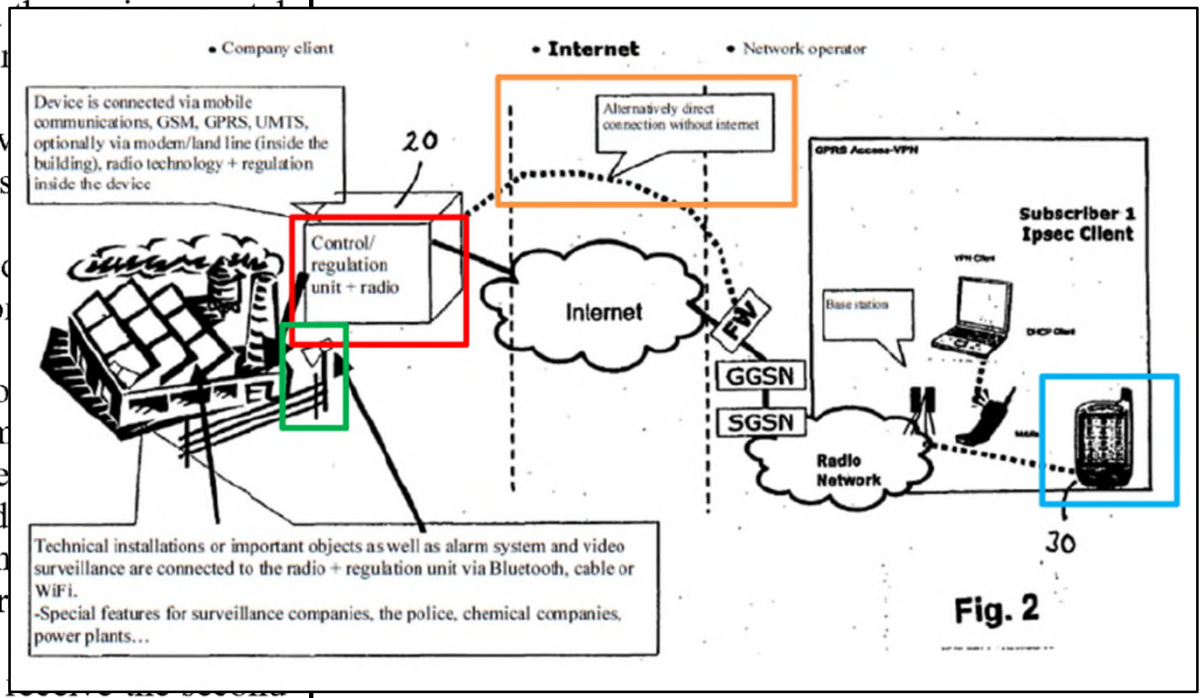


935 Paper 1[Petition] at 16.

Bielski

1. A wireless system comprising:
an environmental device;
a base unit operatively interfaced with
device and configured to control a
environmental device;
a remote unit having wireless connectiv
figured to send and receive short mess
messages; and
a wireless module operatively interfaced
and configured to provide wireless co
the base unit and the remote unit,
wherein the base unit is configured to
message, including current environm
to the remote unit through the wirele
wherein the remote unit is configured
SMS message, including a comman
mental device, to the base unit thr
module, and
wherein the base unit is configured to
SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

Bielski



935 Paper 1[Petition] at 53.

Wu

Wu

1. A wireless system comprising:
an environmental device;
a base unit operatively interfaced with the environ
device and configured to control an operation
environmental device;
a remote unit having wireless connectivity and bei
figured to send and receive short message service
messages; and
a wireless module operatively interfaced with the b
and configured to provide wireless connectivity b
the base unit and the remote unit,
wherein the base unit is configured to send a firs
message, including current environmental infor
to the remote unit through the wireless module,
wherein the remote unit is configured to send a
SMS message, including a command for the e
mental device, to the base unit through the w
module, and
wherein the base unit is configured to receive the
SMS message, including the command, and to s
command to the environmental device to control the
operation of the environmental device.

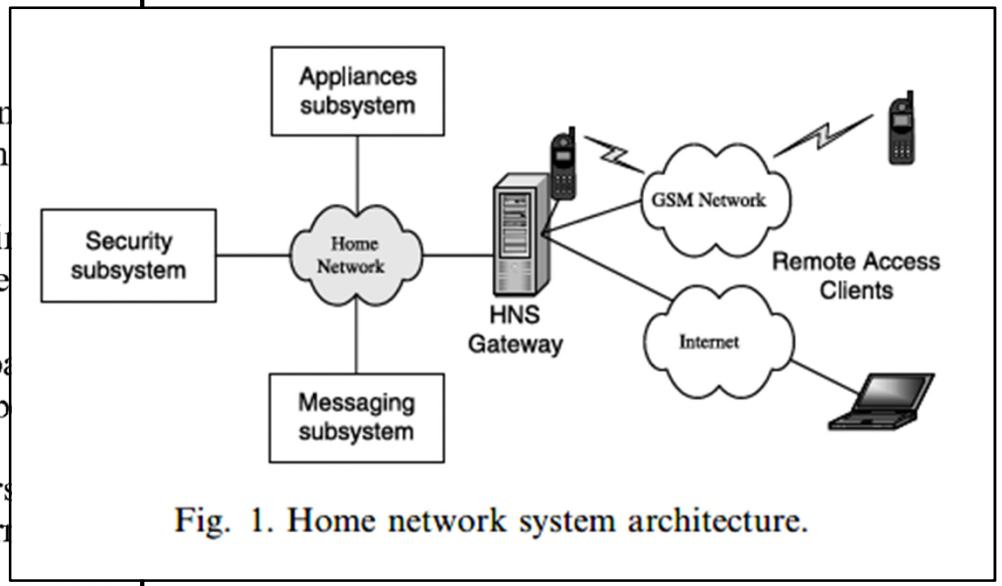
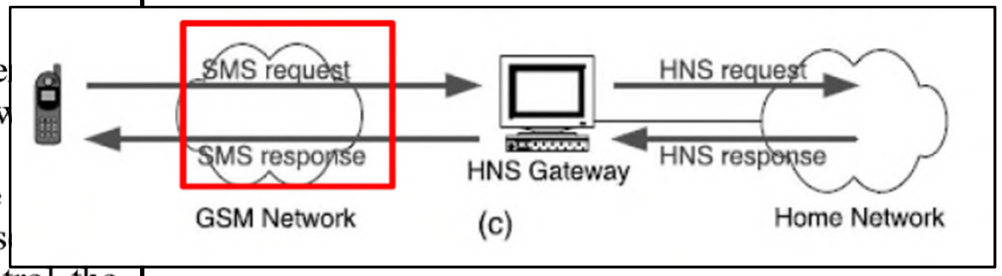


Fig. 1. Home network system architecture.



935 Paper 1[Petition] at 51, 55, 68.

Oinonen & Whitley

In his §101 Declaration, Mr. Zatkovich explained:

architecture to perform this integration. At the core of the network is a base control unit acting as a communications gateway between a remote unit and devices, to be monitored or controlled, in proximity to the base control unit. *See* '655 Patent at 1:22-26.

The two-way communication capability described herein is essential because it permits the user operating a remote unit to initiate commands to, and request status from, the monitored devices (at a remote location) through the user's cellular phone, as well as allowing monitored devices to alert the user to specific events in an unsolicited manner (i.e. an ability to provide on-demand status and commands triggered by event-driven notifications). *See* '655 Patent at 2:65-3:1; 9:15-19.

reflected severe shortcomings. For example, many users dislike automated phone systems and avoid their use when possible because they are unpleasant to use and can be difficult for some users to navigate. These concerns are dramatically magnified when the number of options presented to users are large; e.g., when a large number of devices are monitored at a location. Because a user typically lacks a predetermined identification of which monitored devices correspond to particular key selections, the user is forced to listen to many options at each call.

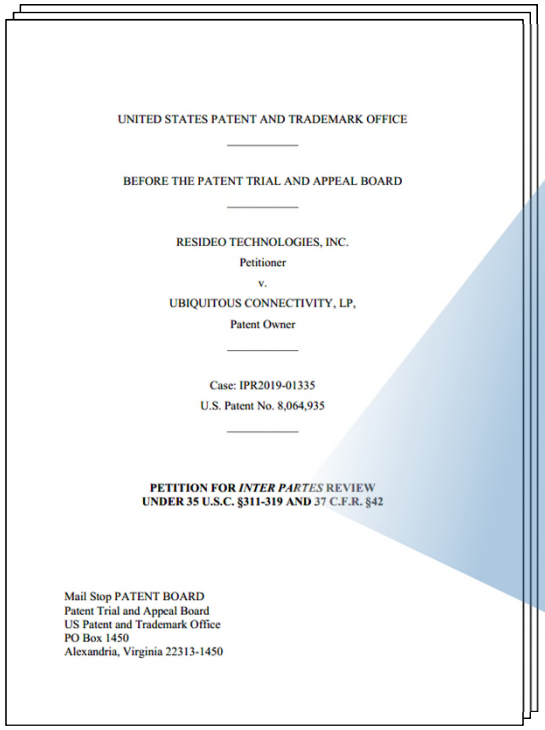
935 Paper 27[Petitioner Reply] at 18.

935 EX1014[Zatkovich 101 Declaration] at 48, 83, 100.

demand, bi-directional communications including a command. Thus, again, the nature of an improved base unit facilitating these on-demand, bi-directional communications led me to conclude that claim 19 recites a particular implementation or technical solution for performing environmental monitoring and control of environmental devices rather than merely representing an abstract idea of environmental monitoring and control.

Oinonen & Whitley

Petitioners explained:



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC.
Petitioner
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner

Case: IPR2019-01335
U.S. Patent No. 8,064,935

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42

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PO Box 1450
Alexandria, Virginia 22313-1450

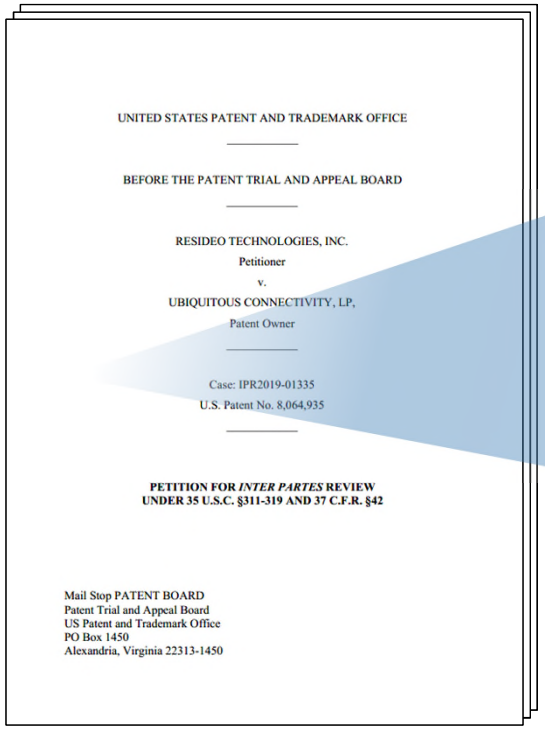
935 Paper 1[Petition] at 15.

1. Motivation to Combine

Oinonen discloses using a mobile device to monitor and/or control a device with SMS messages. Ex. 1003, ¶183. Oinonen discloses bidirectional communications between a user's device and a controlled device whereby the controlled device sends a status and, in response, the remote device sends a command to control the controlled device. Ex. 1016, 4:67-5:15; Ex. 1003, ¶184. Oinonen, however, does not expressly articulate how its telecommunications device would be configured to monitor and/or control multiple devices. *Id.*

Oinonen & Whitley

Petitioners also explained:



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC.
Petitioner
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner

Case: IPR2019-01335
U.S. Patent No. 8,064,935

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42

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US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

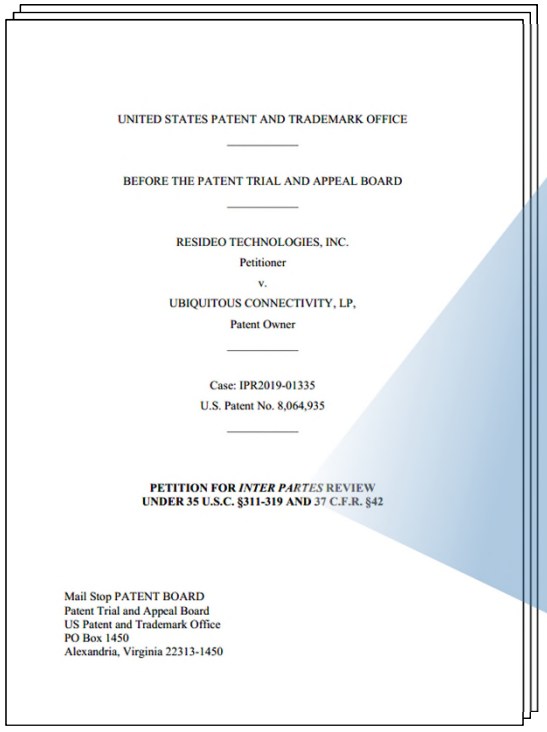
1023, 6:19-21; Ex. 1003, ¶187. Third, the POSITA would have been motivated to rely on Whitley because it allows for monitoring of activities over time, which allows the user to control devices *and* save energy. Ex. 1023, 7:2-6, 16:19-26; Ex.

935 Paper 1[Petition] at 16.

935 Paper 27[Petitioner Reply] at 18.

Bielski & Wu

Petitioners explained:



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC.
Petitioner
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner

Case: IPR2019-01335
U.S. Patent No. 8,064,935

PETITION FOR *INTER PARTES* REVIEW UNDER 35 U.S.C. §311-319 AND 37 C.F.R. §42

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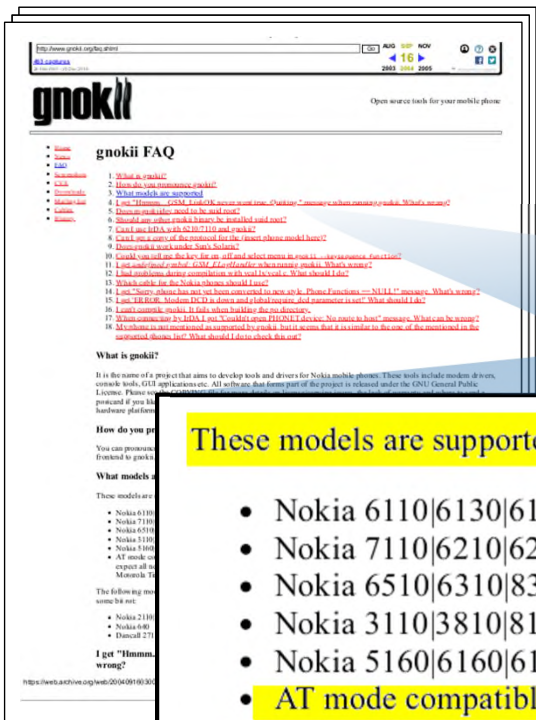
PO Box 1450
Alexandria, Virginia 22313-1450

935 Paper 1[Petition] at 50.

Bielski discloses the use of SMS messages for communication between the base unit and remote unit, but does not further describe the details of the communications protocols. Ex. 1017, [0069]; Ex. 1003, ¶493. Bielski states that such protocols were standardized and known in the art. Ex. 1017, [0030]; Ex. 1003, ¶494. Thus, the POSITA would have been motivated to identify additional implementation details. *Id.*

Specifically, the POSITA would have looked to Wu, which discloses a home network system that allows users to monitor and control appliance systems though communication protocols such as SMS, HTTP, and WAP. Ex. 1018, p. 493, Fig. 2; Ex. 1003, ¶495-496. The POSITA would have implemented the SMS functionality

Bielski & Wu


gnokii FAQ

These models are supported

- Nokia 6110|6130|6150|6190|5110|5130|5190|3210|3310|3330|3360|3390|3410|8210|8250|8290|RPM-1
- Nokia 7110|6210|6250|7190
- Nokia 6510|6310|8310|6310i|6360|6610|6100|5100|3510|3510i
- Nokia 3110|3810|8110|8110i
- Nokia 5160|6160|6185
- AT mode compatible phones (namely Nokia 62X0, Nokia 7110, Nokia 8210, Nokia 6310, Nokia 6510 (you should expect all newer Nokia phones to work), Ericsson T39, Sony-Ericsson T68i, Siemens S25/SL45i/C55/M55/S55, Motorola Timeport P7389i (L series), C350, Bosch 908/909 are known to work)

935 EX1045[Gnokii FAQ] at 1.

935 Paper 27[Petitioner Reply] at 19-20.

The Prior Art is Enabled

Patent Owner argues that, to be enabled, references must disclose two technical solutions.

> First, the solution would require that the computing device acting as the base unit be coupled to a cell phone that would send and receive the base unit's SMS messages via a hardware and software interface. *Id.* ¶60. A hardware interface

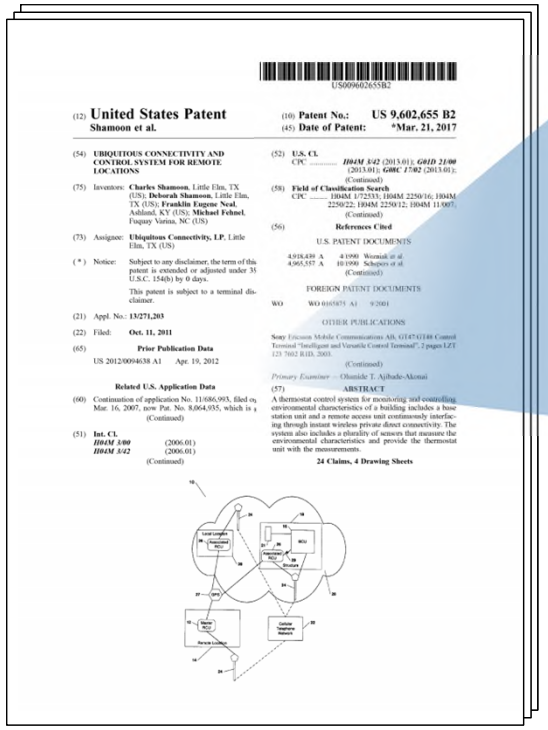
> A second technical requirement is the presence of software, on the cellular phone, that provides a software interface (API) for the SMS functions on the cellular phone to be controlled or directed by communications with a computing device. This second requirement provides a functional link between the

935 Paper 27[Petitioner Reply] at 20-21.

935 Paper 23[Patent Owner Response] at 19-20.

The Prior Art is Enabled

These technical solutions find no support in the challenged patents.



US009602655B2

(12) **United States Patent**
Shamoon et al.

(10) **Patent No.: US 9,602,655 B2**
(45) **Date of Patent: *Mar. 21, 2017**

(54) **UBIQUITOUS CONNECTIVITY AND CONTROL SYSTEM FOR REMOTE LOCATIONS**

(75) Inventors: **Charles Shamoon**, Little Elm, TX (US); **Deborah Shamoon**, Little Elm, TX (US); **Franklin Eugene Neal**, Ashland, KY (US); **Michael Fehnel**, Fuquay Varina, NC (US)

(73) Assignee: **Ubiquitous Connectivity, LP**, Little Elm, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/271,203**

(22) Filed: **Oct. 11, 2011**

(65) **Prior Publication Data**

US 2012/0094638 A1 Apr. 19, 2012

Related U.S. Application Data

(60) Continuation of application No. 11/686,993, filed on Mar. 16, 2007, now Pat. No. 8,064,935, which is a

(Continued)

(51) **Int. Cl.**
H04M 3/00 (2006.01)
H04M 3/42 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***H04M 3/42*** (2013.01); ***G01D 21/00*** (2013.01); ***G08C 17/02*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC H04M 1/72533; H04M 2250/16; H04M 2250/22; H04M 2250/12; H04M 11/007;
(Continued)

(56) **References Cited**

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4,965,557 A 10/1990 Schepers et al.
(Continued)

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Sony Ericsson Mobile Communications AB, GT47/48 Control Terminal "Intelligent and Versatile Control Terminal", 2 pages LZT 123 7602 R1D, 2003.
(Continued)

Primary Examiner — Olumide T. Ajibade-Akonai

(57) **ABSTRACT**

A thermostat control system for monitoring and controlling environmental characteristics of a building includes a base station unit and a remote access unit continuously interfacing through instant wireless private direct connectivity. The system also includes a plurality of sensors that measure the environmental characteristics and provide the thermostat unit with the measurements.

24 Claims, 4 Drawing Sheets

655 EX1001[655 Patent].

935 Paper 27[Petitioner Reply] at 21-22.

Roadmap

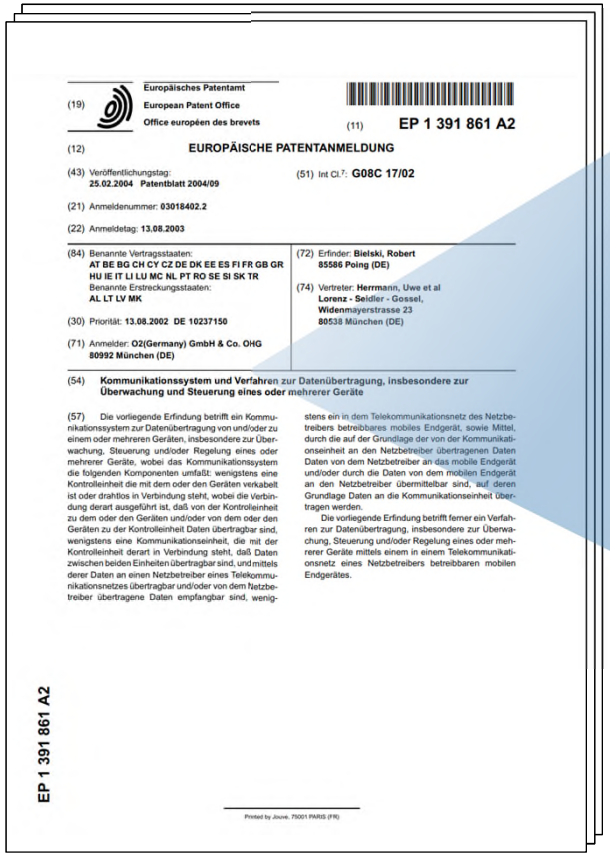
1. Overview of the challenged patents
2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. **Bi-directional Messages**
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

Bielski: Bi-Directional Messages

Bielski discloses:

1. Messages from remote unit to base unit
2. Messages from base unit to remote unit

935 EX1017[Bielski].



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 391 861 A2

(12) EUROPÄISCHE PATENTANMELDUNG

(43) Veröffentlichungstag: 25.02.2004 Patentblatt 2004/09

(51) Int Cl.7: G08C 17/02

(21) Anmeldenummer: 03018402.2

(22) Anmeldetag: 13.08.2003

(84) Benannte Vertragsstaaten: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Benannte Erstreckungsstaaten: AL LT LV MK

(30) Priorität: 13.08.2002 DE 10237150

(71) Anmelder: O2(Germany) GmbH & Co. OHG 80992 München (DE)

(72) Erfinder: Bielski, Robert 85586 Poing (DE)

(74) Vertreter: Herrmann, Uwe et al Lorenz - Seidler - Gossel, Widenmayerstrasse 23 80538 München (DE)

(54) Kommunikationssystem und Verfahren zur Datenübertragung, insbesondere zur Überwachung und Steuerung eines oder mehrerer Geräte

(57) Die vorliegende Erfindung betrifft ein Kommunikationssystem zur Datenübertragung von und/oder zu einem oder mehreren Geräten, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte, wobei das Kommunikationssystem die folgenden Komponenten umfaßt: wenigstens eine Kontrolleinheit die mit dem oder den Geräten verkabelt ist oder drahtlos in Verbindung steht, wobei die Verbindung derart ausgeführt ist, daß von der Kontrolleinheit zu dem oder den Geräten und/oder von dem oder den Geräten zu der Kontrolleinheit Daten übertragbar sind, wenigstens eine Kommunikationseinheit, die mit der Kontrolleinheit derart in Verbindung steht, daß Daten zwischen beiden Einheiten übertragbar sind, und mittels derer Daten an einen Netzbetreiber eines Telekommunikationsnetzes übertragbar und/oder von dem Netzbetreiber übertragene Daten empfangbar sind, wenigstens ein in dem Telekommunikationsnetz des Netzbetreibers betreibbares mobiles Endgerät, sowie Mittel, durch die auf der Grundlage der von der Kommunikationseinheit an den Netzbetreiber übertragenen Daten Daten von dem Netzbetreiber an das mobile Endgerät und/oder durch die Daten von dem mobilen Endgerät an den Netzbetreiber übermittelbar sind, auf deren Grundlage Daten an die Kommunikationseinheit übertragen werden.

Die vorliegende Erfindung betrifft ferner ein Verfahren zur Datenübertragung, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte mittels einem in einem Telekommunikationsnetz eines Netzbetreibers betreibbaren mobilen Endgerätes.

EP 1 391 861 A2

Printed by Jouve, 75001 PARIS (FR)

[0005] This object is solved by a communication system for the data transfer from and/or to one or more devices, in particular for the monitoring, control and/or regulation of one or more devices, comprising the following components:

[. . .]

– and means by means of which data can be transferred from the network operator to the mobile terminal on the basis of the data transferred from the communication unit to the network operator and/or by means of which data can be transferred from the mobile terminal to the network operator on the basis of which data are transferred to the communication unit.

935 Paper 7[Institution Decision] at 49-50.

935 Paper 1[Petition] at 49, 53-55.

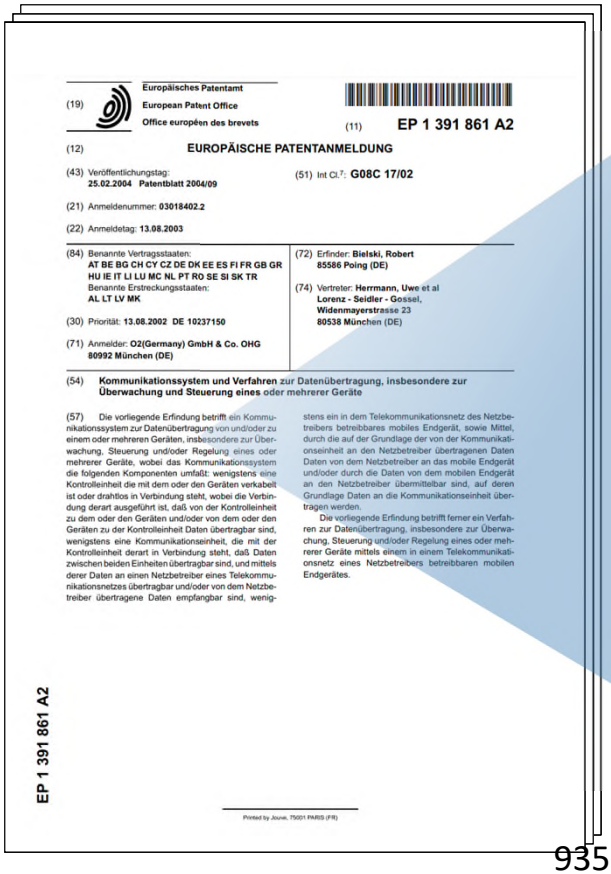
935 Paper 27[Petitioner Reply] at 14-15.

Bielski: Bi-Directional Messages

935 EX1017[Bielski].

Bielski discloses:

1. Messages from remote unit to base unit
2. Messages from base unit to remote unit



Europäisches Patentamt
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(43) Veröffentlichungstag: 25.02.2004 Patentblatt 2004/09

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EP 1 391 861 A2

Printed by Jouve, 75001 PARIS (FR)

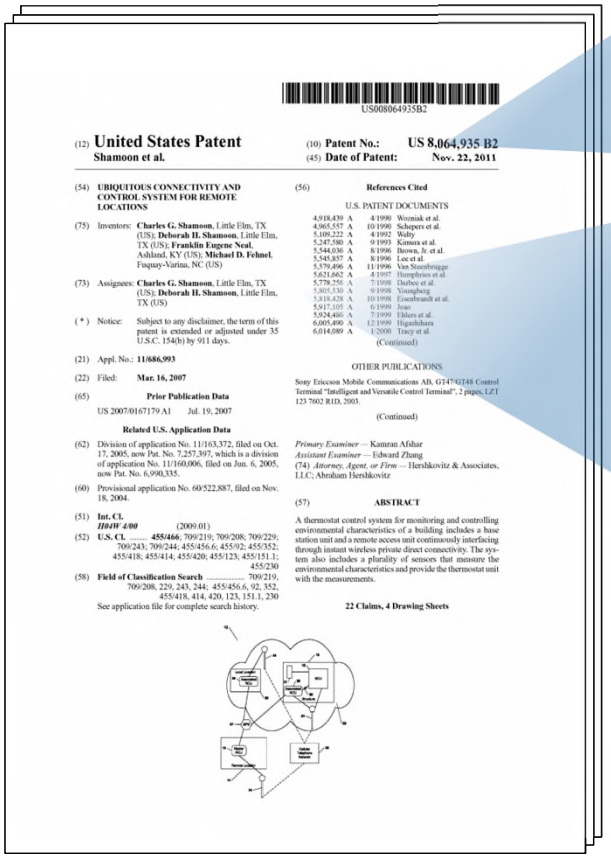
[0063] Using the device represented in Fig. 1, the user of the mobile terminal 30 can be informed about the operation conditions of the devices which are important to them or can themselves influence the devices by controlling or regulating them. For this purpose, they enter the corresponding commands, such as on/off conditions or temperatures etc., into the mobile terminal and send this information. It is transferred to the control and communication unit 20 via the telecommunication network of a network operator, either with the help of the internet or directly, and from there, it is transmitted to the devices inside the building 10 or serves as a nominal value which is required for the regulation of the devices.

935 Paper 27[Petitioner Reply] at 14-15.
935 EX1003[Jeffay Dec.] at ¶¶167, 492, 542.

935 Paper 1[Petition] at 49, 57.

Bielski: Bi-Directional Messages

DTMF dial tones were a prior art solution upon which the 935 Patent improved.



US008064935B2

(12) **United States Patent**
Shamoon et al.

(10) **Patent No.: US 8,064,935 B2**
(45) **Date of Patent: Nov. 22, 2011**

(54) **UBIQUITOUS CONNECTIVITY AND CONTROL SYSTEM FOR REMOTE LOCATIONS**

(75) Inventors: **Charles G. Shamoon**, Little Elm, TX (US); **Deborah H. Shamoon**, Little Elm, TX (US); **Franklin Eugene Neal**, Ashland, KY (US); **Michael D. Fehnel**, Fuquay-Varina, NC (US)

(73) Assignees: **Charles G. Shamoon**, Little Elm, TX (US); **Deborah H. Shamoon**, Little Elm, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 911 days.

(21) Appl. No.: **11/686,993**

(22) Filed: **Mar. 16, 2007**

(65) **Prior Publication Data**

US 2007/0167179 A1 Jul. 19, 2007

Related U.S. Application Data

(62) Division of application No. 11/163,372, filed on Oct. 17, 2005, now Pat. No. 7,257,397, which is a division of application No. 11/160,006, filed on Jun. 6, 2005, now Pat. No. 6,990,335.

(60) Provisional application No. 60/522,887, filed on Nov. 18, 2004.

(51) **Int. Cl.**
H04W 4/00 (2009.01)

(52) **U.S. Cl.** **455/466**; 709/219; 709/208; 709/229; 709/243; 709/244; 455/456.6; 455/92; 455/352; 455/418; 455/414; 455/420; 455/123; 455/151.1; 455/230

(58) **Field of Classification Search** 709/219, 709/208, 229, 243, 244; 455/456.6, 92, 352, 455/418, 414, 420, 123, 151.1, 230
See application file for complete search history.

(56) **References Cited**

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4,965,557	A	10/1990	Schepers et al.
5,109,222	A	4/1992	Welty
5,247,580	A	9/1993	Kimura et al.
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(Continued)

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(Continued)

Primary Examiner — Kamran Afshar
Assistant Examiner — Edward Zhang
(74) *Attorney, Agent, or Firm* — Hershkovitz & Associates, LLC; Abraham Hershkovitz

(57) **ABSTRACT**

A thermostat control system for monitoring and controlling environmental characteristics of a building includes a base station unit and a remote access unit continuously interfacing through instant wireless private direct connectivity. The system also includes a plurality of sensors that measure the environmental characteristics and provide the thermostat unit with the measurements.

22 Claims, 4 Drawing Sheets

(10) **Patent No.: US 8,064,935 B2**
(45) **Date of Patent: Nov. 22, 2011**

standard cellular telephone operation. For example, to use a cellular telephone that has a home automation terminal in its conventional mode, the user would have to enter a telephone number, dial into a home automation controller, and press the telephone keys to send DTMF audio signals to the controller.

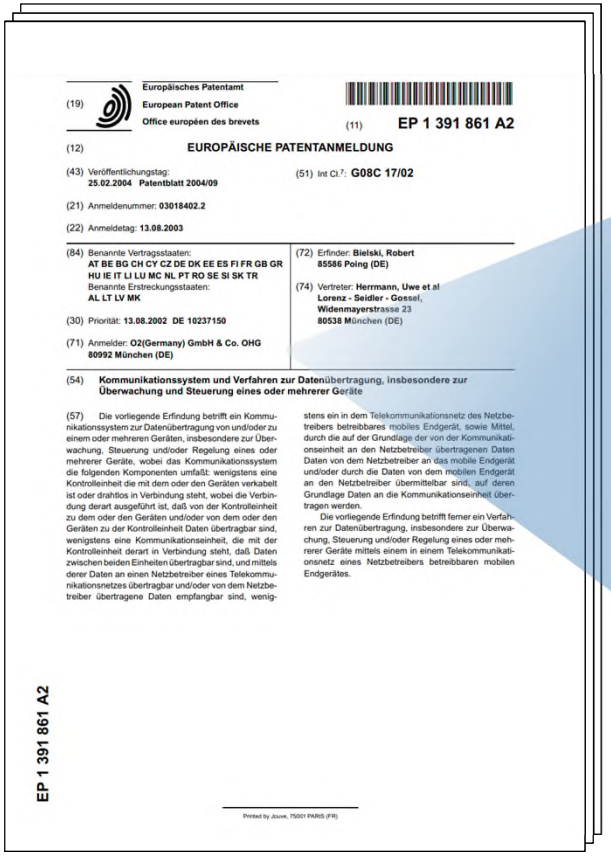
935 Paper 27[Petitioner Reply] at 15.

935 Paper 23[Patent Owner Response] at 50-51.

935 EX1001[935 Patent].

Bielski: Bi-Directional Messages

Bielski does not disclose “DTMF” or “dial tones”.



Europäisches Patentamt
(19) European Patent Office
Office européen des brevets

(11) EP 1 391 861 A2

(12) EUROPÄISCHE PATENTANMELDUNG

(43) Veröffentlichungstag:
25.02.2004 Patentblatt 2004/09

(51) Int Cl.7: G08C 17/02

(21) Anmeldenummer: 03018402.2

(22) Anmeldetag: 13.08.2003

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AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Benannte Erstreckungsstaaten:
AL LT LV MK

(30) Priorität: 13.08.2002 DE 10237150

(71) Anmelder: O2(Germany) GmbH & Co. OHG
80992 München (DE)

(72) Erfinder: Bielski, Robert
85586 Poing (DE)

(74) Vertreter: Herrmann, Uwe et al
Lorenz - Seidler - Gossel,
Widenmayerstrasse 23
80538 München (DE)

(54) Kommunikationssystem und Verfahren zur Datenübertragung, insbesondere zur Überwachung und Steuerung eines oder mehrerer Geräte

(57) Die vorliegende Erfindung betrifft ein Kommunikationssystem zur Datenübertragung von und/oder zu einem oder mehreren Geräten, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte, wobei das Kommunikationssystem die folgenden Komponenten umfaßt: wenigstens eine Kontrolleinheit die mit dem oder den Geräten verkabelt ist oder drahtlos in Verbindung steht, wobei die Verbindung derart ausgeführt ist, daß von der Kontrolleinheit zu dem oder den Geräten und/oder von dem oder den Geräten zu der Kontrolleinheit Daten übertragbar sind, wenigstens eine Kommunikationseinheit, die mit der Kontrolleinheit derart in Verbindung steht, daß Daten zwischen beiden Einheiten übertragbar sind, und mittels derer Daten an einen Netzbetreiber eines Telekommunikationsnetzes übertragbar und/oder von dem Netzbetreiber übertragene Daten empfangbar sind, wenigstens ein in dem Telekommunikationsnetz des Netzbetreibers betreibbares mobiles Endgerät, sowie Mittel, durch die auf der Grundlage der von der Kommunikationseinheit an den Netzbetreiber übertragenen Daten Daten von dem Netzbetreiber an das mobile Endgerät und/oder durch die Daten von dem mobilen Endgerät an den Netzbetreiber übermittelbar sind, auf deren Grundlage Daten an die Kommunikationseinheit übertragen werden.

Die vorliegende Erfindung betrifft ferner ein Verfahren zur Datenübertragung, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte mittels einem in einem Telekommunikationsnetz eines Netzbetreibers betreibbaren mobilen Endgerätes.

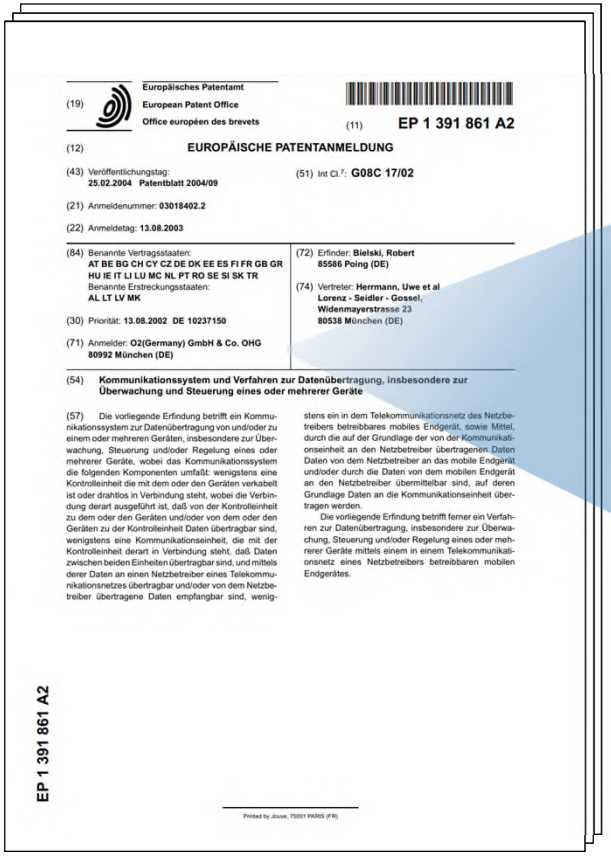
EP 1 391 861 A2

Printed by Jouve, 75001 PARIS (FR)

935 EX1017[Bielski].

935 Paper 15[Petitioner Reply] at 15.

Bielski: Bi-Directional Messages



(19) Europäisches Patentamt
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(11) EP 1 391 861 A2

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(30) Priorität: **13.08.2002 DE 10237150**

(71) Anmelder: **O2(Germany) GmbH & Co. OHG**
80992 München (DE)

(72) Erfinder: **Bielski, Robert**
85586 Poing (DE)

(74) Vertreter: **Herrmann, Uwe et al**
Lorenz - Seidler - Gossel,
Widenmayerstrasse 23
80538 München (DE)

(54) **Kommunikationssystem und Verfahren zur Datenübertragung, insbesondere zur Überwachung und Steuerung eines oder mehrerer Geräte**

(57) Die vorliegende Erfindung betrifft ein Kommunikationssystem zur Datenübertragung von und/oder zu einem oder mehreren Geräten, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte, wobei das Kommunikationssystem die folgenden Komponenten umfaßt: wenigstens eine Kontrolleinheit die mit dem oder den Geräten verkabelt ist oder drahtlos in Verbindung steht, wobei die Verbindung derart ausgeführt ist, daß von der Kontrolleinheit zu dem oder den Geräten und/oder von dem oder den Geräten zu der Kontrolleinheit Daten übertragbar sind, wenigstens eine Kommunikationseinheit, die mit der Kontrolleinheit derart in Verbindung steht, daß Daten zwischen beiden Einheiten übertragbar sind, und mittels derer Daten an einen Netzbetreiber eines Telekommunikationsnetzes übertragbar und/oder von dem Netzbetreiber übertragene Daten empfangbar sind, wenigstens ein in dem Telekommunikationsnetz des Netzbetreibers betreibbares mobiles Endgerät, sowie Mittel, durch die auf der Grundlage der von der Kommunikationseinheit an den Netzbetreiber übertragenen Daten Daten von dem Netzbetreiber an das mobile Endgerät und/oder durch die Daten von dem mobilen Endgerät an den Netzbetreiber übermittelbar sind, auf deren Grundlage Daten an die Kommunikationseinheit übertragen werden.

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EP 1 391 861 A2

Printed by Jouve, 75001 PARIS (FR)

935 EX1017[Bielski].

[0064] For this purpose, the user enters the dialing number of the check and communication unit 20, which is assigned to the building 10, into their mobile phone or presses the corresponding symbol on the display. The control and communication unit 20 is clearly identifiable in the network of the telecommunication operator and can therefore be controlled by means of the internet or the mentioned direct mobile communications or land line connection. The check and communication unit takes over the desired addressing of the device.

935 EX1003[Jeffay Dec.] at ¶543.

935 Paper 15[Petitioner Reply] at 15.

935 Paper 1[Petition] at 57.

Bielski: Bi-Directional Messages

Mr. Zatkovich confirmed:

Q. In order for that message to be sent, the user has to first enter the phone number, right, Mr. Zatkovich?

A. If -- an SMS message would never refer to it as dialing number. It would refer to it as a destination number.

[. . .]

Q. Whether you call a person or send a text message to a person, it's the same number, right, Mr. Zatkovich?

A. Yes, that's correct.

935 EX1041[Zatkovich Dep. II] at 89:15-20, 90:8-11.

935 Paper 27[Petitioner Reply] at 15.

Roadmap

1. Overview of the challenged patents
2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. **"microcontroller" – Claims 3, 14, 18, 21**
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

“microcontroller” Construction

Microcontroller

Petitioners	Patent Owner
"a microcomputer, microprocessor, or other equipment used for process control, for example, processing a message and sending a command."	"a special-purpose computing device including at least a CPU, main memory, timing circuits, and I/O circuitry designed for a minimal quantity of chips and then programmed to handle a particular task."

935 Paper 27[Petitioner Reply] at 2, 8.

Microcontroller

Petitioners' construction

"a microcomputer, microprocessor, or other equipment used for process control, for example, processing a message and sending a command."

24. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

[. . .]

a microcontroller configured to process the second message and to send the control instruction based on the command via the first communication interface to the environmental device, and

wherein the wireless communication interface is configured to send a third message to a subordinate remote unit via the communications network and to receive a fourth message from the subordinate remote unit via the communications network,

wherein the fourth message includes a subordinate command to the environmental device, and wherein the microcontroller is configured to process the fourth message and to send selectively a second control instruction based on the subordinate command via the first communication interface to the environmental device.

655 EX1001[655 Patent].

21. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;

a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message includes the environmental information and travels via short message and/or data bearer services, and wherein the second message includes the command to the environmental device and travels via short message and/or data bearer services; and

a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device.

935 EX1001[935 Patent].

655 Paper 27[Petitioner Reply] at 7.

935 Paper 27[Petitioner Reply] at 3-5, 8.

Microcontroller

Petitioners' expert Dr. Kevin Jeffay testified:

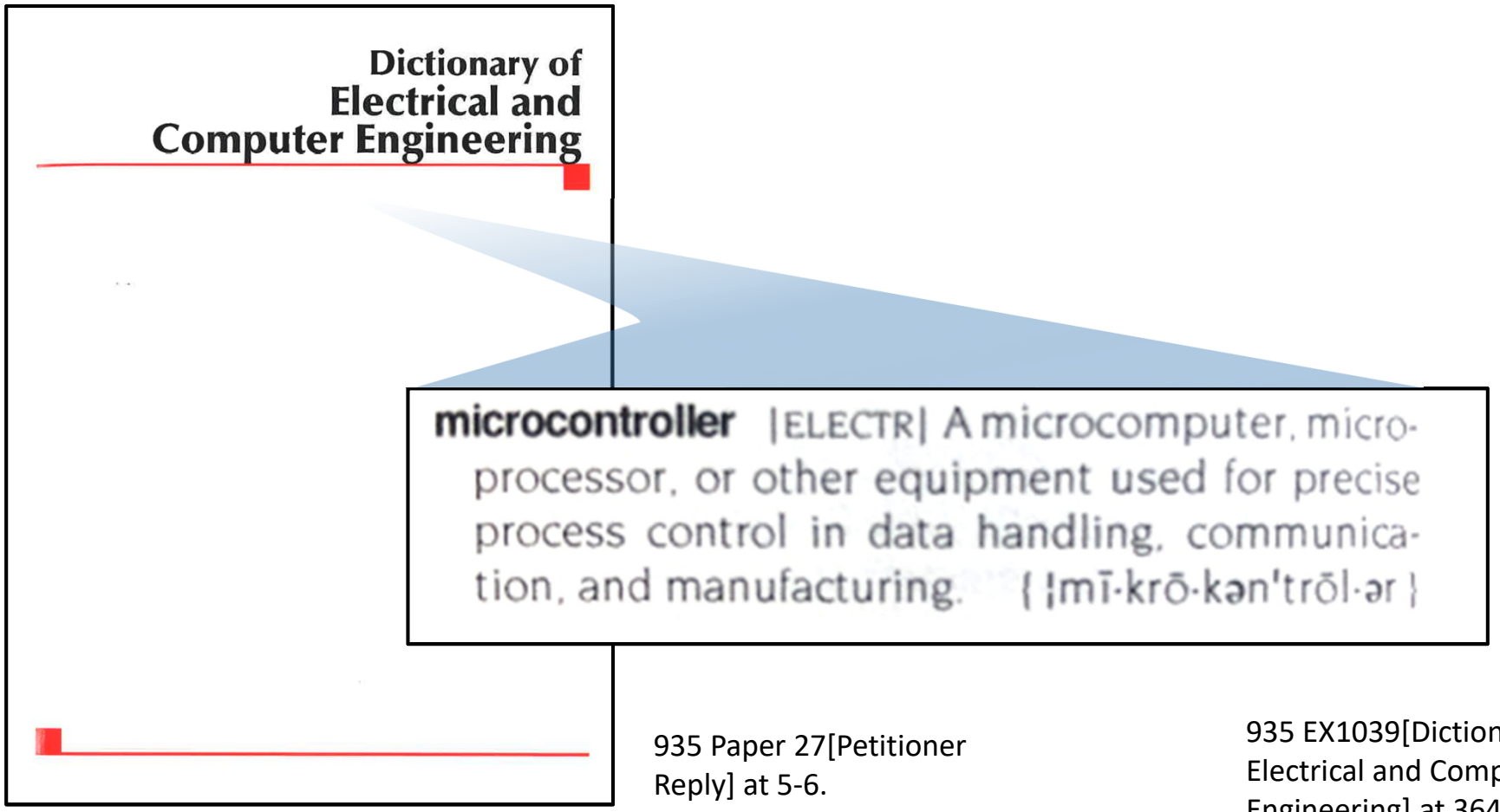
"a microcomputer, microprocessor, or other equipment used for process control, for example, processing a message and sending a command."

267. Oinonen and Whitley disclose the limitations of Claim 3. Based on the disclosure in the 935 Patent that the microcontroller "is electrically interconnected with random access memory 44, read only memory 46, the keypad 32, and the LCD display 38," a POSITA would understand the disclosures of a "microcontroller" to include a generic processor in an embedded system. Ex. 1001, 4:10-13. This is confirmed by the fact that the microcontroller described in the 935 Patent communicates with, and controls components in the base unit and attached devices via traditional communication buses (serial or parallel) and the microcontroller executes Java software. Ex. 1001, 4:29-34, 4:36-37, 4:46-52, 7:46-49.

935 Paper 23[Patent Owner Response] at 12.

935 EX1003[Jeffay Dec.] at ¶ 267.

Microcontroller



935 Paper 27[Petitioner Reply] at 5-6.

935 EX1039[Dictionary of Electrical and Computer Engineering] at 364.

Microcontroller

655 EX1040[Zatkovich Dep. I] at 38:16-39:10.

655 Paper 27[Petitioner Reply] at 9.

Q. Okay. What is McGraw-Hill?

A. McGraw-Hill, primarily known for their -- their textbooks that they develop for schools, but that's actually only a small portion of their business.

Their primary business is doing publications for various industry verticals; aerospace, construction, things like that.

Q. Is that a well-known publishing company?

A. Yes.

Q. Would you characterize it as a respected publishing company?

A. I'm sorry. Could you say that again? You cut out.

Q. Would you characterize it as a respected publishing company?

A. Yes.

Microcontroller

Patent Owner's construction

microcontroller *n.* A special-purpose, single-chip computer designed and built to handle a particular, narrowly defined task. In addition to the central processing unit (CPU), a microcontroller usually contains its own memory, input/output channels (ports), and timers. When part of a larger piece of equipment, such as a car or a home appliance, a microcontroller is an embedded system. *See also* embedded system.

935 EX2006[Microsoft Dictionary].

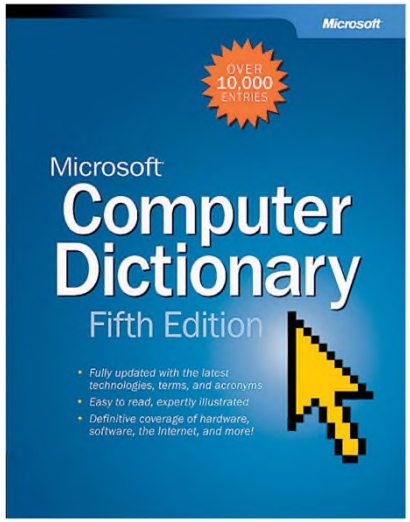
935 Paper 27[Petitioner Reply] at 2-5.

microcontroller an integrated circuit chip that is designed primarily for control systems and products. In addition to a CPU, a microcontroller typically includes memory, timing circuits, and I/O circuitry. The reason for this is to permit the realization of a controller with a minimal quantity of chips, thus achieving maximal possible minituarization. This in turn, will reduce the volume and the cost of the controller. The microcontroller is normally not used for general-purpose computation as is a microprocessor.

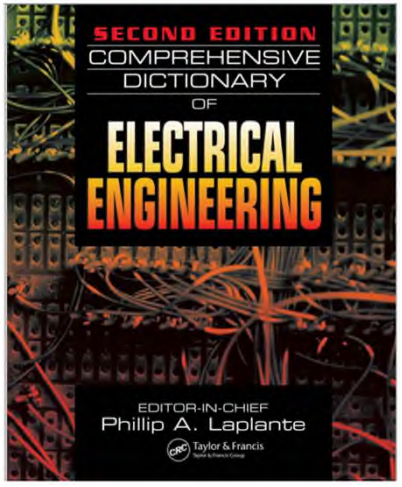
935 EX2007[Dictionary of Electrical Engineering].

Microcontroller

Patent Owner's construction



Microsoft Dictionary



Electrical Engineering Dictionary

"a special-purpose computing device including at least a CPU, main memory, timing circuits, and I/O circuitry designed for a minimal quantity of chips and then programmed to handle a particular task."

935 Paper 27[Petitioner Reply] at 5.

935 Paper 23[Patent Owner Response] at 11.

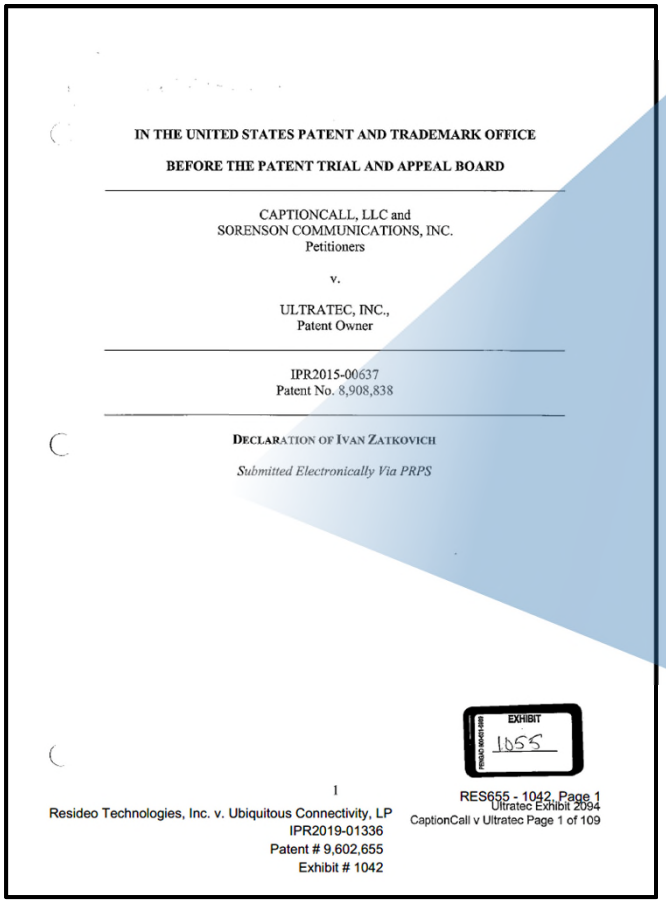
Microcontroller

Patent Owner's Microcontroller Requirements	Specification Support?
Special-purpose computing device	X
Timing circuits	X
I/O circuitry	X
Designed for a minimal quantity of chips	X
Programmed to handle a particular task	X

935 Paper 27[Petitioner Reply] at 3.

Microcontroller

Previous declaration of Mr. Zatkovich:



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CAPTIONCALL, LLC and
SORENSON COMMUNICATIONS, INC.
Petitioners

v.

ULTRATEC, INC.,
Patent Owner

IPR2015-00637
Patent No. 8,908,838

DECLARATION OF IVAN ZATKOVICH

Submitted Electronically Via PRPS

EXHIBIT
1055

1

Resideo Technologies, Inc. v. Ubiquitous Connectivity, LP
IPR2019-01336
Patent # 9,602,655
Exhibit # 1042

RES655 - 1042, Page 1
Ultratec Exhibit 2094
CaptionCall v Ultratec Page 1 of 109

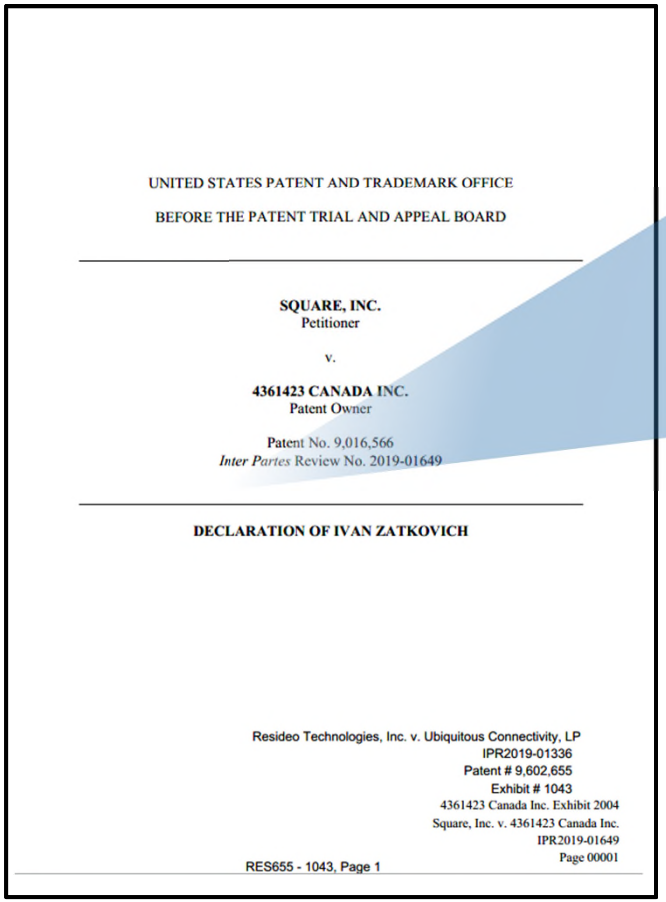
the claimed microprocessor. I disagree. It is my opinion that the disclosure of a microcontroller clearly provides support for the claimed microprocessor. A POSA would understand that a microcontroller is a single integrated circuit which contains a microprocessor core and memory. For purposes of the '838 Patent, and in the context of how "microcontroller" and "microprocessor" are used therein, these terms can be accepted as essentially synonymous. In practice, as of 2001, their known use to a POSA, particularly with respect to the types of functions described in the patent and recited in the claims, would have been the same.

935 Paper 27[Petitioner Reply] at 7.

935 EX1042[Zatkovich IPR2015-00637 Declaration] at 27.

Microcontroller

Previous declaration of Mr. Zatkovich:



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SQUARE, INC.
Petitioner

v.

4361423 CANADA INC.
Patent Owner

Patent No. 9,016,566
Inter Partes Review No. 2019-01649

DECLARATION OF IVAN ZATKOVICH

Resideo Technologies, Inc. v. Ubiquitous Connectivity, LP
IPR2019-01336
Patent # 9,602,655
Exhibit # 1043
4361423 Canada Inc. Exhibit 2004
Square, Inc. v. 4361423 Canada Inc.
IPR2019-01649
Page 00001

RES655 - 1043, Page 1

info. Once the credit card information is captured from the credit card/smart card reader it would be rendered in a digital format in order to be received by the microprocessor ('controller 50' in the patent). It would be well understood by a

935 Paper 27[Petitioner Reply] at 8.

935 EX1043[Zatkovich IPR2019-01649 Declaration] at 9-10.

Microcontroller, base unit, controller

21. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;

a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message includes the environmental information and travels via short message and/or data bearer services, and wherein the second message includes the command to the environmental device and travels via short message and/or data bearer services; and

a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device.

935 EX1001[935 Patent].

1. A wireless system comprising:

an environmental device;

a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;

a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and

a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,

wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,

wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and

wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

19. A communication system having wireless connectivity, the communication system comprising:

a base unit operatively interfaced with an environmental device, and configured to receive a current status of an environmental device;

a transmitter associated with said base unit, and configured to send a first message to a remote unit having wireless connectivity, wherein the first message is a wireless message including the current status of the environmental device;

a receiver associated with said base unit, and configured to receive a second message from the remote unit, wherein the second message is a wireless message including a command for the environmental device; and

a controller operatively associated with the base unit and operatively connected with the environmental device, and configured to send the command to the environmental device.

935 Paper 29[Patent Owner Surreply] at 2.

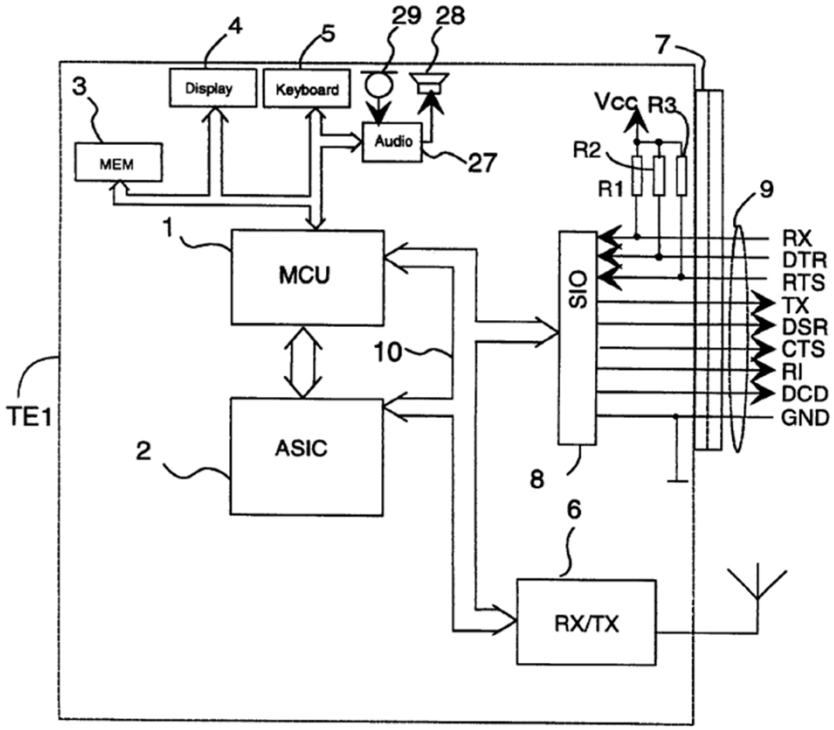
Petitioners' References Disclose a Microcontroller

1. Oinonen discloses the microcontroller
2. Bielski discloses the microcontroller

1. Oinonen discloses the microcontroller

2. Bielski discloses the microcontroller

Oinonen Discloses the Microcontroller



Oinonen Figure 3

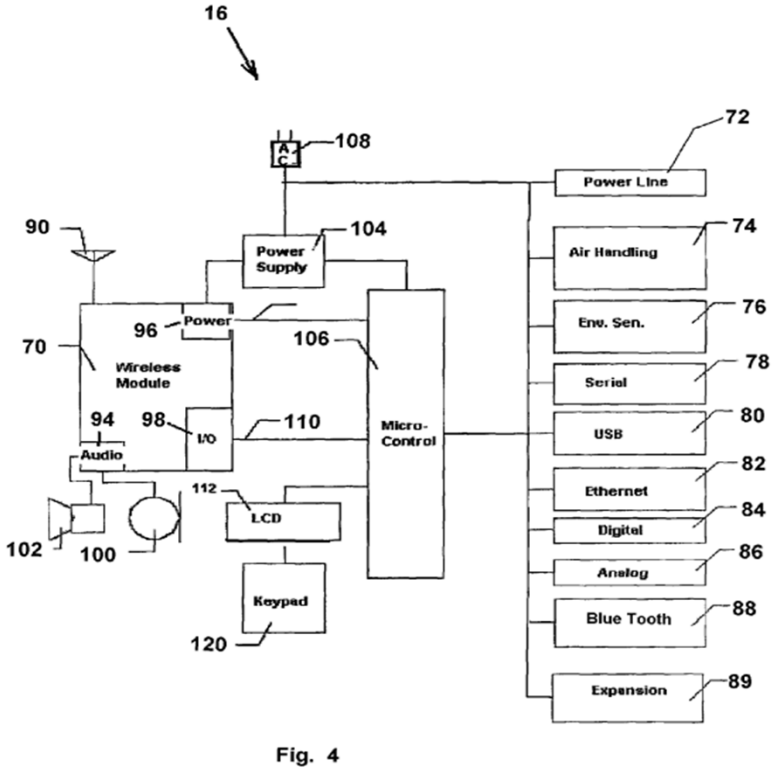


Fig. 4

935/655 Patent Figure 4

935 EX1003[Jeffay Dec.] at ¶268.

935 Paper 27[Petitioner Reply] at 9-10.

Oinonen Discloses the Microcontroller

Mr. Zatkovich testified:

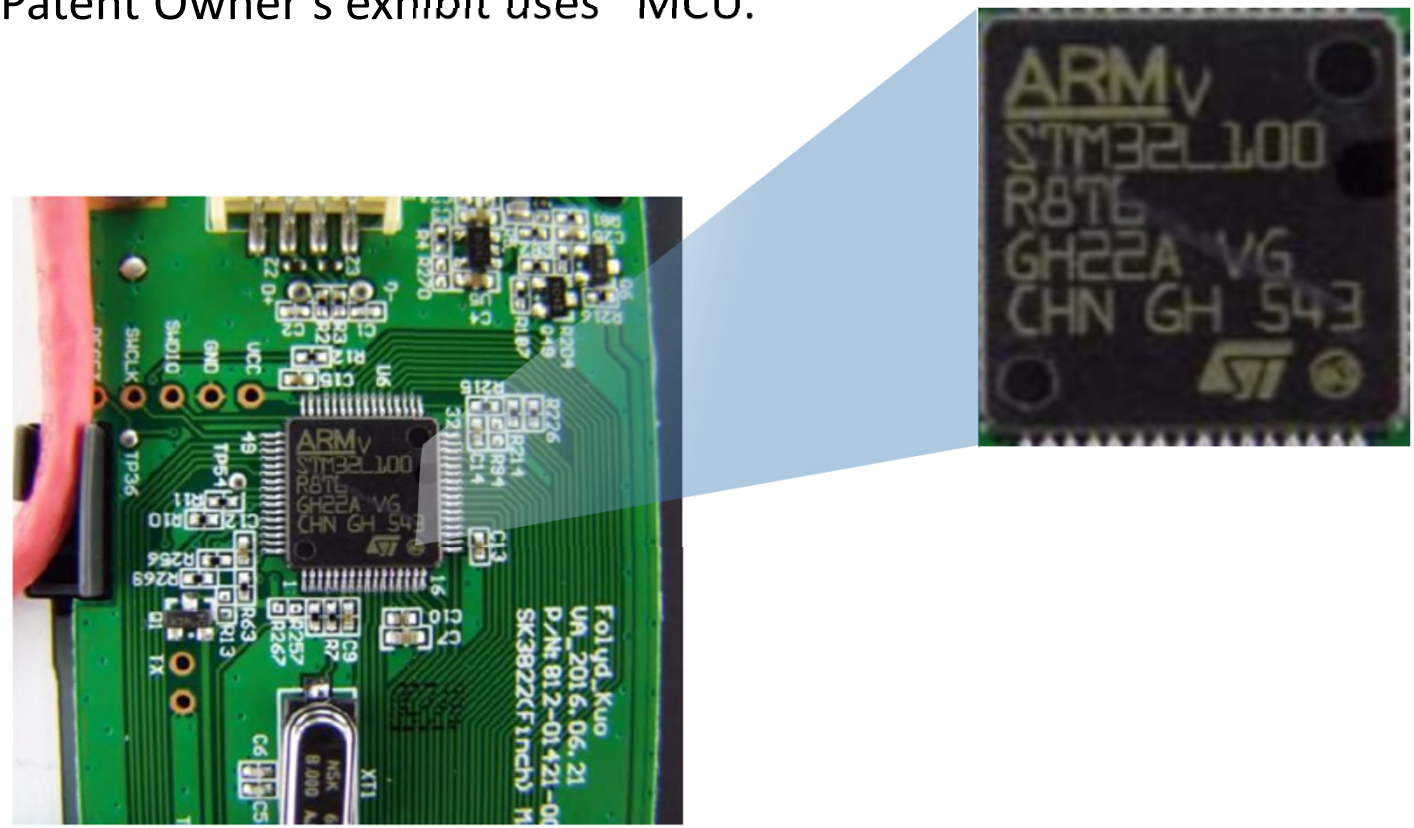
> Q. And a processor would also be required, correct?
>
> A. Well, a processor would be a required component of a microcontroller.

935 EX1040[Zatkovich Dep. I] at 109:20-110:1.

935 Paper 27[Petitioner Reply] at 11-12.

Oinonen Discloses the Microcontroller

Patent Owner's exhibit uses "MCU."



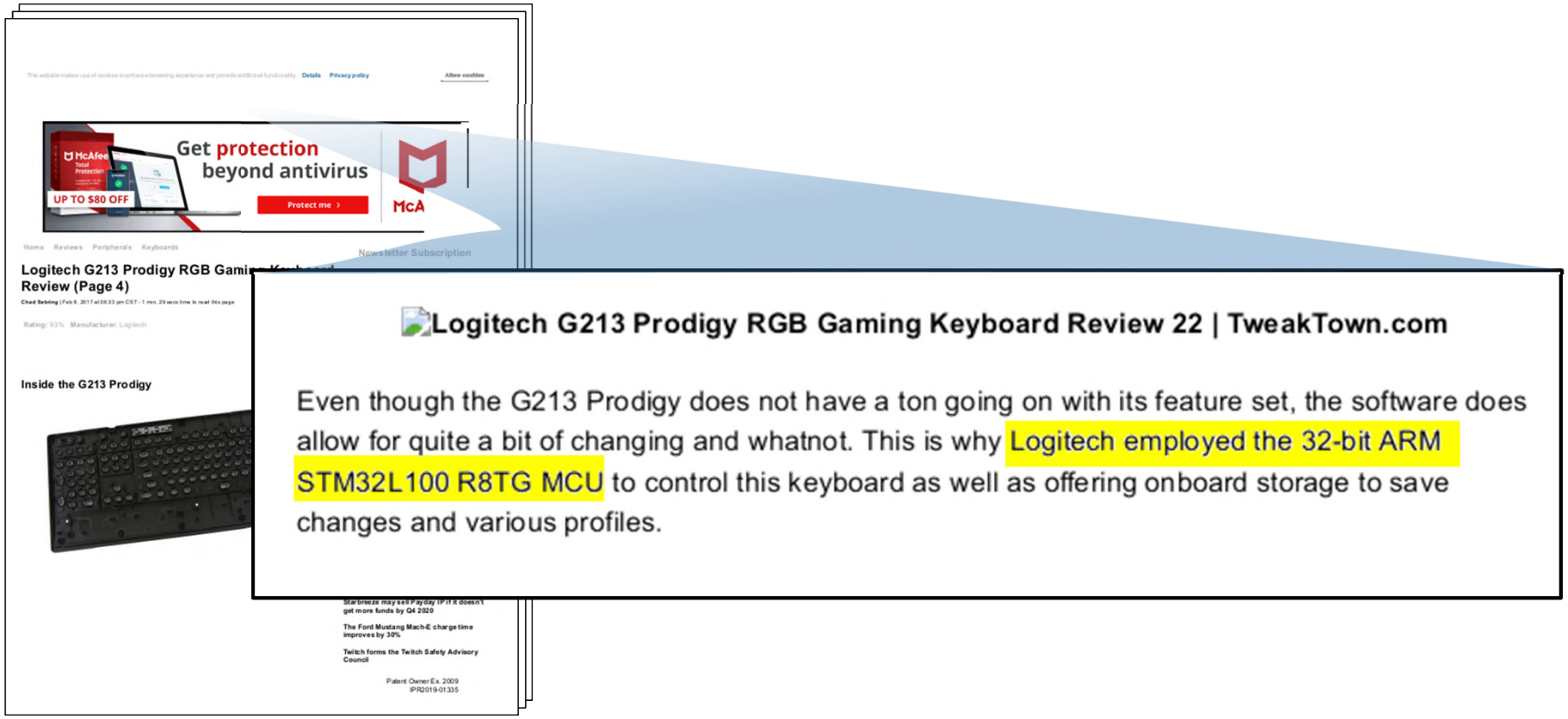
Mr. Zatkovich's example "microcontroller": STM32L100 R8T6

935 Paper 27[Petitioner Reply] at 10-11.

935 EX2004[Zatkovich Declaration] at 18.

Oinonen Discloses the Microcontroller

Patent Owner's exhibit uses "MCU."



935 EX2009[Logitech] at 2.

935 Paper 27[Petitioner Reply] at 11.

Oinonen Discloses the Microcontroller

Mr. Zatkovich testified:

Q. And we see here at column 6, line 24 that microprocessor unit is referred to as MPU, right?

A. Yeah.

I'm now seeing a pattern throughout the document that they're using acronyms to refer to many of the terms.

So MPU for the microprocessor.

Q. And MCU for the microcontroller?

A. Correct.

935 EX1041[Zatkovich Dep. II] at 114:13-22

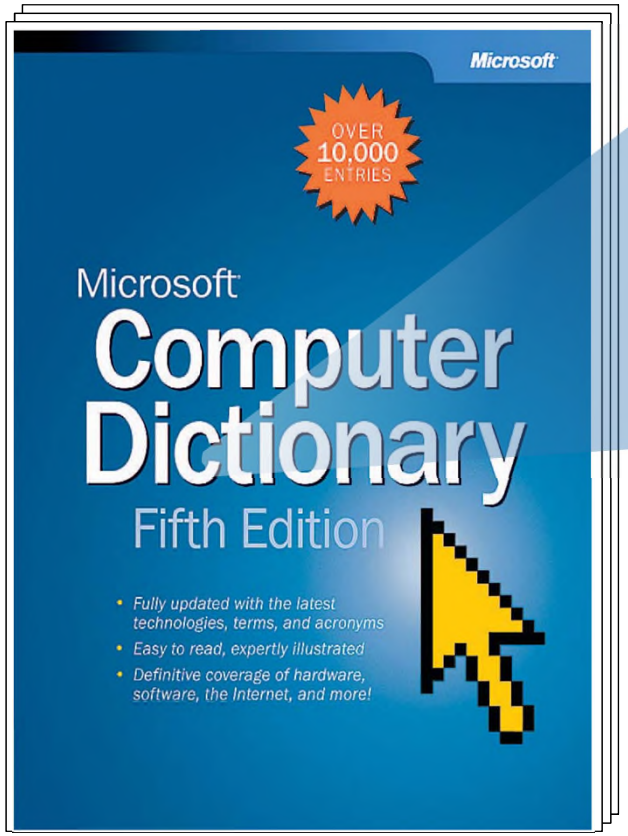
935 Paper 27[Petitioner Reply] at 11-12.

1. Oinonen discloses the microcontroller

2. Bielski discloses the microcontroller

Microcontroller

Patent Owner's dictionary:



microcontroller *n.* A special-purpose, single-chip computer designed and built to handle a particular, narrowly defined task. In addition to the central processing unit (CPU), a microcontroller usually contains its own memory, input/output channels (ports), and timers. When part of a larger piece of equipment, such as a car or a home appliance, a microcontroller is an embedded system. *See also* embedded system.

935 Paper 27[Petitioner Reply] at 13.

935 EX2006[Microsoft Computer Dictionary] at 337.

Microcontroller

Mr. Zatkovich testified:

935 Paper 27[Petitioner Reply] at 13.

935 EX1041[Zatkovich Dep. II] at 93:10-15, 95:21-96:2.

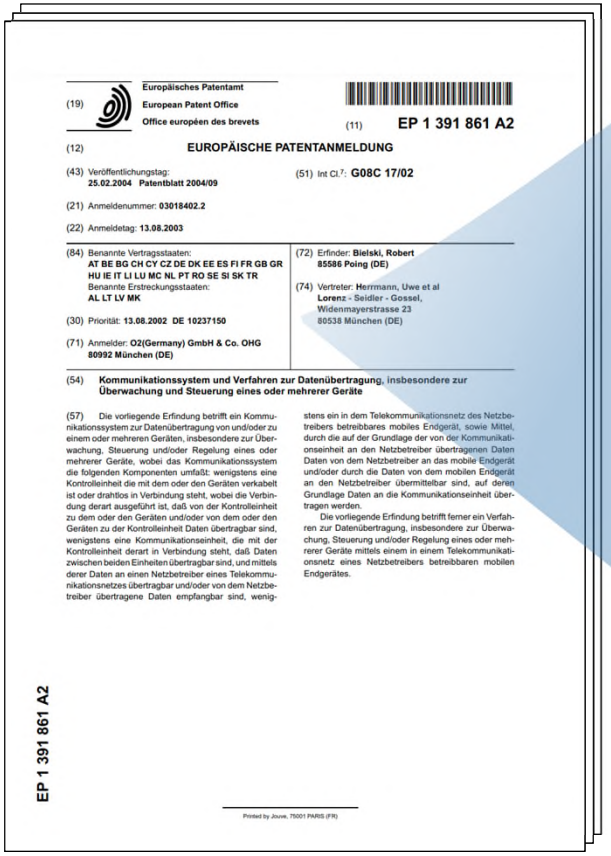
Q. And you would agree that the microcontrollers in, for example, the '655 patent are part of a larger piece of equipment, right?

A. I would agree that the microcontrollers are part of an embedded component within that system, yes.

A microcontroller in and of itself can be an embedded system or it can be part of an embedded system. So I would agree with the fact that a microcontroller can be an embedded system.

Microcontroller

Bielski discloses:



Europäisches Patentamt
European Patent Office
Office européen des brevets

(19)

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(54) **Kommunikationssystem und Verfahren zur Datenübertragung, insbesondere zur Überwachung und Steuerung eines oder mehrerer Geräte**

(57) Die vorliegende Erfindung betrifft ein Kommunikationssystem zur Datenübertragung von und/oder zu einem oder mehreren Geräten, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte, wobei das Kommunikationssystem die folgenden Komponenten umfaßt: wenigstens eine Kontrolleinheit die mit dem oder den Geräten verkabelt ist oder drahtlos in Verbindung steht, wobei die Verbindung derart ausgeführt ist, daß von der Kontrolleinheit zu dem oder den Geräten und/oder von dem oder den Geräten zu der Kontrolleinheit Daten übertragbar sind, wenigstens eine Kommunikationseinheit, die mit der Kontrolleinheit derart in Verbindung steht, daß Daten zwischen beiden Einheiten übertragbar sind, und mittels derer Daten an einen Netzbetreiber eines Telekommunikationsnetzes übertragbar und/oder von dem Netzbetreiber übertragene Daten empfangbar sind, wenigstens ein in dem Telekommunikationsnetz des Netzbetreibers betreibbares mobiles Endgerät, sowie Mittel, durch die auf der Grundlage der von der Kommunikationseinheit an den Netzbetreiber übertragenen Daten Daten von dem Netzbetreiber an das mobile Endgerät und/oder durch die Daten von dem mobilen Endgerät an den Netzbetreiber übermittelbar sind, auf deren Grundlage Daten an die Kommunikationseinheit übertragen werden.

Die vorliegende Erfindung betrifft ferner ein Verfahren zur Datenübertragung, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte mittels einem in einem Telekommunikationsnetz eines Netzbetreibers betreibbaren mobilen Endgerätes.

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Printed by Jouve, 75001 PARIS (FR)

935 EX1017[Bielski].

[0037] In an embodiment of the present invention, the communication system comprises a check unit which is embodied as an embedded PC or WEB server on which one or more applications concerning the monitoring, control and/or regulation of one or more devices are stored, wherein the mobile terminal has a browser and wherein the one or more devices can be controlled and/or regulated and/or monitored by means of the browser using the application or the applications in connection with network elements of a telecommunication network.

935 Paper 27[Petitioner Reply] at 13.

935 Paper 1[Petition] at 61. 935 EX1003[Jeffay Dec.] at ¶553, 565.

Roadmap

1. Overview of the challenged patents
2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. **Wireless/non-wireless Connections – Claim 12**
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

935 Patent: Claim 12 Is Obvious

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absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breach. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit **14**.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units **16**.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

What is claimed is:

1. A wireless system comprising:

an environmental device;

a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;

a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and

a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,

wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,

wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and

wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

2. The system as recited in claim **1** wherein said environmental device includes electronic and electromechanical switching portions interfaced with said environmental device.

3. The system as recited in claim **1** wherein said base unit is a microcontroller-based processing unit having customizable application specific software.

4. The system as recited in claim **1** wherein said remote unit is a cellular telephone handset with custom programmability.

5. The system as recited in claim **4** wherein said custom programmability is a JAVA programming kernel.

6. The system as recited in claim **4** wherein said custom programmability is a J2ME programming kernel.

7. The system as recited in claim **1** wherein said wireless connectivity includes a transmitting and receiving module in said base unit and a transmitting and receiving unit in said remote unit operatively communicating with each other over a cellular telephone network.

8. The system as recited in claim **1** wherein the remote unit includes a liquid crystal display module.

9. The system as recited in claim **8** wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

10. The system as recited in claim **1**, wherein the remote unit is configured to selectively disable transmission of SMS messages from the base unit.

11. A wireless system comprising:

an environmental device configured to send environmental information, and adapted to receive a command to control an operation of the environmental device;

a remote unit having wireless connectivity and being configured to:

receive a first short message service (SMS) message, wherein the first SMS message includes the environmental information;

notify a user of said remote unit of receipt of the first SMS message; and

send a second SMS message, wherein the second SMS message includes the command; and

a wireless base unit configured to:

receive the environmental information from the environmental device;

transmit the first SMS message to the remote unit;

receive the second SMS message from the remote unit; and

send the command to the environmental device.

12. The system of claim **11** wherein the wireless connectivity connection further comprises a first wireless connection interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

13. The system of claim **11** wherein the environmental device includes electronic and electromechanical switching portions for controlling the environmental information.

14. The system of claim **11** wherein the base unit further comprises a microcontroller-based processing unit having customizable application specific software.

15. The system of claim **11** wherein the remote unit further comprises a cellular telephone handset.

16. The system of claim **15** wherein the cellular telephone handset includes at least one of a customizable JAVA programming kernel and a customizable J2ME programming kernel.

17. The system of claim **11** further comprising a cellular telephone network.

18. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;

a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message is a first short

935 EX1001[935 Patent]

> **12**. The system of claim **11** wherein the wireless connectivity connection further comprises a first wireless connection interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

Ground 1A: Claim 12 is obvious over Oinonen and Whitley.

Ground 2A: Claim 12 is obvious over Bielski and Wu.

935 Paper 1[Petition] at 3.

935 Patent: Claim 12 Is Obvious

Claim 12 has three limitations

12. The system of claim **11** wherein the wireless connectivity connection further comprises a first wireless connection interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

935 EX1001[935 Patent].

935 Patent: Claim 12 Is Obvious

Dr. Jeffay testified:

935 Paper 1[Petition] at 29-30.

935 EX1003[Jeffay Declaration] at ¶317.

317. Claim 12 depends from Claim 11 and recites: "wherein the wireless connectivity connection further comprises," however the term "wireless connectivity connection" is not found in Claim 11. Instead, Claim 11 recites: "a remote unit having ***wireless connectivity*** and being configured." Ex. 1001, Claim 11 (emphasis added). In addition, the phrase "wireless connectivity connection" only appears in Claim 12 and appears nowhere in the specification. The phrase is not a term of art and because it is not defined or explained, a POSITA could only make sense of the phrase by dropping the word "connectivity" and simply understanding "wireless connectivity connection" as a wireless connection. Similarly, a "wireless connection interfacing with [a device]" is also not a term of art and this phrase as well only appears in Claim 12 and is not described in the specification. To the extent the phrase is understandable, a POSITA would understand that the phrase simply meant "a wireless connection to, or terminating at, [the device]." The "non-wireless connection interfacing between the first wireless connection and the second wireless connection" phrase would also not be decipherable to a POSITA for similar reasons. In particular, the notion of a "connection" "interfacing" between other connections would be foreign to a POSITA.

935 Patent: Claim 12 Is Obvious

Mr. Zatkovich testified:

First Wireless Connection:

- Wireless connection between, for example, the base unit and environmental unit.

Second Wireless Connection:

- Wireless connection between, for example, the remote unit and base unit.

935 Paper 27[Petitioner Reply] at 28.

935 EX1040[Zatkovich Dep. I] at 193:9-14, 197:12-19, 206:19-207:1.

935 Patent: Claim 12 Is Obvious

Mr. Zatkovich provided two examples:

Example 1:

The base unit itself is the wired connection that connects two wireless networks (e.g., 2 Bluetooth connections).

935 Paper 27[Petitioner Reply] at 28-29, 31.

Example 2:

Central office switch of the cellular network contains wires that allow for wireless cellular communication (including transmission of SMS messages).

935 EX1040[Zatkovich Dep. I] at 199:5-15, 211:21-212:7.

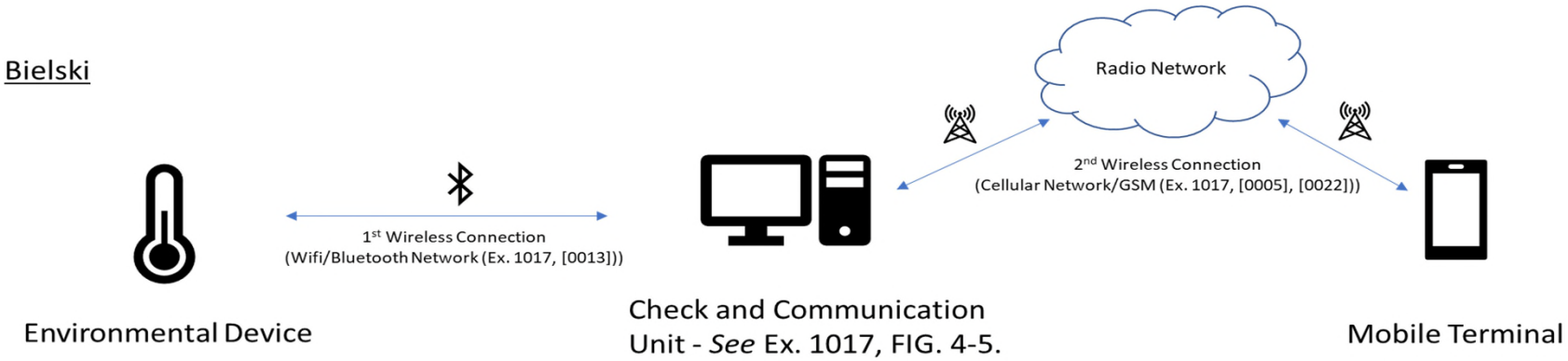
935 Patent: Claim 12 Is Obvious

Zatkovich Example 1

Zatkovich Example

"base unit can connect those two Bluetooth networks within itself as a wired connection." Ex. 1040, 199:5-15.

Bielski



Creates a wired connection between the Wifi/Bluetooth connection and Cellular Network connection

935 Paper 27[Petitioner Reply] at 31.

Roadmap

1. Overview of the challenged patents
2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. **"custom programmability" – Claims 4-6, 16**
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

935 Patent: Claims 4-6, 16 are Obvious

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absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breach. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit 14.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units 16.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

What is claimed is:

1. A wireless system comprising:
an environmental device;
a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;
a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and
a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,
wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,
wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and
wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

2. The system as recited in claim 1 wherein said environmental device includes electronic and electromechanical switching portions interfaced with said environmental device.

3. The system as recited in claim 1 wherein said base unit is a microcontroller-based processing unit having customizable application specific software.

4. The system as recited in claim 1 wherein said remote unit is a cellular telephone handset with custom programmability.

5. The system as recited in claim 4 wherein said custom programmability is a JAVA programming kernel.

6. The system as recited in claim 4 wherein said custom programmability is a J2ME programming kernel.

7. The system as recited in claim 1 wherein said wireless connectivity includes a transmitting and receiving module in said base unit and a transmitting and receiving unit in said remote unit operatively communicating with each other over a cellular telephone network.

8. The system as recited in claim 1 wherein the remote unit includes a liquid crystal display module.

9. The system as recited in claim 8 wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

10. The system as recited in claim 1, wherein the remote unit is configured to selectively disable transmission of SMS messages from the base unit.

11. A wireless system comprising:
an environmental device configured to send environmental information, and adapted to receive a command to control an operation of the environmental device;
a remote unit having wireless connectivity and being configured to:
receive a first short message service (SMS) message, wherein the first SMS message includes the environmental information;
notify a user of said remote unit of receipt of the first SMS message; and
send a second SMS message, wherein the second SMS message includes the command; and
a wireless base unit configured to:
receive the environmental information from the environmental device;
transmit the first SMS message to the remote unit;
receive the second SMS message from the remote unit; and
send the command to the environmental device.

12. The system of claim 11 wherein the wireless connectivity connection further comprises a first wireless connection interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

13. The system of claim 11 wherein the environmental device includes electronic and electromechanical switching portions for controlling the environmental information.

14. The system of claim 11 wherein the base unit further comprises a microcontroller-based processing unit having customizable application specific software.

15. The system of claim 11 wherein the remote unit further comprises a cellular telephone handset.

16. The system of claim 15 wherein the cellular telephone handset includes at least one of a customizable JAVA programming kernel and a customizable J2ME programming kernel.

17. The system of claim 11 further comprising a cellular telephone network.

18. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:
a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;
a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message is a first short

935 EX1001[935 Patent].

4. The system as recited in claim **1** wherein said remote unit is a cellular telephone handset with custom programmability.

5. The system as recited in claim **4** wherein said custom programmability is a JAVA programming kernel.

6. The system as recited in claim **4** wherein said custom programmability is a J2ME programming kernel.

16. The system of claim **15** wherein the cellular telephone handset includes at least one of a customizable JAVA programming kernel and a customizable J2ME programming kernel.

Ground 1B: Claims 4-6, 16 are obvious over Oinonen, Whitley, and Sears.

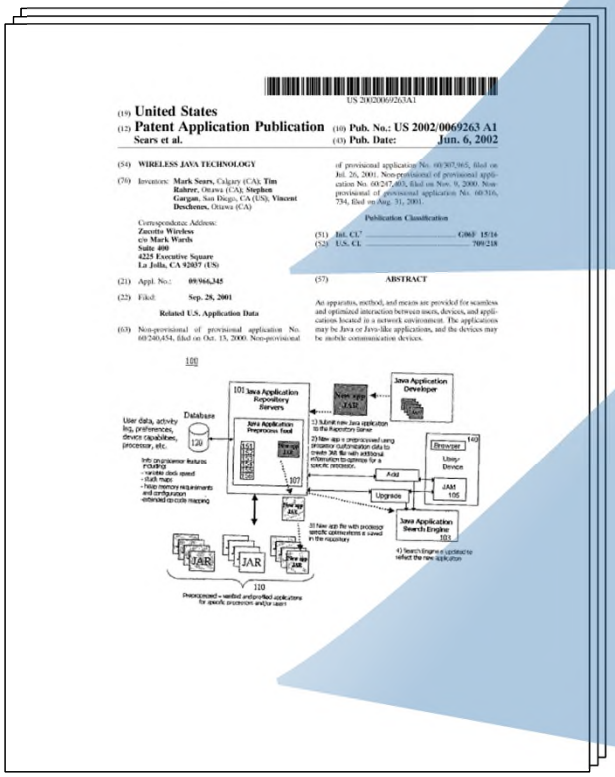
Ground 2A: Claim 4 is obvious over Bielski and Wu.

Ground 2B: Claims 5-6, 16 are obvious over Bielski, Wu, and Sears

935 Paper 1[Petition] at 3.

935 Patent: Claims 4-6, 16 are Obvious

Sears discloses:

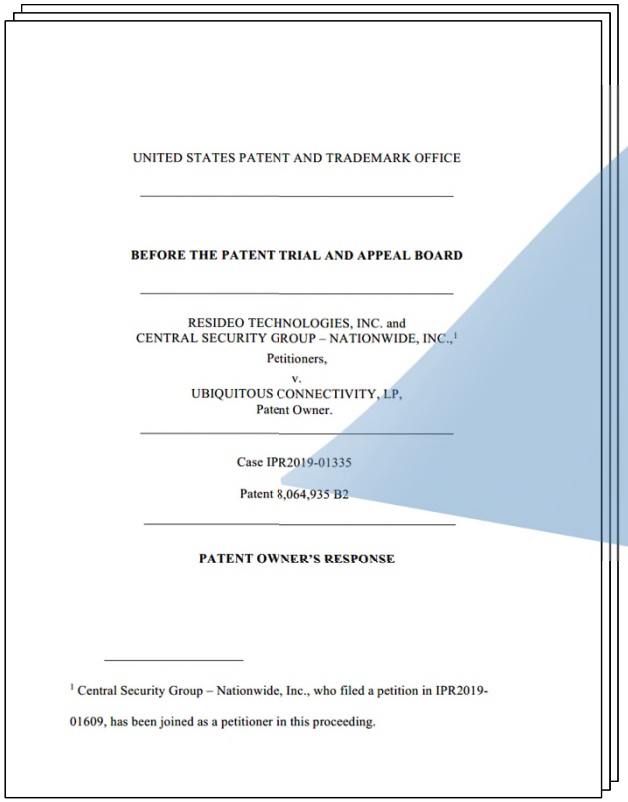


products for use by developers. In one embodiment the content and information may be Java information. In one embodiment, the content and information may be Java-like information. In one embodiment, the present invention comprises a location where the content and information maybe optimized for use by specific users or for use on specific mobile device platforms. In one embodiment, the applica-

device applications. The described processor natively executes Java byte-code and supports an optimized and enhanced J2ME/CLDC framework, and delivers to mobile devices an efficient, optimized balance between high speed and low power consumption. By designing device processors to integrate with existing technology, a future path for service providers and device manufacturers alike may be provided to seamlessly run the exciting rich content of next-generation mobile devices, as is described herein.

935 Paper 1[Petition] at 37-38.

935 Patent: Claims 4-6, 16 are Obvious



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC. and
CENTRAL SECURITY GROUP – NATIONWIDE, INC.,[1]
Petitioners,
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner.

Case IPR2019-01335

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PATENT OWNER'S RESPONSE

[1] Central Security Group – Nationwide, Inc., who filed a petition in IPR2019-01609, has been joined as a petitioner in this proceeding.

Oinonen, Whitley and Sears do not disclose (or enable) providing such custom programmability (i.e., permitting a user to add an "app" to his or her cell phone that utilized the phone's built-in SMS capability to send application data to a base unit and receive data from the base unit). Even if such an idea had been disclosed, nothing in Oinonen, Whitley or Sears would have enabled a POSITA to implement that capability in November 2004. Ex. 2004, ¶104.

935 Paper 23 [Patent Owner Response] at 32-33.

935 Paper 27 [Petitioner Reply] at 22.

935 Patent: Claims 4-6, 16 are Obvious

Mr. Zatkovich testified:

> For example, it is possible to have a microcontroller-based processing unit that contains -- that already contains programmed app -- application software. In other words, it's not -- it's not customizable; it's burned at the factory and you can't do anything with it other than what it's designed to do.

935 EX1040[Zatkovich Dep. I] at 111:20-112:4.

935 Paper 27[Petitioner Reply] at 22-23.

935 Patent: Claims 4-6, 16 are Obvious

Mr. Zatkovich testified:

935 EX1040[Zatkovich Dep. I] at 167:16-168:6.

Q. Was Java available for creating customized software before 2002?

A. Yes, I believe so.

Q. And what software did you create using Java?

A. A lot of the software that we wrote for McGraw-Hill was writ -- written in Java.

Q. Okay. So this was the project for McGraw-Hill?

A. Correct.

Q. Okay. And what was the time frame of that project?

A. That was 2002 to 2004 or '5.

935 Paper 27[Petitioner Reply] at 23.

935 Patent: Claims 4-6, 16 are Obvious

Mr. Zatkovich testified:

935 EX1040[Zatkovich Dep. I] at 168:11-169:5.

935 Paper 27[Petitioner Reply] at 23.

Q. And can J2ME be used to create customized software?

A. Yes.

Q. Have you ever used J2ME to create customized software?

A. I think -- well, I personally did not write software on J2ME platforms, but I supervised some application developed for -- development for J2ME when we were doing our mesh network development at eComp.

Q. And the '935 and the '655 patents did not invent Java, right?

A. True.

Q. They did not invent J2ME, right?

A. Correct.

Q. J2ME was also available before 2004?

A. Yes.

Roadmap

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2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
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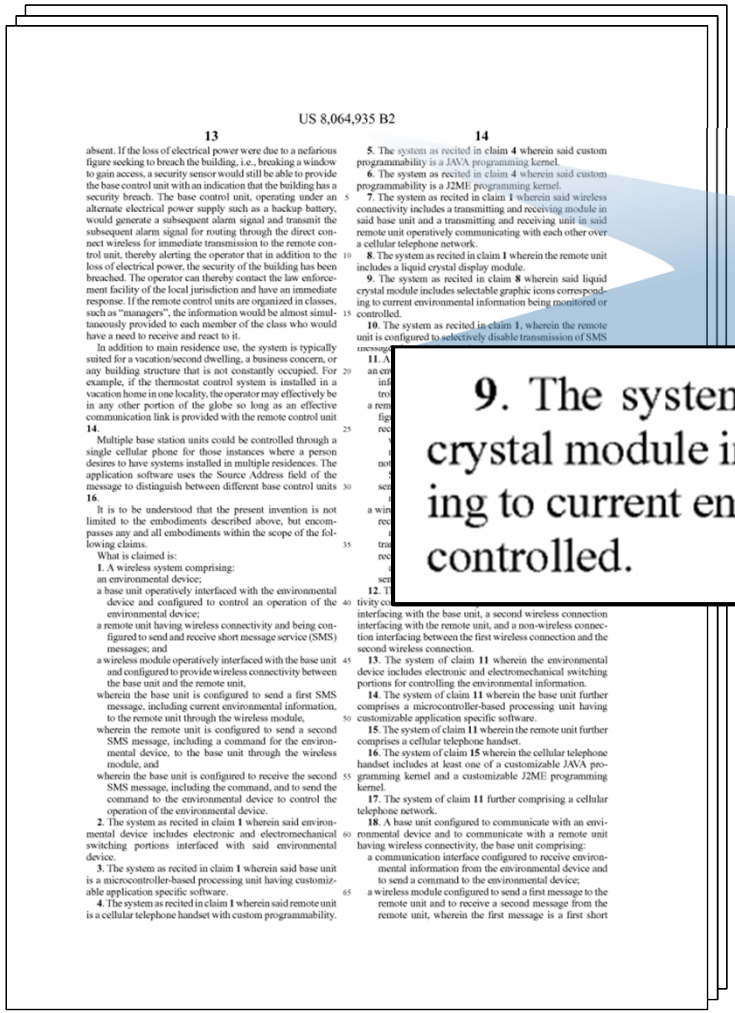
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. **"graphic icons" – Claim 9**
   g. "status message" – Claims 20, 22
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

935 Patent: Claim 9 is Obvious



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absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breech. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit

14.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units

16.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

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an environmental device;

a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;

a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and

a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,

wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,

wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and

wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

2. The system as recited in claim **1** wherein said environmental device includes electronic and electromechanical switching portions interfaced with said environmental device.

3. The system as recited in claim **1** wherein said base unit is a microcontroller-based processing unit having customizable application specific software.

4. The system as recited in claim **1** wherein said remote unit is a cellular telephone handset with custom programmability.

5. The system as recited in claim **4** wherein said custom programmability is a JAVA programming kernel.

6. The system as recited in claim **4** wherein said custom programmability is a J2ME programming kernel.

7. The system as recited in claim **1** wherein said wireless connectivity includes a transmitting and receiving module in said base unit and a transmitting and receiving unit in said remote unit operatively communicating with each other over a cellular telephone network.

8. The system as recited in claim **1** wherein the remote unit includes a liquid crystal display module.

9. The system as recited in claim **8** wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

10. The system as recited in claim **1**, wherein the remote unit is configured to selectively disable transmission of SMS

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interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

13. The system of claim **11** wherein the environmental device includes electronic and electromechanical switching portions for controlling the environmental information.

14. The system of claim **11** wherein the base unit further comprises a microcontroller-based processing unit having customizable application specific software.

15. The system of claim **11** wherein the remote unit further comprises a cellular telephone handset.

16. The system of claim **15** wherein the cellular telephone handset includes at least one of a customizable JAVA programming kernel and a customizable J2ME programming kernel.

17. The system of claim **11** further comprising a cellular telephone network.

18. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;

a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message is a first short

935 EX1001[935 Patent]

> **9**. The system as recited in claim **8** wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

Ground 1D: Claim 9 is obvious over Oinonen, Whitley, Antila, and Ehlers.

Ground 2A: Claim 9 is obvious over Bielski and Wu.

935 Paper 1[Petition] at 3.

935 Patent: Claim 9 is Obvious

1. Ground 1D: Claim 9 is obvious over Oinonen, Whitley, Antila, and Ehlers

2. Ground 2A: Claim 9 is obvious over Bielski and Wu

935 Patent: Claim 9 is Obvious

1. Ground 1D: Claim 9 is obvious over Oinonen, Whitley, Antila, and Ehlers

2. Ground 2A: Claim 9 is obvious over Bielski and Wu

935 Patent: Claim 9 is Obvious

Ehlers discloses a “virtual thermostat” with “a plurality of thermostat buttons”.

935 Paper 1[Petition] at 41-42.

935 EX1022[Ehlers] at FIGS 4B-4C, [0316].

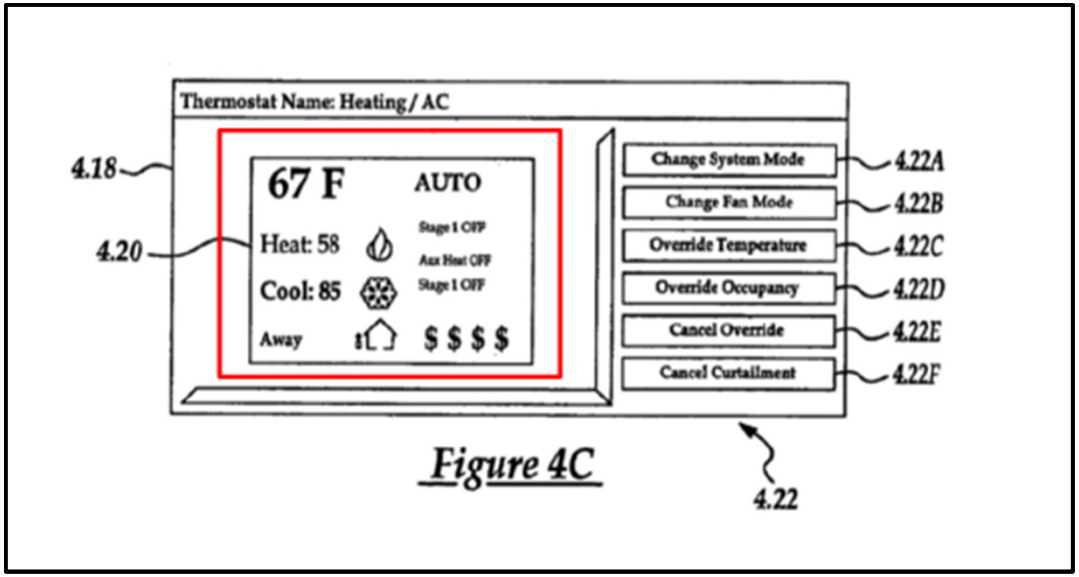


Figure 4C

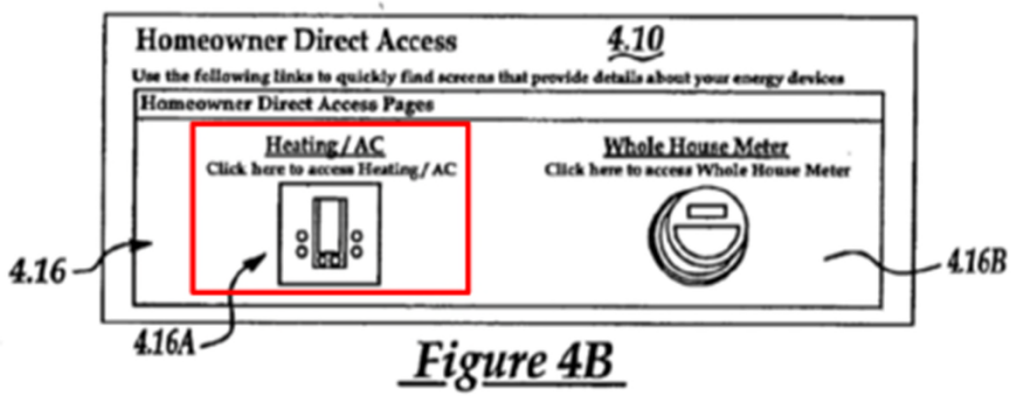
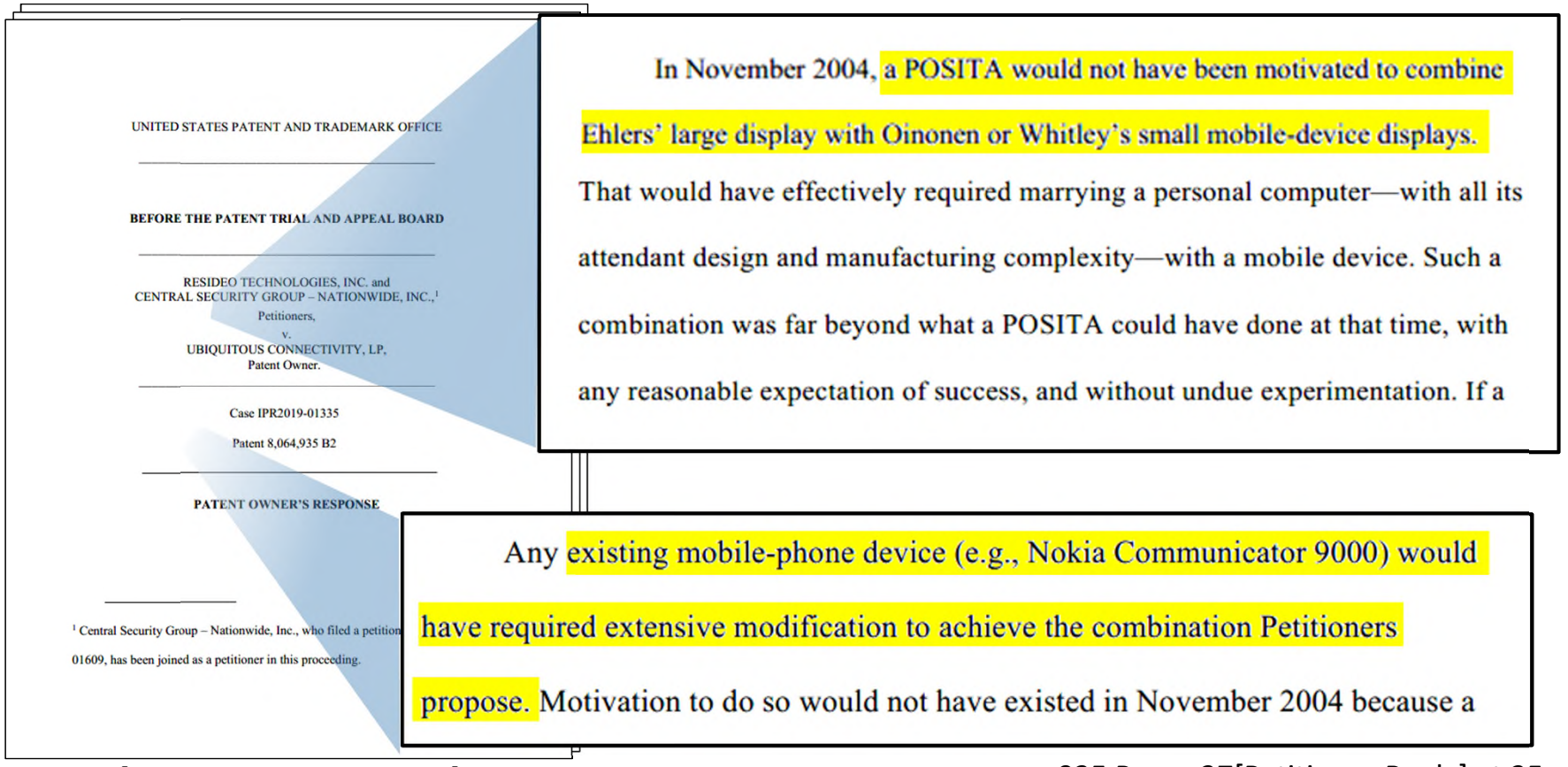


Figure 4B

935 Paper 27[Petitioner Reply] at 24-25.

935 Patent: Claim 9 is Obvious



UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC. and
CENTRAL SECURITY GROUP – NATIONWIDE, INC.,[1]
Petitioners,
v.
UBIQUITOUS CONNECTIVITY, LP,
Patent Owner.

Case IPR2019-01335

Patent 8,064,935 B2

PATENT OWNER'S RESPONSE

[1] Central Security Group – Nationwide, Inc., who filed a petition
01609, has been joined as a petitioner in this proceeding.

In November 2004, a POSITA would not have been motivated to combine Ehlers' large display with Oinonen or Whitley's small mobile-device displays. That would have effectively required marrying a personal computer—with all its attendant design and manufacturing complexity—with a mobile device. Such a combination was far beyond what a POSITA could have done at that time, with any reasonable expectation of success, and without undue experimentation. If a

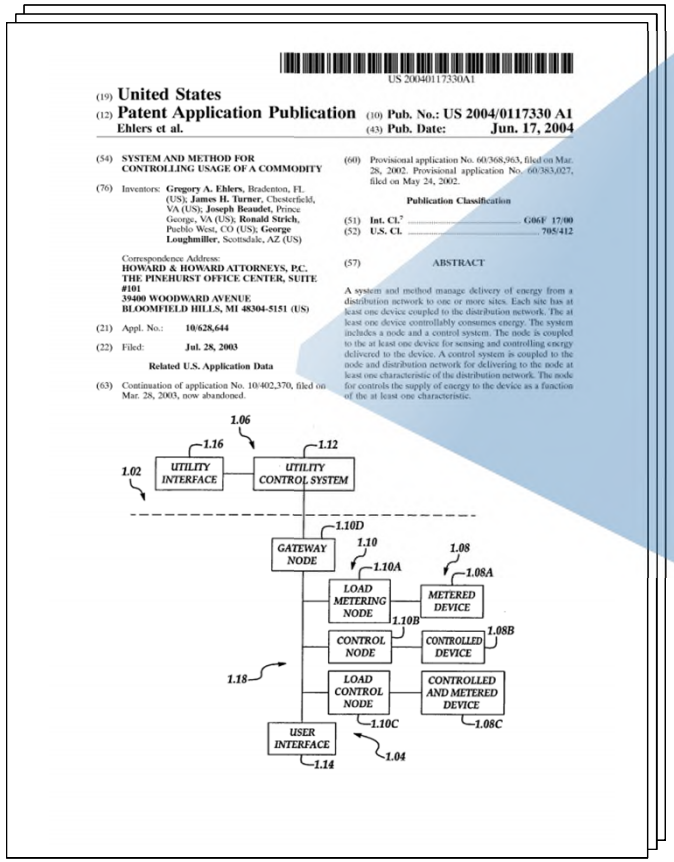
Any existing mobile-phone device (e.g., Nokia Communicator 9000) would have required extensive modification to achieve the combination Petitioners propose. Motivation to do so would not have existed in November 2004 because a

935 Paper 23[Patent Owner Response] at 36-37.

935 Paper 27[Petitioner Reply] at 25.

935 Patent: Claim 9 is Obvious

Ehlers discloses:



US 20040117330A1

(19) United States
(12) Patent Application Publication (10) Pub. No.: US 2004/0117330 A1
Ehlers et al. (43) Pub. Date: Jun. 17, 2004

(54) SYSTEM AND METHOD FOR CONTROLLING USAGE OF A COMMODITY

(76) Inventors: Gregory A. Ehlers, Bradenton, FL (US); James H. Turner, Chesterfield, VA (US); Joseph Beaudet, Prince George, VA (US); Ronald Strich, Pueblo West, CO (US); George Loughmiller, Scottsdale, AZ (US)

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BLOOMFIELD HILLS, MI 48304-5151 (US)

(21) Appl. No.: 10/628,644

(22) Filed: Jul. 28, 2003

Related U.S. Application Data

(63) Continuation of application No. 10/402,370, filed on Mar. 28, 2003, now abandoned.

(60) Provisional application No. 60/368,963, filed on Mar. 28, 2002. Provisional application No. 60/383,027, filed on May 24, 2002.

Publication Classification

(51) Int. Cl.[7] G06F 17/00
(52) U.S. Cl. 705/412

(57) ABSTRACT

A system and method manage delivery of energy from a distribution network to one or more sites. Each site has at least one device coupled to the distribution network. The at least one device controllably consumes energy. The system includes a node and a control system. The node is coupled to the at least one device for sensing and controlling energy delivered to the device. A control system is coupled to the node and distribution network for delivering to the node at least one characteristic of the distribution network. The node for controls the supply of energy to the device as a function of the at least one characteristic.

935 EX1022[Ehlers]

[0311] With references to **FIGS. 4A through 4R**, the user interface **1.14** may be implemented as a web page or graphical user interface ("GUI") **4.02**. The GUI **4.02** may be accessible from remote locations, as discussed above. In one embodiment, the customer may access the GUI **4.02** through a web browser or other display device like a television. In another embodiment, the customer may access the GUI **4.02** through a remote device, such as a mobile phone and/or personal digital assistant. By entering a user I.D. and password, the customer may access his or her account.

935 Paper 27[Petitioner Reply] at 27.

935 Paper 1[Petition] at 41.

935 Patent: Claim 9 is Obvious

Mr. Zatkovich testified:

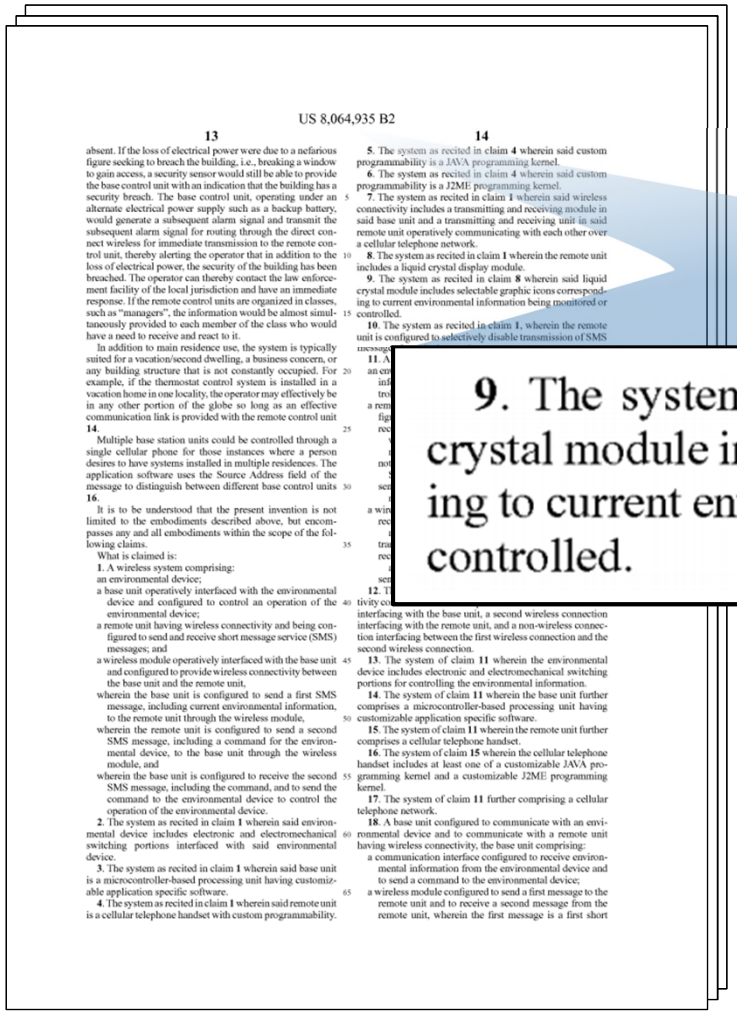
Q. But there's no question that Ellers discloses that that graphical user interface can be displayed on a remote device, such as a mobile phone and/or personal digital assistant, right?

A. I'm sure it's possible to display minimally the text and in some cases minimal graphics.

935 Paper 27[Petitioner Reply] at 26.

935 EX1040[Zatkovich Dep. I] at 172:21-173:5.

935 Patent: Claim 9 is Obvious



US 8,064,935 B2

13 14

absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breech. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit

14.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units

16.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

What is claimed is:

1. A wireless system comprising:

an environmental device;

a base unit operatively interfaced with the environmental device and configured to control an operation of the environmental device;

a remote unit having wireless connectivity and being configured to send and receive short message service (SMS) messages; and

a wireless module operatively interfaced with the base unit and configured to provide wireless connectivity between the base unit and the remote unit,

wherein the base unit is configured to send a first SMS message, including current environmental information, to the remote unit through the wireless module,

wherein the remote unit is configured to send a second SMS message, including a command for the environmental device, to the base unit through the wireless module, and

wherein the base unit is configured to receive the second SMS message, including the command, and to send the command to the environmental device to control the operation of the environmental device.

2. The system as recited in claim 1 wherein said environmental device includes electronic and electromechanical switching portions interfaced with said environmental device.

3. The system as recited in claim 1 wherein said base unit is a microcontroller-based processing unit having customizable application specific software.

4. The system as recited in claim 1 wherein said remote unit is a cellular telephone handset with custom programmability.

5. The system as recited in claim 4 wherein said custom programmability is a JAVA programming kernel.

6. The system as recited in claim 4 wherein said custom programmability is a J2ME programming kernel.

7. The system as recited in claim 1 wherein said wireless connectivity includes a transmitting and receiving module in said base unit and a transmitting and receiving unit in said remote unit operatively communicating with each other over a cellular telephone network.

8. The system as recited in claim 1 wherein the remote unit includes a liquid crystal display module.

9. The system as recited in claim 8 wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

10. The system as recited in claim 1, wherein the remote unit is configured to selectively disable transmission of SMS

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interfacing with the base unit, a second wireless connection interfacing with the remote unit, and a non-wireless connection interfacing between the first wireless connection and the second wireless connection.

13. The system of claim 11 wherein the environmental device includes electronic and electromechanical switching portions for controlling the environmental information.

14. The system of claim 11 wherein the base unit further comprises a microcontroller-based processing unit having customizable application specific software.

15. The system of claim 11 wherein the remote unit further comprises a cellular telephone handset.

16. The system of claim 15 wherein the cellular telephone handset includes at least one of a customizable JAVA programming kernel and a customizable J2ME programming kernel.

17. The system of claim 11 further comprising a cellular telephone network.

18. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device and to send a command to the environmental device;

a wireless module configured to send a first message to the remote unit and to receive a second message from the remote unit, wherein the first message is a first short

935 EX1001[935 Patent]

> **9**. The system as recited in claim **8** wherein said liquid crystal module includes selectable graphic icons corresponding to current environmental information being monitored or controlled.

935 Paper 27[Petitioner Reply] at 26-27.

935 Patent: Claim 9 is Obvious

The 935 Patent discloses a mobile phone from 2004 that includes graphical icons.

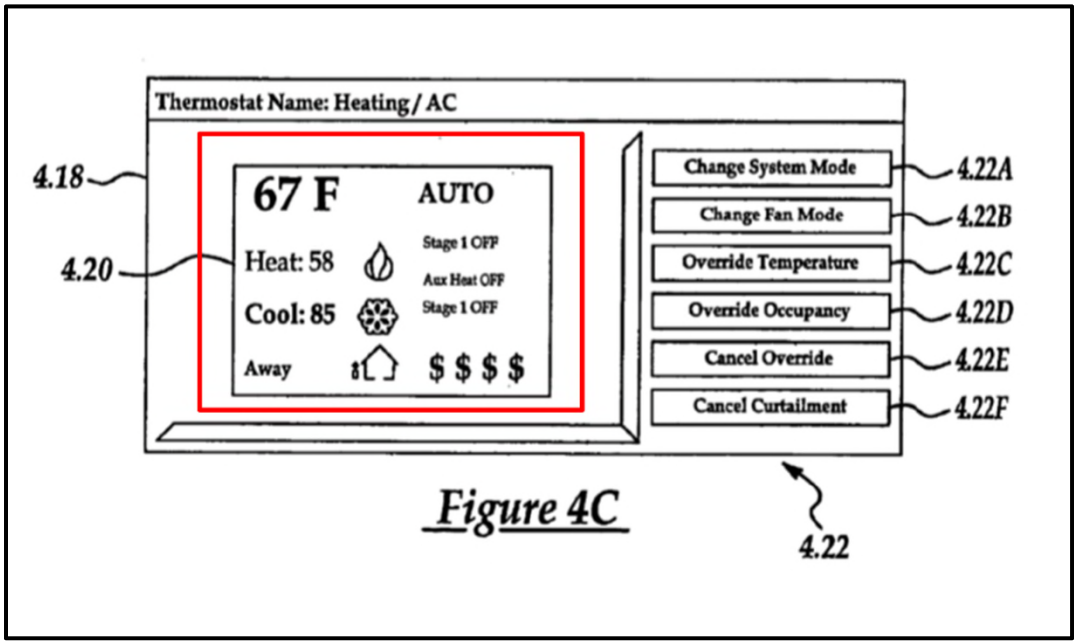
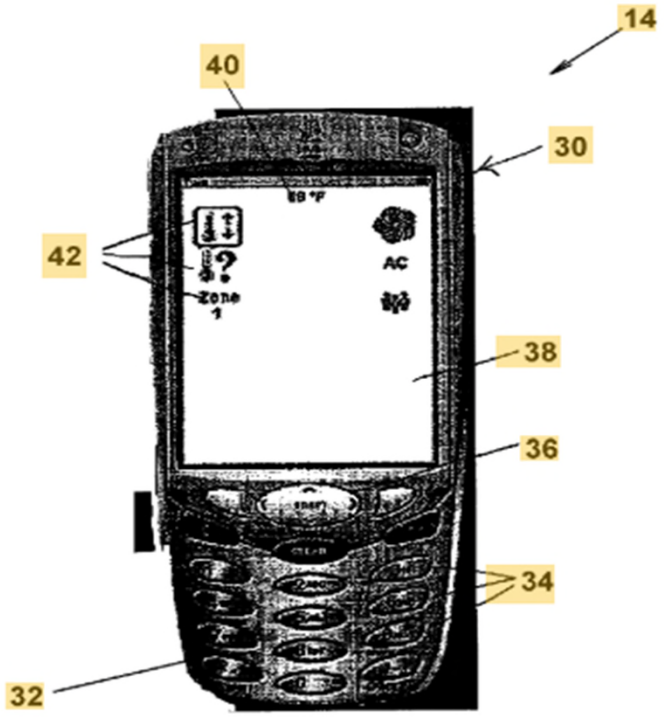


Figure 4C

935 EX1022[Ehlers].

935 Paper 1[Petition] at 42.



935 Paper 27[Petitioner Reply] at 26-27.

Fig. 2

935 EX1001[935 Patent].

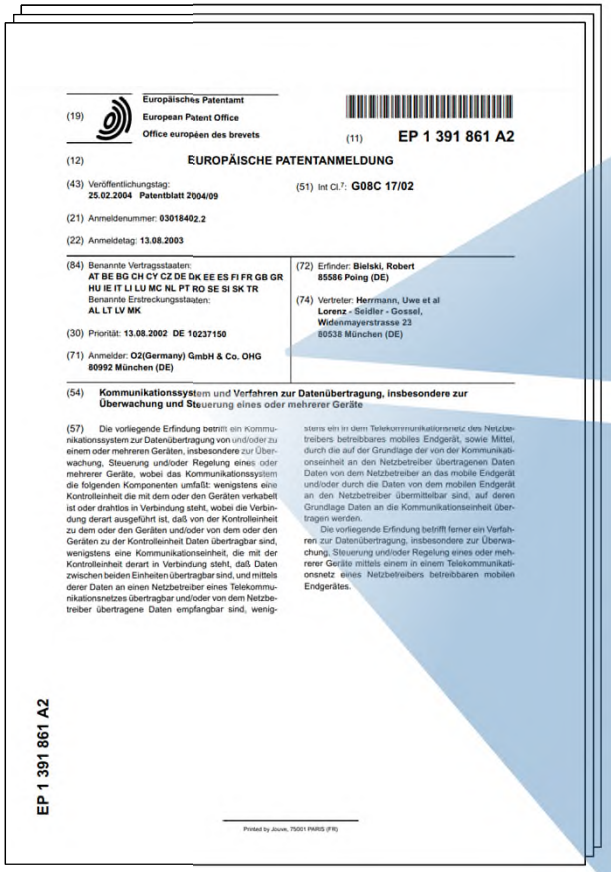
935 Patent: Claim 9 is Obvious

1. Ground 1D: Claim 9 is obvious over Oinonen, Whitley, Antila, and Ehlers

2. Ground 2A: Claim 9 is obvious over Bielski and Wu

935 Patent: Claim 9 is Obvious

Bielski discloses:



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 391 861 A2

(12) EUROPÄISCHE PATENTANMELDUNG

(43) Veröffentlichungstag: 25.02.2004 Patentblatt 2004/09

(51) Int Cl.7: G08C 17/02

(21) Anmeldenummer: 03018402.2

(22) Anmeldetag: 13.08.2003

(84) Benannte Vertragsstaaten: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Benannte Erstreckungsstaaten: AL LT LV MK

(30) Priorität: 13.08.2002 DE 10237150

(71) Anmelder: O2(Germany) GmbH & Co. OHG 80992 München (DE)

(72) Erfinder: Bielski, Robert 85586 Poing (DE)

(74) Vertreter: Herrmann, Uwe et al Lorenz - Seidler - Gossel, Widenmayerstrasse 23 80538 München (DE)

(54) Kommunikationssystem und Verfahren zur Datenübertragung, insbesondere zur Überwachung und Steuerung eines oder mehrerer Geräte

(57) Die vorliegende Erfindung betrifft ein Kommunikationssystem zur Datenübertragung von und/oder zu einem oder mehreren Geräten, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte, wobei das Kommunikationssystem die folgenden Komponenten umfaßt: wenigstens eine Kontrolleinheit die mit dem oder den Geräten verkabelt ist oder drahtlos in Verbindung steht, wobei die Verbindung derart ausgeführt ist, daß von der Kontrolleinheit zu dem oder den Geräten und/oder von dem oder den Geräten zu der Kontrolleinheit Daten übertragbar sind, wenigstens eine Kommunikationseinheit, die mit der Kontrolleinheit derart in Verbindung steht, daß Daten zwischen beiden Einheiten übertragbar sind, und mittels derer Daten an einen Netzbetreiber eines Telekommunikationsnetzes übertragbar und/oder von dem Netzbetreiber übertragene Daten empfangbar sind, wenigstens ein in dem Telekommunikationsnetz des Netzbetreibers betreibbares mobiles Endgerät, sowie Mittel, durch die auf der Grundlage der von der Kommunikationseinheit an den Netzbetreiber übertragenen Daten Daten von dem Netzbetreiber an das mobile Endgerät und/oder durch die Daten von dem mobilen Endgerät an den Netzbetreiber übermittelbar sind, auf deren Grundlage Daten an die Kommunikationseinheit übertragen werden.

Die vorliegende Erfindung betrifft ferner ein Verfahren zur Datenübertragung, insbesondere zur Überwachung, Steuerung und/oder Regelung eines oder mehrerer Geräte mittels einem in einem Telekommunikationsnetz eines Netzbetreibers betreibbaren mobilen Endgerätes.

EP 1 391 861 A2

Printed by Jouve, 75001 PARIS (FR)

935 EX1017[Bielski].

[0032] It can further be provided that one or more applications are provided in the mobile terminal and/or in the check unit and/or in the network. User interfaces implemented in the mobile terminal or, e.g. software programs which transmit the desired data at specific times and/or to specific devices, are conceivable, for example. In this context, it is possible that the user actuates a button on the mobile terminal and then the associated monitoring, control and/or regulation program is implemented. Corresponding

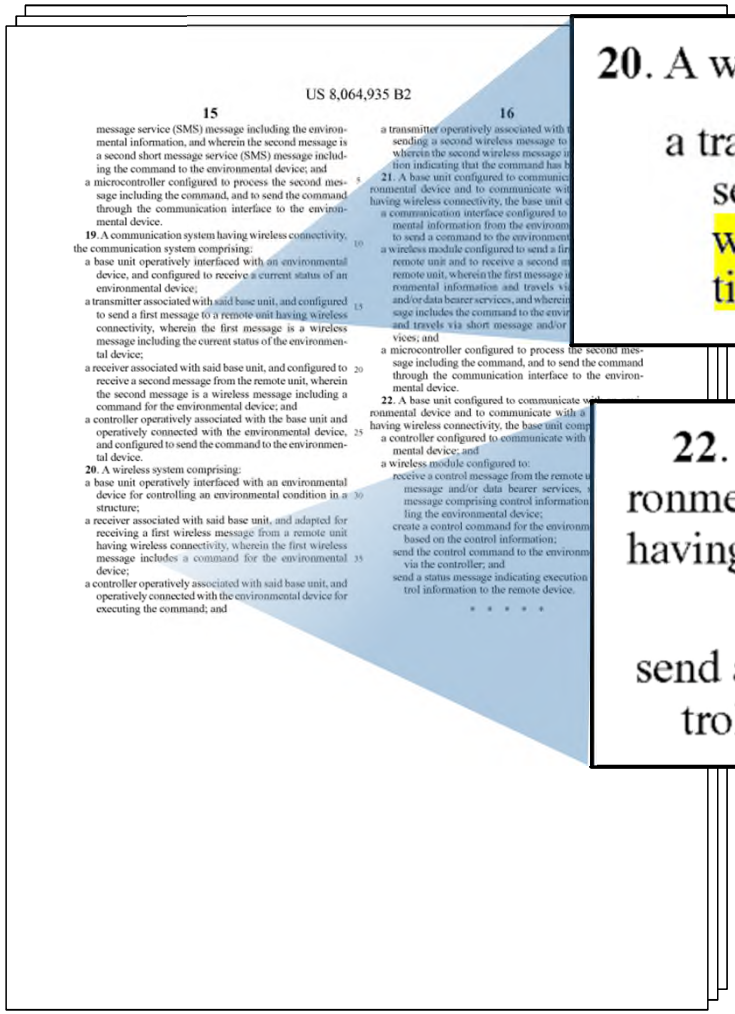
[0081] The existence of an application with a corresponding user interface with which the user can comfortably activate special features using buttons and various control panels or can set specifications for the control/regulation unit is particularly advantageous. It would be possible, for example, to specify a room temperature with a slider inserted onto the user interface, wherein the exact temperature values would be shown on a separate display and the user, however, moves the slider to a desired value, similar to an air conditioning system in a motor vehicle.

935 Paper 27[Petitioner Reply] at 24.
935 Paper 1[Petition] at 66-67.

Roadmap

1. Overview of the challenged patents
2. **935 Patent**
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. **"status message" – Claims 20, 22**
3. 655 Patent
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

Menard


US 8,064,935 B2

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message service (SMS) message including the environmental information, and wherein the second message is a second short message service (SMS) message including the command to the environmental device; and

a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device.

19. A communication system having wireless connectivity, the communication system comprising:

a base unit operatively interfaced with an environmental device, and configured to receive a current status of an environmental device;

a transmitter associated with said base unit, and configured to send a first message to a remote unit having wireless connectivity, wherein the first message is a wireless message including the current status of the environmental device;

a receiver associated with said base unit, and configured to receive a second message from the remote unit, wherein the second message is a wireless message including a command for the environmental device; and

a controller operatively associated with the base unit and operatively connected with the environmental device, and configured to send the command to the environmental device.

20. A wireless system comprising:

a base unit operatively interfaced with an environmental device for controlling an environmental condition in a structure;

a receiver associated with said base unit, and adapted for receiving a first wireless message from a remote unit having wireless connectivity, wherein the first wireless message includes a command for the environmental device;

a controller operatively associated with said base unit, and operatively connected with the environmental device for executing the command; and

16

a transmitter operatively associated with the controller for sending a second wireless message to the remote unit, wherein the second wireless message includes information indicating that the command has been executed.

21. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a communication interface configured to receive environmental information from the environmental device, and to send a command to the environmental device;

a wireless module configured to send a first message to a remote unit and to receive a second message from the remote unit, wherein the first message includes environmental information and travels via a wireless network and/or data bearer services, and wherein the second message includes the command to the environmental device, and travels via short message and/or data bearer services; and

a microcontroller configured to process the second message including the command, and to send the command through the communication interface to the environmental device.

22. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

a controller configured to communicate with the environmental device; and

a wireless module configured to:

receive a control message from the remote unit, the control message and/or data bearer services, the control message comprising control information for controlling the environmental device;

create a control command for the environmental device based on the control information;

send the control command to the environmental device via the controller; and

send a status message indicating execution of said control information to the remote device.

* * * * *

935 EX1001[935 Patent].

20. A wireless system comprising:

a transmitter operatively associated with the controller for sending a second wireless message to the remote unit, wherein the second wireless message includes information indicating that the command has been executed.

22. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

[. . .]

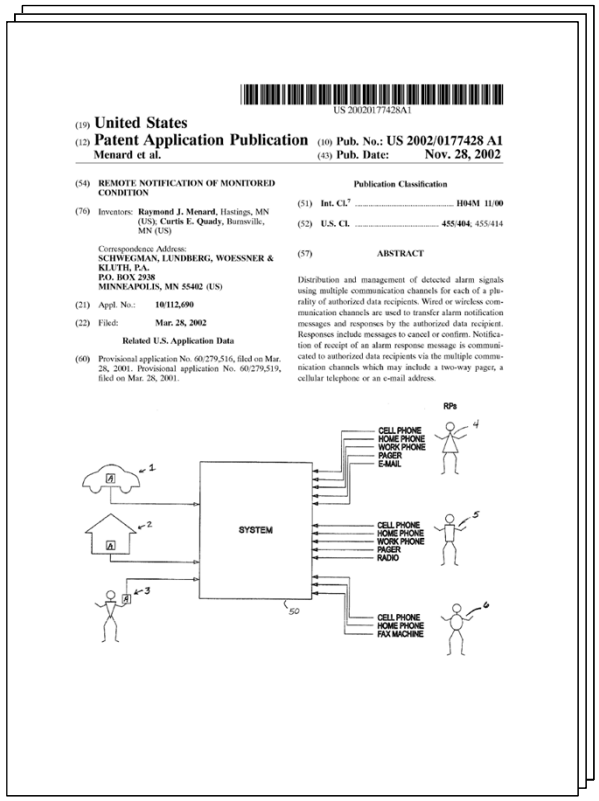
send a status message indicating execution of said control information to the remote device.

Ground 1E: Claims 20, 22 are obvious over Oinonen, Whitley, and Menard.

Ground 2D: Claims 20, 22 are obvious over Bielski, Wu, and Menard.

935 Paper 1[Petition] at 3-4.

Menard



US 20020177428A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0177428 A1**

Menard et al. (43) **Pub. Date: Nov. 28, 2002**

(54) **REMOTE NOTIFICATION OF MONITORED CONDITION**

(76) Inventors: **Raymond J. Menard**, Hastings, MN (US); **Curtis E. Quady**, Burnsville, MN (US)

Correspondence Address:
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402 (US)

(21) Appl. No.: **10/112,690**

(22) Filed: **Mar. 28, 2002**

Related U.S. Application Data

(60) Provisional application No. 60/279,516, filed on Mar. 28, 2001. Provisional application No. 60/279,519, filed on Mar. 28, 2001.

Publication Classification

(51) **Int. Cl.**[7] **H04M 11/00**

(52) **U.S. Cl.** **455/404**; 455/414

(57) **ABSTRACT**

Distribution and management of detected alarm signals using multiple communication channels for each of a plurality of authorized data recipients. Wired or wireless communication channels are used to transfer alarm notification messages and responses by the authorized data recipient. Responses include messages to cancel or confirm. Notification of receipt of an alarm response message is communicated to authorized data recipients via the multiple communication channels which may include a two-way pager, a cellular telephone or an e-mail address.

Menard discloses:

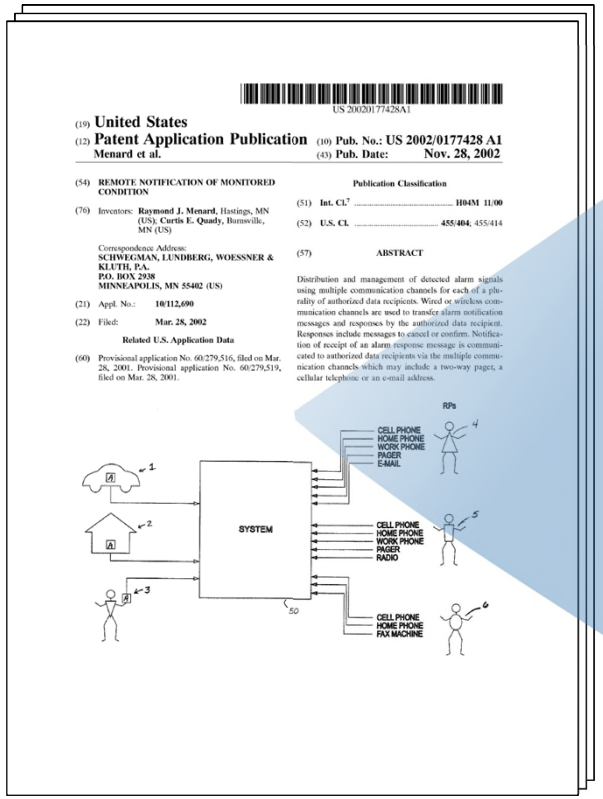
a. notifying a Responsible Party of an alarm
b. receiving a command to process the alarm
c. executing the received command
d. notifying the Responsible Party that the command has been executed

935 Paper 1[Petition] at 46-48. 935 Paper 7[Institution Decision] at 38. 935 EX1003[Jeffay Dec.] at ¶¶475-476.

Menard

a. notifying a Responsible Party of an alarm

b. receiving a command to process the alarm



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Distribution and management of detected alarm signals using multiple communication channels for each of a plurality of authorized data recipients. Wired or wireless communication channels are used to transfer alarm notification messages and responses by the authorized data recipient. Responses include messages to cancel or confirm. Notification of receipt of an alarm response message is communicated to authorized data recipients via the multiple communication channels which may include a two-way pager, a cellular telephone or an e-mail address.

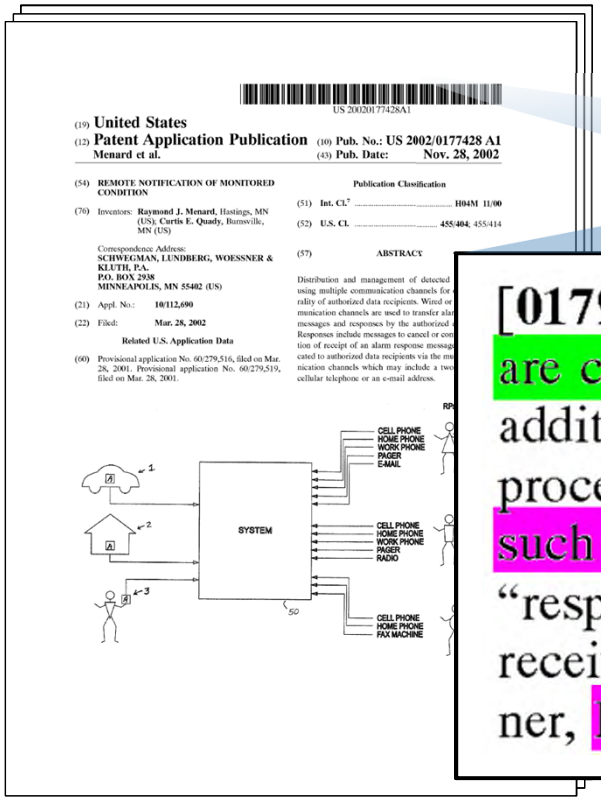
[0068] **FIG. 2** includes an overview of a method according to one embodiment of the present subject matter. At **100**, an alarm signal is received. At **250**, the present system notifies all RPs and other users via narrowcast messaging. At **260**, the RPs or other users respond to the messages. In one embodiment, the RPs or other users respond for the purpose of managing the alarm processing. At **290**, the present system then executes the process which may included further notification, dispatching of one or more response agencies, data processing or other actions based upon executing the instructions for the particular RP, the monitoring account, or the alarm condition. In one embodiment, instructions are tailored for a particular customer at the time of establishing monitoring services or at a later time. In one embodiment, at **292**, the process returns to **250** to commence another notification of all RPs and other users.

935 EX1020[Menard]. 935 Paper 1[Petition] at 46-48. 935 EX1003[Jeffay Dec.] at ¶¶475-476.

Menard

c. executing the received command

d. notifying the Responsible Party that the command has been executed



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(52) U.S. Cl. 455/404; 455/414

(57) ABSTRACT

Distribution and management of detected using multiple communication channels for rality of authorized data recipients. Wired or munication channels are used to transfer ala messages and responses by the authorized Responses include messages to cancel or con tion of receipt of an alarm response messag cated to authorized data recipients via the mu nication channels which may include a two cellular telephone or an e-mail address.

[0179] In one embodiment, after instructions from an RP are completed, another round of notification may occur. In addition, selected RPs may be notified of the outcome of the process. For example, the notification may entail a message such as "the police were dispatched at 10:05 AM," or "response was canceled by RP 'Susan Smith' or "RP Jones received message and acknowledged receipt." In this manner, RPs are informed as to the outcome of the event.

935 EX1020[Menard]. 935 EX1003[Jeffay Dec.] at ¶¶475-476. 935 Paper 1[Petition] at 46-48.

Menard

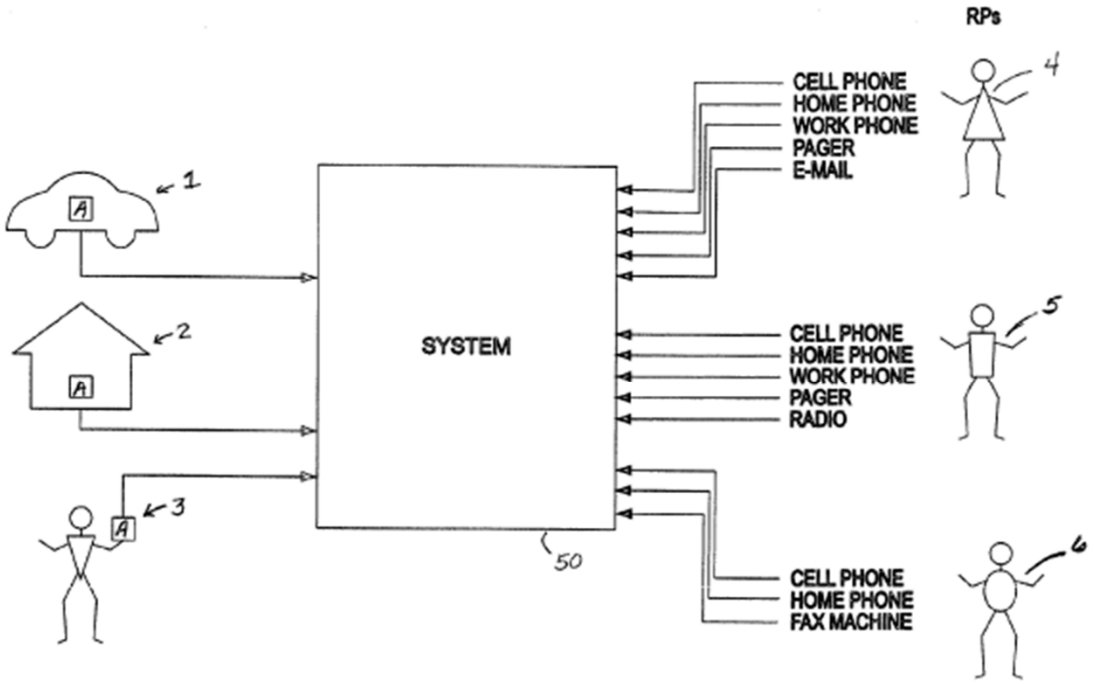

FIG. 1

935 EX1020[Menard].

935 Paper 27[Petitioner Reply] at 15-16.

Menard

Mr. Zatkovich testified:

Q. So it's your opinion that the base unit must be located within a -- a home, right?

A. I -- I don't think it needs to be located in a home. I think it needs to be located, again, using the word locally to the environmental devices that it's interfacing to.

935 EX1040[Zatkovich Dep. I] at 151:16-21.

935 Paper 27[Petitioner Response] at 17.

Menard

Mr. Zatkovich testified:

935 Paper 27[Petitioner Response] at 15-16.
935 EX1040[Zatkovich Dep. I] at 214:9-215:21.

Q. And it goes on to say, "One embodiment the alarm signal is communicated directly or indirectly from the alarm system to a responsible party."

Do you see that?

A. I do.

[. . .]

Q. So we saw that it says "directly or indirectly." What does it mean that the alarm system is communicated directly to a responsible party?

A. I don't know.

[. . .]

Q. Could directly mean that the alarm system is communicating directly with the responsible party without any other intervening devices?

A. Yes, that would be one interpretation.

Roadmap

1. Overview of the challenged patents
2. 935 Patent
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. **655 Patent**
   a. **"geo-fence" – Claim 1**
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

Overview of Claim

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provided utility (i.e., electric power, water and sewer provisions, natural gas), collapse of the building or a portion thereof due to weather (i.e., tornado, hurricane, blizzard), or breach of the building security (i.e., break-ins). The sensors may be hard wired through the structure of the building. Also, the sensors may have a wireless communication. The optimal presentation would be a dual connection, such a hard-wired and wireless communication, e.g., a transmitter/receiver. This provides maximum effective monitoring of the building because the hard wiring would alleviate the need for constant battery monitoring, likewise, the wireless communication provides monitoring should the absence of electrical power be a factor. For example, the combined hard wired and wireless connection of the sensors to the unit allows the monitoring of the building and generates the alarm when the power is lost due to an area wide electrical outage. The unit transmits that information (i.e., the loss of electrical power) to the remote control unit and the operator is aware that the electrical power is absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breach. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit **14**.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units **16**.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

What is claimed:

1. A base unit configured to communicate with an environmental device and to communicate with a cellular remote unit having wireless connectivity capable of communicating from a geographically remote location, the base unit comprising:

a first communication interface configured to receive environmental information from the environmental device and to send a control instruction to the environmental device;

a wireless communication interface configured to send a first message to the cellular remote unit via a cellular communications network and to receive a second message from the cellular remote unit via the cellular communications network,

wherein the first message is a first digital communications message including a representation of the environmental information, and

wherein the second message is a second digital communications message including a command regarding the environmental device, and

a microcontroller configured to process the second message, to provide the control instruction based on the command, and to send the control instruction to the environmental device via the first communication interface, and

wherein the command is for the base unit initiated by a user from the cellular remote unit, and

wherein the control instruction to the environmental device is associated with the command for the base unit, wherein the cellular remote unit is configured to determine position data of the cellular remote unit, and determine when the cellular remote unit is outside a geo-fence, wherein the cellular remote unit is configured to transmit a notification via a simple message service responsive to determining that the cellular remote unit is outside of the geo-fence.

2. The base unit of claim **1**, wherein the command regards entering an energy conservation mode, and wherein the energy conservation mode is associated with multiple environmental devices.

3. The base unit of claim **1**, wherein the command is associated with an icon on the remote unit.

4. The base unit of claim **1**, wherein the control instruction is configured to adjust a temperature of a water heater.

5. The base unit of claim **1**, wherein the control instruction is configured to adjust an air handling system.

6. The base unit of claim **1**, wherein the cellular communications network includes a data bearer service.

7. The base unit of claim **1**, wherein the remote unit is a mobile remote unit.

8. The base unit of claim **1**, wherein the control instruction includes an environmental control instruction, and wherein the command includes an environmental command.

9. The base unit of claim **1**, wherein the command is an energy conservation command associated with multiple environmental devices.

10. The base unit of claim **1**,

wherein the cellular communications network includes a data bearer service;

wherein the remote unit is a mobile remote unit,

wherein the control instruction includes an environmental control instruction, and

wherein the command includes an environmental command.

11. The base unit of claim **10**, wherein the second message includes an energy conservation command associated with multiple environmental devices.

12. The base unit of claim **10**, wherein the microcontroller is configured to process the environmental information into the representation and to process the command into the control instruction.

13. The base unit of claim **1**, wherein the remote unit is a cellular telephone, and wherein the environmental device comprises a thermostat.

14. The base unit of claim **1**, wherein the environmental device comprises at least one of a light, thermostat, or an alarm system.

655 EX1001[655 Patent]

1. A base unit configured to communicate with an environmental device and to communicate with a cellular remote unit having wireless connectivity capable of communicating from a geographically remote location, the base unit comprising:

[. . .]

wherein the control instruction to the environmental device is associated with the command for the base unit, wherein the cellular remote unit is configured to determine position data of the cellular remote unit, and determine when the cellular remote unit is outside a geo-fence, wherein the cellular remote unit is configured to transmit a notification via a simple message service responsive to determining that the cellular remote unit is outside of the geo-fence.

Ground 1A: Claim 1 is obvious over Oinonen, Whitley, and Coon.

Ground 2A: Claim 1 is obvious over Bielski, Wu, and Coon.

655 Paper 1[Petition] at 3.

Overview of Claim

1. A base unit configured to communicate with an environmental device and to communicate with a cellular remote unit having wireless connectivity capable of communicating from a geographically remote location, the base unit comprising:

[. . .]

wherein the control instruction to the environmental device is associated with the command for the base unit, wherein the cellular remote unit is configured to determine position data of the cellular remote unit, and determine when the cellular remote unit is outside a geo-fence, wherein the cellular remote unit is configured to transmit a notification via a simple message service responsive to determining that the cellular remote unit is outside of the geo-fence.

1. "cellular remote unit is configured to determine position data of the cellular remote unit" and "determine when the cellular remote unit is outside a geo-fence"
2. "cellular remote unit is configured to transmit a notification via simple message service responsive to determining that the cellular remote unit is outside of the geo-fence"

655 EX1001[655 Patent].

Claim Construction

Patent Owner's Construction

1. A base unit configured to communicate with an environmental device and to communicate with a cellular remote unit having wireless connectivity capable of communicating from a geographically remote location, the base unit comprising:

[. . .]

wherein the control instruction to the environmental device is associated with the command for the base unit, wherein the cellular remote unit is configured to determine position data of the cellular remote unit, and determine when the cellular remote unit is outside a geo-fence, wherein the cellular remote unit is configured to transmit a notification via a simple message service responsive to determining that the cellular remote unit is outside of the geo-fence.

655 EX1001[655 Patent].

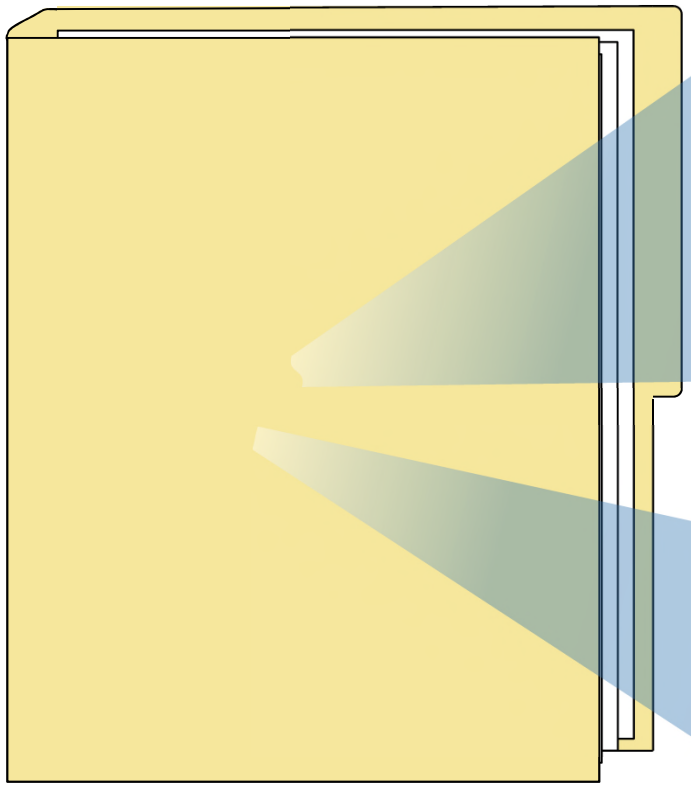
"the cellular remote unit is configured to determine that the cellular remote unit is outside of the geo-fence and to report this information via a simple message service"

655 Paper 23[Patent Owner Response] at 15.

655 Paper 27[Petitioner Reply] at 4-5.

Claim Construction

"simple message service"



Please amend paragraph 0039 as follows:

[0039] Each remote control unit 12, 26 communicates with the base control unit 16 to affect the operational aspects thereof and peripheral equipment operatively attached thereto. For example, a remote control unit can command the base control unit 16 to enter an energy conservation mode.

[. . .]

network. The data path between the remote control unit and the base control unit is SMS ("~~simple~~ short message service".) However, the implemented

Amendment to the Specification

The specification has been amended to correct a typographical error. No new matter has been added.

655 Paper 27[Petitioner Reply] at 5.

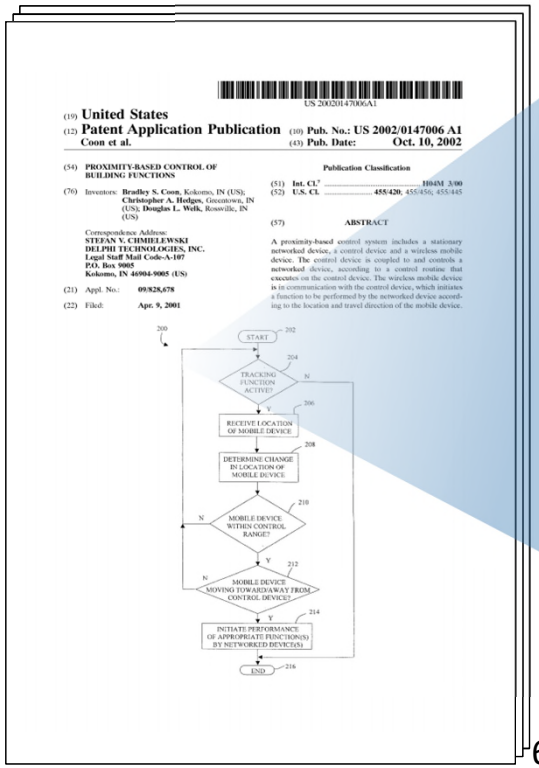
655 EX1007[397 Patent File History] at 92, 106.

The Prior Art Discloses Claim 1

- "cellular remote unit is configured to determine position data of the cellular remote unit"
- "determine when the cellular remote unit is outside a geo-fence"

655 Paper 1[Petition] at 30.

655 Paper 27[Petitioner Reply] at 17-18.



US 20020147006A1

(19) United States
(12) Patent Application Publication (10) Pub. No.: US 2002/0147006 A1
Coon et al. (43) Pub. Date: Oct. 10, 2002

(54) PROXIMITY-BASED CONTROL OF BUILDING FUNCTIONS

(76) Inventors: Bradley S. Coon, Kokomo, IN (US); Christopher A. Hodges, Greentown, IN (US); Douglas L. Welk, Rossville, IN (US)

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(21) Appl. No.: 09/828,678

(22) Filed: Apr. 9, 2001

Publication Classification

(51) Int. Cl.[7] H04M 3/00

(52) U.S. Cl. 455/420; 455/456; 455/445

(57) ABSTRACT

A proximity-based control system includes a stationary networked device, a control device and a wireless mobile device. The control device is coupled to and controls a networked device, according to a control routine that executes on the control device. The wireless mobile device is in communication with the control device, which initiates a function to be performed by the networked device according to the location and travel direction of the mobile device.

655 EX1019[Coon].

[0016] **FIG. 1** depicts an exemplary proximity-based control system **100** that includes a wireless mobile device **120** implemented within, for example, a motor vehicle. The mobile device **120** communicates with a control device **140** located within, for example, a building **130**. The mobile device **120** includes a processor **102** that is coupled to a display **106**, a GPS receiver **108**, a memory subsystem **104** and a wireless transceiver **110**. The GPS receiver **108** receives various communications from a plurality of GPS satellites **150**, through an antenna **114**, and provides a location indication to the processor **102**. The processor **102** then provides the location of the mobile device **120**, via a wireless transceiver **110** (and antenna **112**), to a base station **160** via an antenna **162**. Alternatively, the processor **102** may transmit a control message to the control device **140**, based upon the location information. In this embodiment, upon receiving the control message, the control device **140** initiates performance of an appropriate function or functions, by at least one networked device.

The Prior Art Discloses Claim 1

Mr. Zatkovich testified:

655 EX1041[Zatkovich Dep. I] at 45:2-11.

655 Paper 27[Petitioner Reply] at 18.

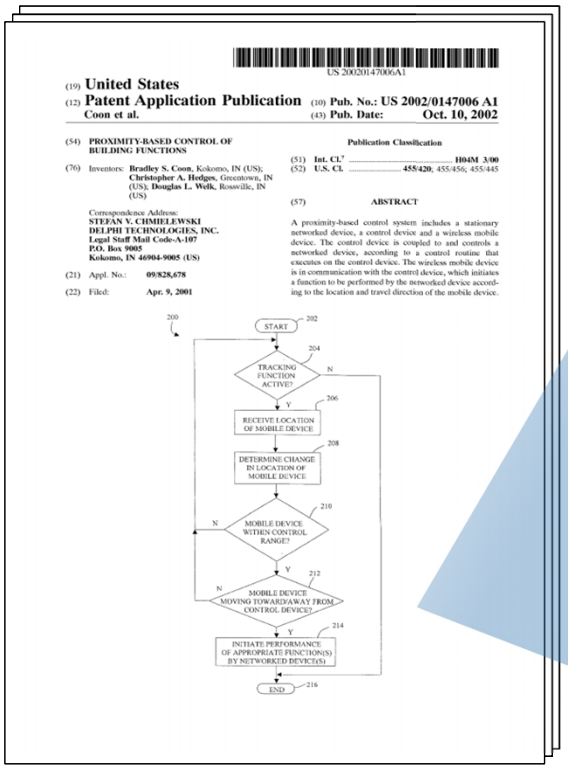
> Q. So this is sending a notification of a location to the base station, right?
>
> MR. ALEXANDER: Object to form.
>
> THE WITNESS: Yes. This section discusses the control device communicating the location information to the base station.
>
> Q. Right.
>
> And here the control device is described as a mobile device, 120, right?
>
> A. Correct.

The Prior Art Discloses Claim 1

- "cellular remote unit is configured to transmit a notification via simple message service responsive to determining that the cellular remote unit is outside of the geo-fence"

Patent Owner Construction: "the cellular remote unit is configured to determine that the cellular remote unit is outside of the geo-fence and to report this information via a simple message service"

655 Paper 27[Petitioner Reply] at 4, 17-18.



US 20020147006A1

(19) United States
(12) Patent Application Publication (10) Pub. No.: US 2002/0147006 A1
Coon et al. (43) Pub. Date: Oct. 10, 2002

(54) PROXIMITY-BASED CONTROL OF BUILDING FUNCTIONS

(76) Inventors: Bradley S. Coon, Kokomo, IN (US); Christopher A. Hedges, Greentown, IN (US); Douglas L. Welk, Rossville, IN (US)

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(21) Appl. No.: 09/828,678
(22) Filed: Apr. 9, 2001

Publication Classification

(51) Int. Cl.[7] H04M 3/00
(52) U.S. Cl. 455/420; 455/456; 455/445

(57) ABSTRACT

A proximity-based control system includes a stationary networked device, a control device and a wireless mobile device. The control device is coupled to and controls a networked device, according to a control routine that executes on the control device. The wireless mobile device is in communication with the control device, which initiates a function to be performed by the networked device according to the location and travel direction of the mobile device.

655 EX1019[Coon].

[0028] Then, in decision step **310**, the processor **102** determines whether the mobile device **120** is within a preprogrammed control range. If the mobile device **120** is within the preprogrammed control range, control transfers to decision step **312**. Otherwise, control transfers from step **310** to step **304**. In step **312**, the processor **102** determines whether the mobile device **120** is moving toward or away from the control device **140**. If the mobile device **120** is moving toward or away from the control device **140**, control transfers to step **314**. Otherwise, control transfers from step **312** to step **304**. In step **314**, the processor **102** causes an appropriate message (i.e., a message that corresponds to the location of the mobile device **120**, with respect to the control device **140**) to be sent to the control device **140** via wireless transceiver **110**, antenna **112**, antenna **162** and base station **160**. The control device **140** then initiates performance of an appropriate function or functions by an appropriate networked device or devices. Next, in step **316**, routine **300** terminates.

The Prior Art Discloses Claim 1

Mr. Zatkovich testified:

Q. And so this discloses that a message is sent from the mobile device to the base station that corresponds to the location of the mobile device with respect to the control device, right?

A. I'm trying to determine the routing of this message here in this passage.

Yes, I believe this section is referring to sending a message from the mobile device to the base station.

Q. And we see towards the end of the passage of paragraph 28 that the message corresponds to the location of the mobile device, 120, right?

A. Correct.

655 Paper 27[Petitioner Reply] at 18.

655 EX1041[Zatkovich Dep. I] at 48:12-49:3.

Roadmap

1. Overview of the challenged patents
2. 935 Patent
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. **655 Patent**
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. "subordinate" – Claim 24

655 Patent: Claim 2, 9, & 11 Are Obvious

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provided utility (i.e., electric power, water and sewer provisions, natural gas), collapse of the building or a portion thereof due to weather (i.e., tornado, hurricane, blizzard), or breach of the building security (i.e., break-ins). The sensors may be hard wired through the structure of the building. Also, the sensors may have a wireless communication. The optimal presentation would be a dual connection, such a hard-wired and wireless communication, e.g., a transmitter/receiver. This provides maximum effective monitoring of the building because the hard wiring would alleviate the need for constant battery monitoring, likewise, the wireless communication provides monitoring should the absence of electrical power be a factor. For example, the combined hard wired and wireless connection of the sensors to the unit allows the monitoring of the building and generates the alarm when the power is lost due to an area wide electrical outage. The unit transmits that information (i.e., the loss of electrical power) to the remote control unit and the operator is aware that the electrical power is absent. If the loss of electrical power were due to a nefarious figure seeking to breach the building, i.e., breaking a window to gain access, a security sensor would still be able to provide the base control unit with an indication that the building has a security breach. The base control unit, operating under an alternate electrical power supply such as a backup battery, would generate a subsequent alarm signal and transmit the subsequent alarm signal for routing through the direct connect wireless for immediate transmission to the remote control unit, thereby alerting the operator that in addition to the loss of electrical power, the security of the building has been breached. The operator can thereby contact the law enforcement facility of the local jurisdiction and have an immediate response. If the remote control units are organized in classes, such as "managers", the information would be almost simultaneously provided to each member of the class who would have a need to receive and react to it.

In addition to main residence use, the system is typically suited for a vacation/second dwelling, a business concern, or any building structure that is not constantly occupied. For example, if the thermostat control system is installed in a vacation home in one locality, the operator may effectively be in any other portion of the globe so long as an effective communication link is provided with the remote control unit **14**.

Multiple base station units could be controlled through a single cellular phone for those instances where a person desires to have systems installed in multiple residences. The application software uses the Source Address field of the message to distinguish between different base control units **16**.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

What is claimed:

1. A base unit configured to communicate with an environmental device and to communicate with a cellular remote unit having wireless connectivity capable of communicating from a geographically remote location, the base unit comprising:

a first communication interface configured to receive environmental information from the environmental device and to send a control instruction to the environmental device;

a wireless communication interface configured to send a first message to the cellular remote unit via a cellular communications network and to receive a second message from the cellular remote unit via the cellular communications network,

wherein the first message is a first digital communications message including a representation of the environmental information, and

wherein the second message is a second digital communications message including a command regarding the environmental device, and

a microcontroller configured to process the second message, to provide the control instruction based on the command, and to send the control instruction to the environmental device via the first communication interface, and

wherein the command is for the base unit activated by a user from the cellular remote unit, and

wherein the control instruction to the environmental device is associated with the command for the base unit, wherein the cellular remote unit is configured to determine position data of the cellular remote unit, and determine when the cellular remote unit is outside a geo-fence, wherein the cellular remote unit is configured to transmit a notification via a simple message service responsive to determining that the cellular remote unit is outside of the geo-fence.

2. The base unit of claim **1**, wherein the command regards entering an energy conservation mode, and wherein the energy conservation mode is associated with multiple environmental devices.

3. The base unit of claim **1**, wherein the command is associated with an icon on the remote unit.

4. The base unit of claim **1**, wherein the control instruction is configured to adjust a temperature of a water heater.

5. The base unit of claim **1**, wherein the control instruction is configured to adjust an air handling system.

6. The base unit of claim **1**, wherein the cellular communications network includes a data bearer service.

7. The base unit of claim **1**, wherein the remote unit is a mobile remote unit.

8. The base unit of claim **1**, wherein the control instruction includes an environmental control instruction, and wherein the command includes an environmental command.

9. The base unit of claim **1**, wherein the command is an energy conservation command associated with multiple environmental devices.

10. The base unit of claim **1**,

wherein the cellular communications network includes a data bearer service;

wherein the remote unit is a mobile remote unit;

wherein the control instruction includes an environmental control instruction, and

wherein the command includes an environmental command.

11. The base unit of claim **10**, wherein the second message includes an energy conservation command associated with multiple environmental devices.

12. The base unit of claim **10**, wherein the microcontroller is configured to process the environmental information into the representation and to process the command into the control instruction.

13. The base unit of claim **1**, wherein the remote unit is a cellular telephone, and wherein the environmental device comprises a thermostat.

14. The base unit of claim **1**, wherein the environmental device comprises at least one of a light, thermostat, or an alarm system.

655 EX1001[655 Patent].

2. The base unit of claim **1**, wherein the command regards entering an energy conservation mode, and wherein the energy conservation mode is associated with multiple environmental devices.

9. The base unit of claim **1**, wherein the command is an energy conservation command associated with multiple environmental devices.

11. The base unit of claim **10**, wherein the second message includes an energy conservation command associated with multiple environmental devices.

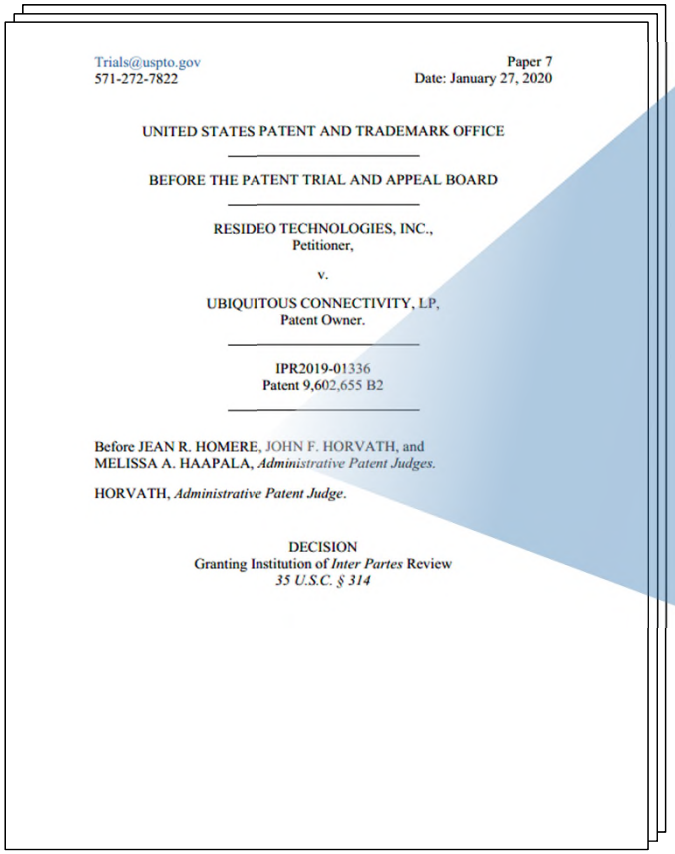
Ground 1B: Claims 2, 9, and 11 are obvious over Oinonen, Whitley, Coon, and Ehlers.

Ground 2B: Claims 2, 9, and 11 are obvious over Bielski, Wu, Coon, and Ehlers.

655 Paper 1[Petition] at 3.

655 Patent: Claim 2, 9, & 11 Are Obvious

The Board addressed Ehlers in the Institution Decision.



Trials@uspto.gov
571-272-7822

Paper 7
Date: January 27, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESIDEO TECHNOLOGIES, INC.,
Petitioner,

v.

UBIQUITOUS CONNECTIVITY, LP,
Patent Owner.

IPR2019-01336
Patent 9,602,655 B2

Before JEAN R. HOMERE, JOHN F. HORVATH, and MELISSA A. HAAPALA, *Administrative Patent Judges.*

HORVATH, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

devices. When Ehlers' remote unit sends a command to participate in a utility power saving program, that command appears to be sent to utility control system 1.12 rather than gateway 1.10 (base unit) because it is utility control system 1.12 that sends *control instructions based on the command* to environmental devices 1.08. *See, e.g.*, Ex. 1020 ¶ 81, Figs. 1A–1B (disclosing *utility control system 1.12* sends signals (control instructions) to gateway 1.10C (base unit) to disable pool pump 1.30B (environmental device) during set times if a user has subscribed to the utility's pool pump program). Similarly, when Ehlers' remote unit sends a command to gateway

655 Paper 7[Institution Decision] at 34.

655 Patent: Claim 2, 9, & 11 Are Obvious

> 2. The base unit of claim 1, wherein the command regards entering an energy conservation mode, and wherein the energy conservation mode is associated with multiple environmental devices.

The limitations of claim 1 are disclosed by the primary references:

Ground 1A: Oinonen and Whitley

Ground 2A: Bielski and Wu

655 Paper 27[Petitioner Reply] at 27.

655 Patent: Claim 2, 9, & 11 Are Obvious

Oinonen

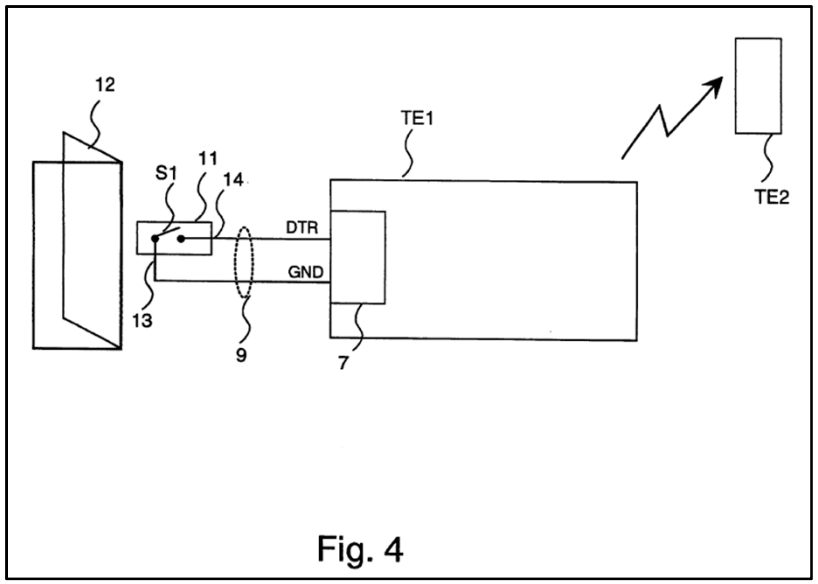


Fig. 4

935 Paper 1[Petition] at 17-18.

Bielski

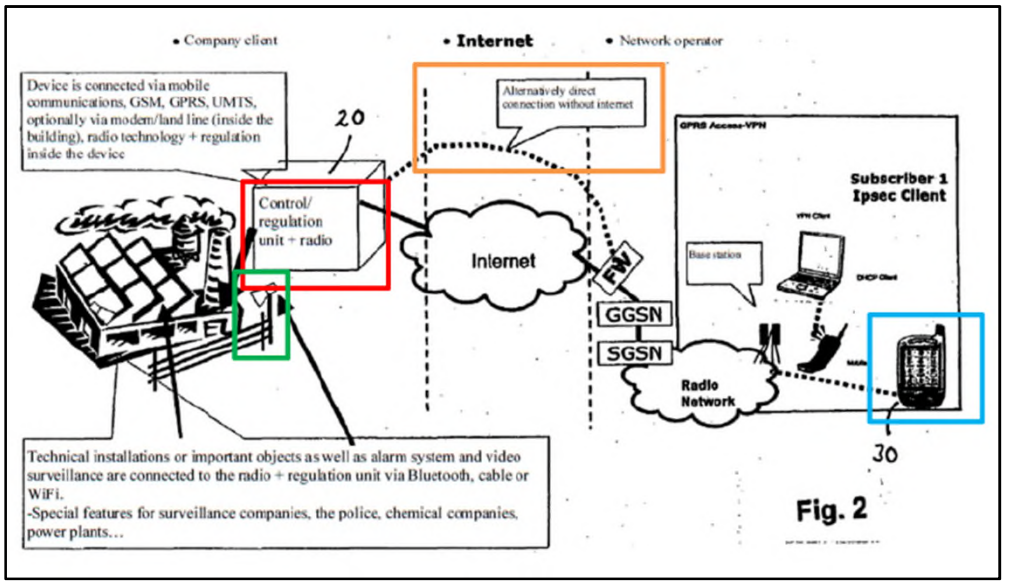


Fig. 2

935 Paper 1[Petition] at 53.

655 Patent: Claim 2, 9, & 11 Are Obvious

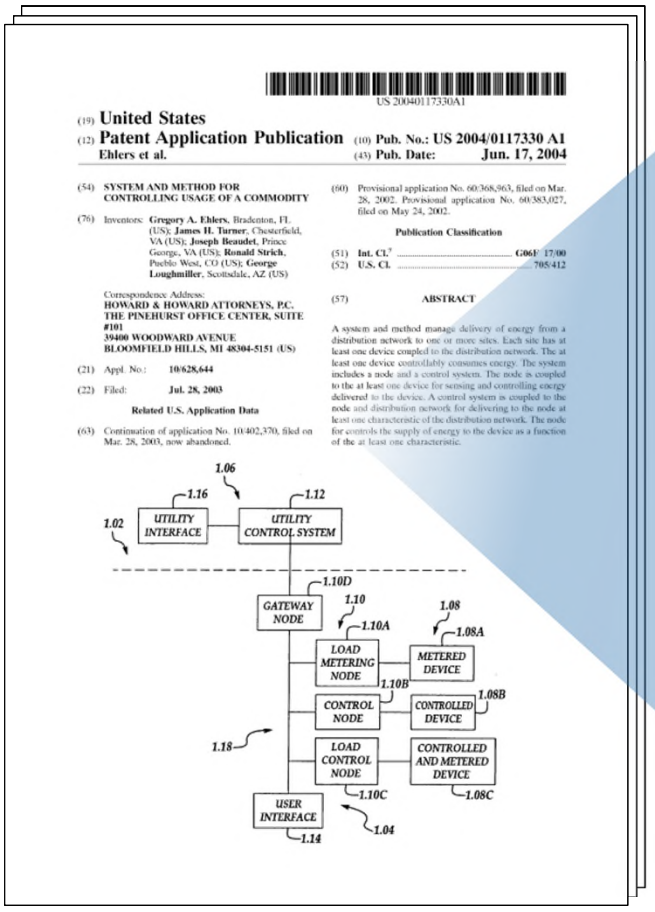
Mr. Zatkovich testified:

> Q. And if, for example, an HVAC system is turned off when no one is occupying a home, for example, that would be conserving energy, right?
>
> A. Certainly.
>
> Again, the -- the most popular version of conserving energy with air conditioning units is to turn the temperature up, but you could also turn it off.

655 EX1041[Zatkovich Dep. II] at 9:17-10:2.

655 Paper 27[Petitioner Reply] at 28.

655 Patent: Claim 2, 9, & 11 Are Obvious



US 20040117330A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0117330 A1**

Ehlers et al. (43) **Pub. Date: Jun. 17, 2004**

(54) **SYSTEM AND METHOD FOR CONTROLLING USAGE OF A COMMODITY**

(76) Inventors: **Gregory A. Ehlers**, Bradenton, FL (US); **James H. Turner**, Chesterfield, VA (US); **Joseph Beaudet**, Prince George, VA (US); **Ronald Strich**, Pueblo West, CO (US); **George Loughmiller**, Scottsdale, AZ (US)

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(21) Appl. No.: **10/628,644**

(22) Filed: **Jul. 28, 2003**

Related U.S. Application Data

(63) Continuation of application No. 10/402,370, filed on Mar. 28, 2003, now abandoned.

(60) Provisional application No. 60/368,963, filed on Mar. 28, 2002. Provisional application No. 60/383,027, filed on May 24, 2002.

Publication Classification

(51) **Int. Cl.**[7] **G06F 17/00**

(52) **U.S. Cl.** **705/412**

(57) **ABSTRACT**

A system and method manage delivery of energy from a distribution network to one or more sites. Each site has at least one device coupled to the distribution network. The at least one device controllably consumes energy. The system includes a node and a control system. The node is coupled to the at least one device for sensing and controlling energy delivered to the device. A control system is coupled to the node and distribution network for delivering to the node at least one characteristic of the distribution network. The node for controls the supply of energy to the device as a function of the at least one characteristic.

655 EX1020[Ehlers].

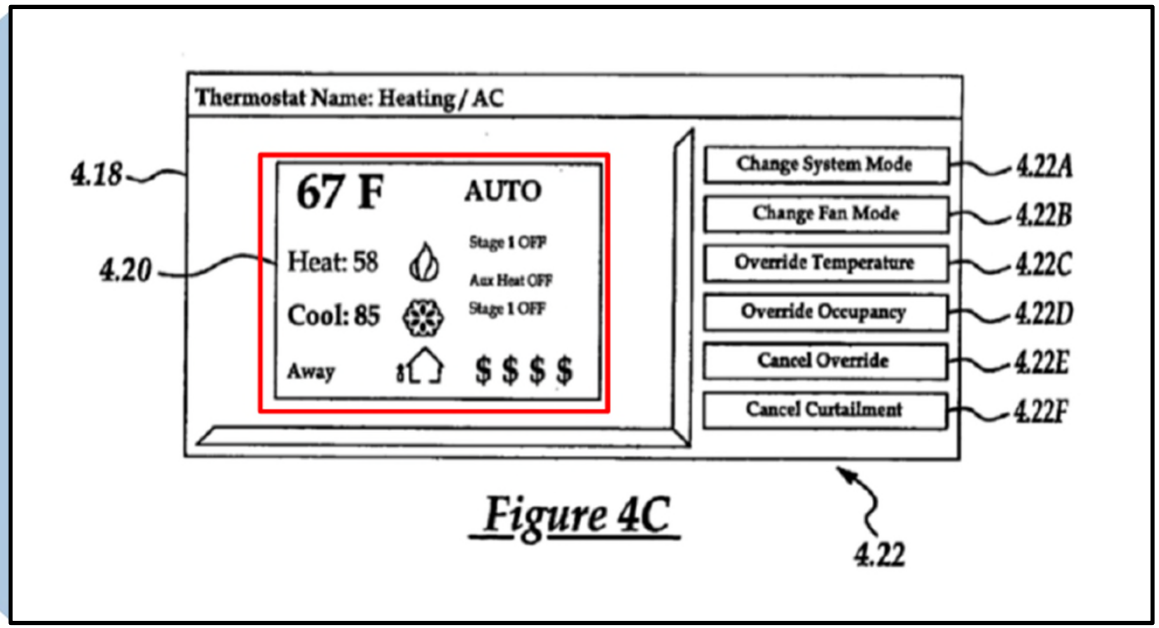
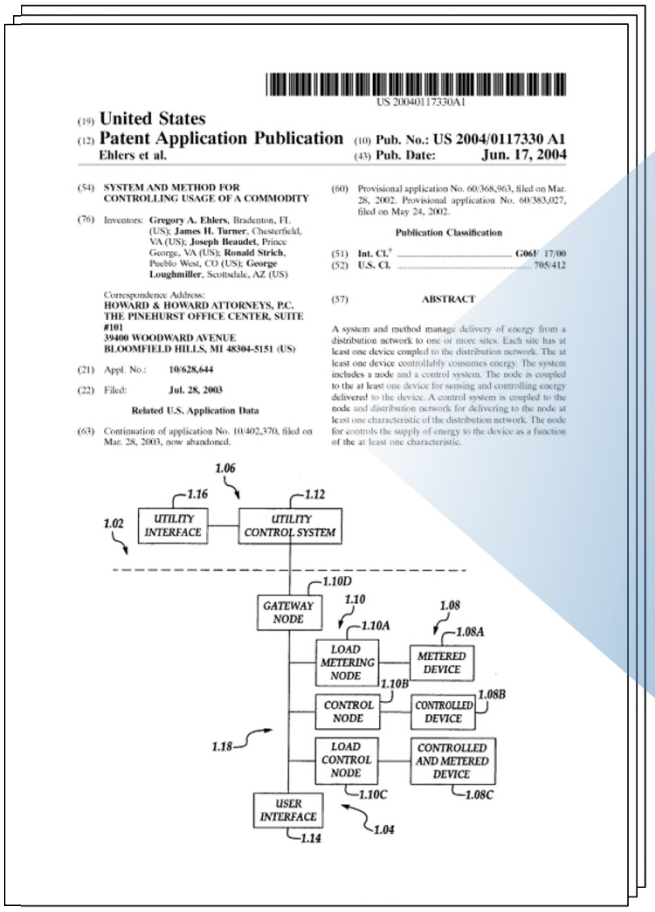


Figure 4C

655 Paper 1[Petition] at 42.

655 Patent: Claim 2, 9, & 11 Are Obvious

655 Paper 1[Petition] at 40.



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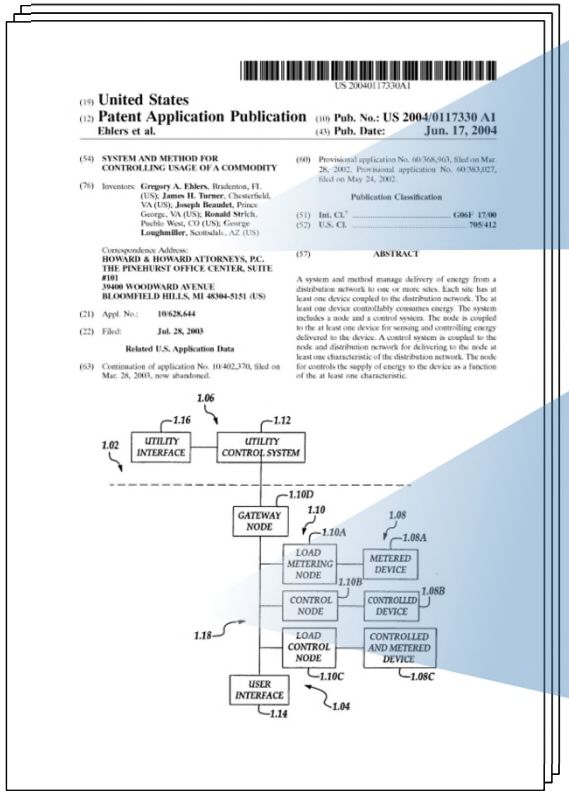
A system and method manage delivery of energy from a distribution network to one or more sites. Each site has at least one device coupled to the distribution network. The at least one device controllably consumes energy. The system includes a node and a control system. The node is coupled to the at least one device for sensing and controlling energy delivered to the device. A control system is coupled to the node and distribution network for delivering to the node at least one characteristic of the distribution network. The node for controls the supply of energy to the device as a function of the at least one characteristic.

655 EX1020[Ehlers].

[0316] With reference to **FIG. 4**B, when the customer selects the direct access icon **4.14**Aa, a plurality of direct access icons **4.16** will be displayed in the control panel **4.10**. In the illustrated embodiment, the customer has direct access of the HVAC system and the whole house meter. Correspondingly, a heating/AC icon **4.16***a* and a whole house meter **4.16**B are displayed within the control panel **4.10**. In another embodiment, all devices **1.08** to which the customer may have access are accessible here, e.g., a second thermostat or the water heater. With reference to **FIG. 4**C, selection of the heating/AC icon **4.16**A, displays a virtual thermostat **4.18** within the control panel **4.10**. The virtual thermostat **4.18** contains an information section or display **4.20** and a plurality of thermostat buttons **4.22**. The display section **4.20** includes information related to the actual or real time conditions at the site **1.04**. In the illustrated embodiment as shown, the current temperature within the customer site **1.04** is 67° Fahrenheit. The heating and cooling set points are set to 58° and 85°, respectively. The system **3.08** is in an automatic mode and the heating and cooling systems are in an off condition. Furthermore, as indicated, the occupancy mode is set to "Away". As discussed below, the system **3.08** allows the customer to program the HVAC systems use the virtual thermostat **4.18** and according to occupancy modes using heating and cooling set points. By using the thermostat buttons **4.22**, the customer can change the current operating parameters of the thermostat. For example, selection of a change system mode thermostat button **4.22**A allows the customer to select between automatic and a manual modes. Selection of a change fan mode button **4.22**B allows the customer to change the fan mode from "on" to "automatic". Furthermore, selection of an override temperature button **4.22**C or an override occupancy button **4.22**D allow the customer to override the current temperature and occupancy schedules as defined below. Selection of a cancel override button **4.22**E allows the customer to cancel a temperature or occupancy change which was input using the override temperature button **4.22**C or the override occupancy button **4.22**D. A cancel curtailment button **4.22**F allows a customer to cancel any curtailment program (where permissible).

655 Patent: Claim 2, 9, & 11 Are Obvious



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(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0117330 A1**
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(54) **SYSTEM AND METHOD FOR CONTROLLING USAGE OF A COMMODITY**

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(51) Int. Cl.[7] G06F 17/00
(52) U.S. Cl. 705/412

(57) **ABSTRACT**

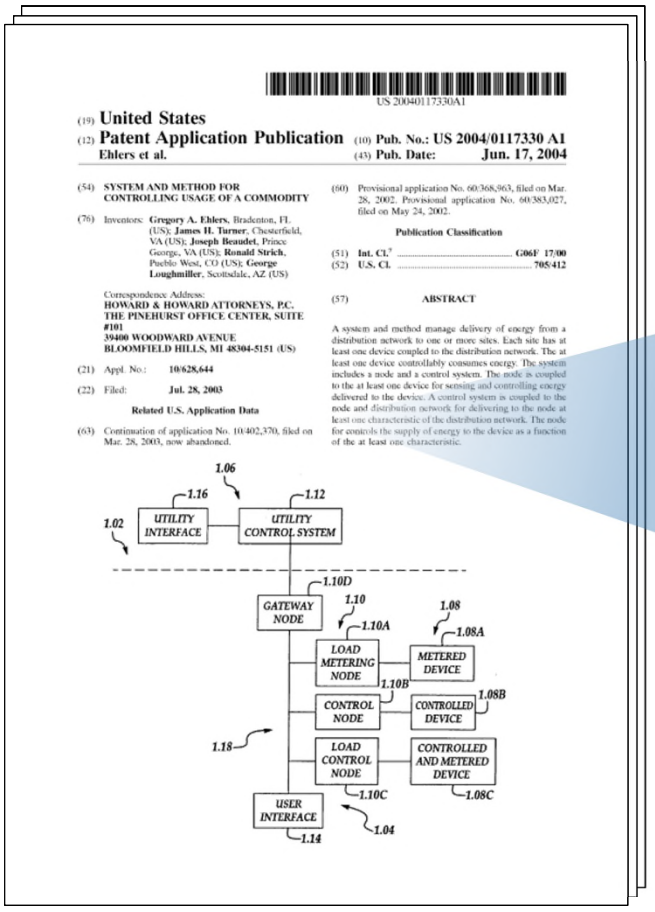
A system and method manage delivery of energy from a distribution network to one or more sites. Each site has at least one device coupled to the distribution network. The at least one device controllably consumes energy. The system includes a node and a control system. The node is coupled to the at least one device for sensing and controlling energy delivered to the device. A control system is coupled to the node and distribution network for delivering to the node at least one characteristic of the distribution network. The node for controls the supply of energy to the device as a function of the at least one characteristic.

[0197] In its simplest form, the home **2.18**, may participate in any number of conservation or demand limiting programs, i.e., Power Saving Programs or PROGRAMS. The following illustrated how the nodes **2.20** may support these PROGRAMS. However, the following should not be interpreted to limit the present invention to any such PROGRAM.

[0221] In still another aspect of the present invention, the customer may set a limit for the total power demand for the home **2.18** during any given period, e.g., 5000 Watts. The gateway node **1.10**D receives the total current demand, i.e., power being used, on a real-time basis. Thus, if another device **1.08** in the home **2.18** wanted to perform a function, the device **1.08** (through the associated node **1.10**) may query the gateway node **1.10**D for permission. If the requested function would cause total demand to exceed this amount (or come within a predetermined threshold), the gateway node **1.10**D may not allow the device **1.08** to perform that function.

655 Paper 1[Petition] at 40.

655 Patent: Claim 2, 9, & 11 Are Obvious



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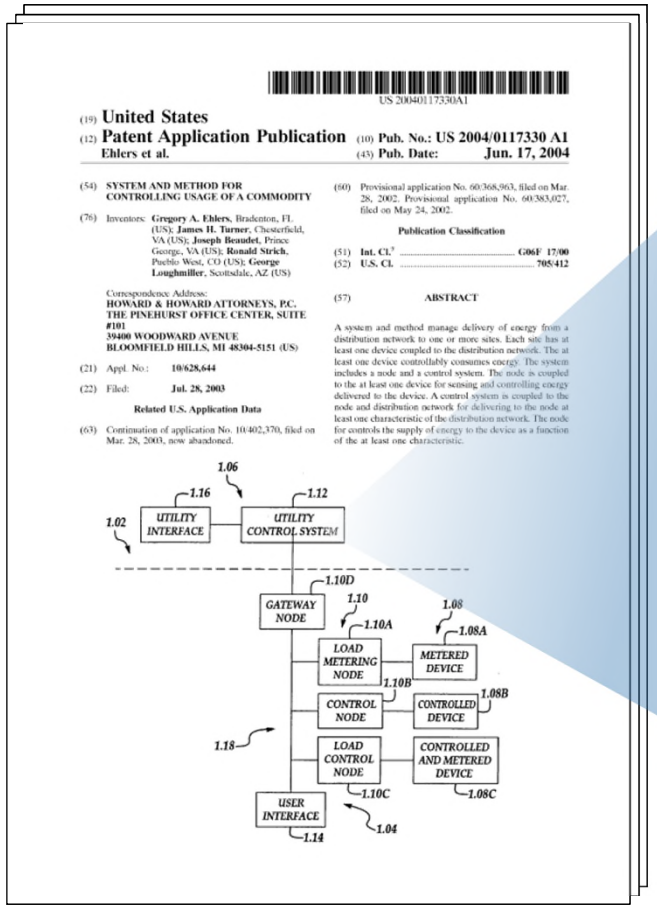
655 EX1020[Ehlers].

[0245] The system's **3.08** performance and energy reduction capabilities are further enhanced during all periods by applying the most energy effective set point or its related off set if the occupancy mode is "vacant" and applying the comfort management off set if the occupancy mode is "home". This occupancy sensitive control is further enhanced by the addition of occupancy sensing devices that communicate with the system **3.08**.

655 Paper 1[Petition] at 38.

655 Patent: Claim 2, 9, & 11 Are Obvious

Ehlers discloses:



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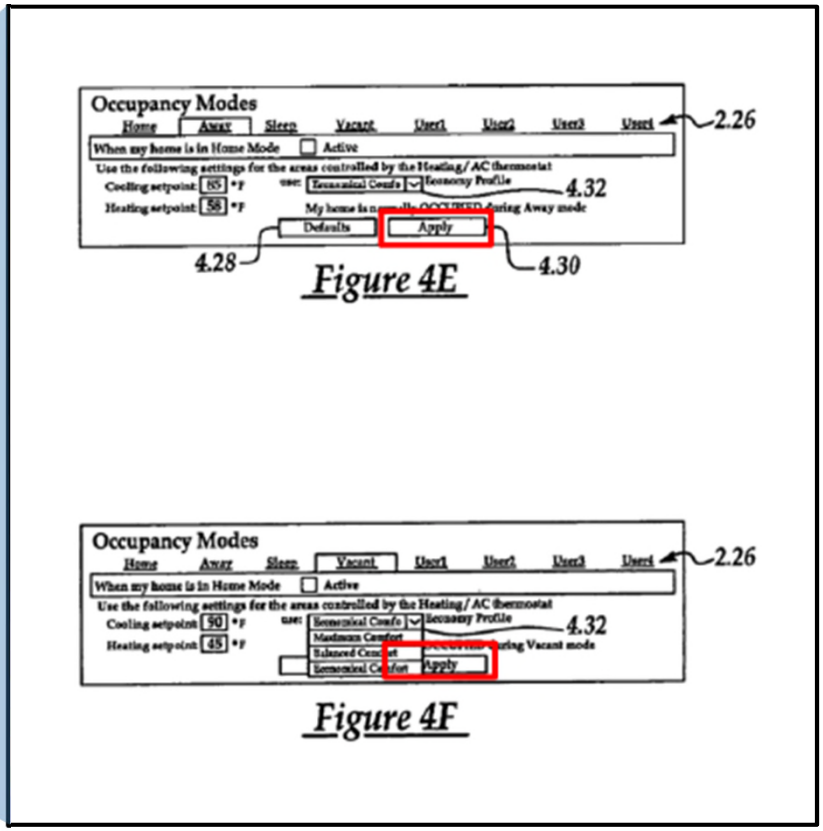

Figure 4E

Figure 4F

655 EX1020[Ehlers].

655 Paper 27[Petitioner Reply] at 28-29.

Roadmap

1. Overview of the challenged patents
2. 935 Patent
   a. Claims 1, 2, 7, 8, 10, 11, 13, 15, 17 and 19 are disclosed
   b. Bi-directional Messages
   c. "microcontroller" – Claims 3, 14, 18, 21
   d. Wireless/non-wireless Connections – Claim 12
   e. "custom programmability" – Claims 4-6, 16
   f. "graphic icons" – Claim 9
   g. "status message" – Claims 20, 22
3. **655 Patent**
   a. "geo-fence" – Claim 1
   b. "energy conservation mode" – Claims 2, 9, 11
   c. **"subordinate" – Claim 24**

655 Patent: Claim 24 is Obvious

US 9,602,655 B2

15

15. The base unit of claim 1, wherein the base unit and the environmental device are contained in the same enclosure.

16. The base unit of claim 1, wherein the cellular communications network includes a simple message service.

17. The base unit of claim 1, wherein the cellular remote unit is configured to determine when the remote control unit is within a geo-fence.

18. The base unit of claim 1, wherein the base unit is configured to receive data from an external web service, and responsive to receiving the data the base unit sends the control instruction.

19. The base unit of claim 18, wherein the external web service is a weather service.

20. The base unit of claim 1, wherein the command includes cellular data.

21. The base unit of claim 1, wherein the command is initiated by a user from the cellular remote unit responsive to the user interacting with an icon on the remote control unit associated with the environmental device.

22. The base unit of claim 1, wherein the base unit comprises a cellular module configured to communicate data over the cellular communications network.

23. The base unit of claim 1 wherein the microcontroller is configured to send status information to the cellular remote unit on a periodic basis.

24. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

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a first communication interface configured to receive environmental information from the environmental device and to send a control instruction to the environmental device;

a wireless communication interface configured to send a first message to the remote unit via a communications network and to receive a second message from the remote unit via the communications network,

wherein the first message is a first digital communications message including a representation of the environmental information, and

wherein the second message is a second digital communications message including a command regarding the environmental device; and

a microcontroller configured to process the second message and to send the control instruction based on the command via the first communication interface to the environmental device, and

wherein the wireless communication interface is configured to send a third message to a subordinate remote unit via the communications network and to receive a fourth message from the subordinate remote unit via the communications network,

wherein the fourth message includes a subordinate command to the environmental device, and wherein the microcontroller is configured to process the fourth message and to send selectively a second control instruction based on the subordinate command via the first communication interface to the environmental device.

* * * * *

655 EX1001[655 Patent].

24. A base unit configured to communicate with an environmental device and to communicate with a remote unit having wireless connectivity, the base unit comprising:

[. . .]

wherein the wireless communication interface is configured to send a third message to a subordinate remote unit via the communications network and to receive a fourth message from the subordinate remote unit via the communications network,

wherein the fourth message includes a subordinate command to the environmental device, and wherein the microcontroller is configured to process the fourth message and to send selectively a second control instruction based on the subordinate command via the first communication interface to the environmental device.

Ground 1D: Claim 24 is obvious over Oinonen, Whitley, Coon, and Lincoln.

Ground 2E: Claim 24 is obvious over Bielski, Wu, and Lincoln.

655 Paper 1[Petition] at 3-4.

655 Patent: Claim 24 is Obvious

Issues:

1. Multiple users – third and fourth messages

2. Subordinate remote unit, subordinate command, and selectively sending

655 Patent: Claim 24 is Obvious

Issues:

1. Multiple users – third and fourth messages

2. Subordinate remote unit, subordinate command, and selectively sending

655 Patent: Claim 24 is Obvious

Mr. Zatkovich's testified:

Q. Okay. And you would agree that Lincoln discloses systems that are designed to handle multiple users and multiple messages, right?

MR. ALEXANDER: Object to form.

THE WITNESS: I'm sorry. Multiple users and? Multiple messages?

Q. Right.

A. Yes, I would say so.

655 Paper 27[Petitioner Reply] at 19.

655 EX1041[Zatkovich Dep. I] at 66:1-8.

655 Patent: Claim 24 is Obvious

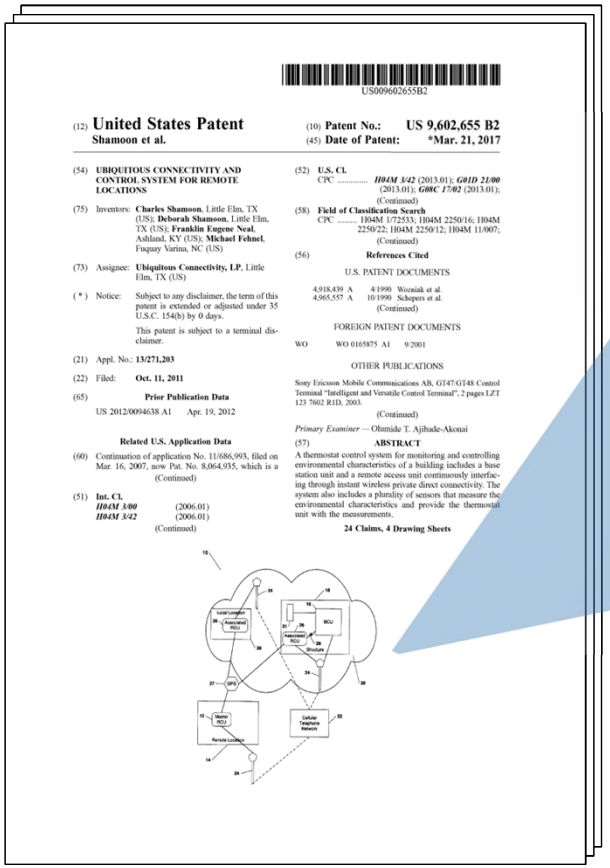
Issues:

1. Multiple users – third and fourth messages

2. Subordinate remote unit, subordinate command, and selectively sending

655 Patent: Claim 24 is Obvious

The specification does not use the term “subordinate.”



US009602655B2

(12) **United States Patent**
Shamoon et al.

(10) **Patent No.: US 9,602,655 B2**
(45) **Date of Patent: *Mar. 21, 2017**

(54) **UBIQUITOUS CONNECTIVITY AND CONTROL SYSTEM FOR REMOTE LOCATIONS**

(75) Inventors: **Charles Shamoon**, Little Elm, TX (US); **Deborah Shamoon**, Little Elm, TX (US); **Franklin Eugene Neal**, Ashland, KY (US); **Michael Fehnel**, Fuquay Varina, NC (US)

(73) Assignee: **Ubiquitous Connectivity, LP**, Little Elm, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/271,203**

(22) Filed: **Oct. 11, 2011**

(65) **Prior Publication Data**

US 2012/0094638 A1 Apr. 19, 2012

Related U.S. Application Data

(60) Continuation of application No. 11/686,993, filed on Mar. 16, 2007, now Pat. No. 8,064,935, which is a (Continued)

(51) **Int. Cl.**
H04M 3/00 (2006.01)
H04M 3/42 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC ***H04M 3/42*** (2013.01); ***G01D 21/00*** (2013.01); ***G08C 17/02*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC H04M 1/72533; H04M 2250/16; H04M 2250/22; H04M 2250/12; H04M 11/007;
(Continued)

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(Continued)

Primary Examiner — Olumide T. Ajibade-Akonai

(57) **ABSTRACT**

A thermostat control system for monitoring and controlling environmental characteristics of a building includes a base station unit and a remote access unit continuously interfacing through instant wireless private direct connectivity. The system also includes a plurality of sensors that measure the environmental characteristics and provide the thermostat unit with the measurements.

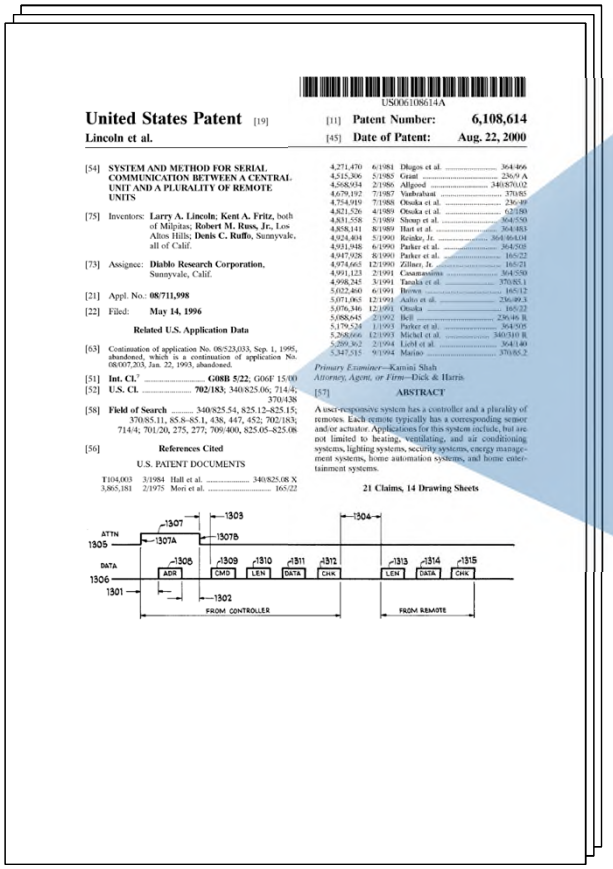
24 Claims, 4 Drawing Sheets

655 EX1001[655 Patent].

655 Paper 27[Petitioner Reply] at 20.

Lincoln

Lincoln discloses:



US006108614A

United States Patent [19]
Lincoln et al.

[11] **Patent Number: 6,108,614**
[45] **Date of Patent: Aug. 22, 2000**

[54] **SYSTEM AND METHOD FOR SERIAL COMMUNICATION BETWEEN A CENTRAL UNIT AND A PLURALITY OF REMOTE UNITS**

[75] Inventors: **Larry A. Lincoln**; **Kent A. Fritz**, both of Milpitas; **Robert M. Russ, Jr.**, Los Altos Hills; **Denis C. Ruffo**, Sunnyvale, all of Calif.

[73] Assignee: **Diablo Research Corporation**, Sunnyvale, Calif.

[21] Appl. No.: **08/711,998**

[22] Filed: **May 14, 1996**

Related U.S. Application Data

[63] Continuation of application No. 08/523,033, Sep. 1, 1995, abandoned, which is a continuation of application No. 08/107,203, Jan. 22, 1993, abandoned.

[51] **Int. Cl.**[7] **G08B 5/22**; G06F 15/00

[52] **U.S. Cl.** **702/183**; 340/825.06; 714/4; 370/438

[58] **Field of Search** 340/825.54, 825.12-825.15; 370/85.11; 85/8-85.1, 438, 447, 452; 702/183; 714/4; 701/20, 275, 277; 709/400, 825.05-825.08

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5,071,065	12/1991	Aalto et al.	236/49.3
5,076,346	12/1991	Otsuka	165/22
5,088,645	2/1992	Bell	236/46 R
5,179,524	1/1993	Parker et al.	364/505
5,268,666	12/1993	Michel et al.	340/310 R
5,289,362	2/1994	Liebl et al.	364/140
5,347,515	9/1994	Marino	370/85.2

Primary Examiner—Kamini Shah
Attorney, Agent, or Firm—Dick & Harris

[57] **ABSTRACT**

A user-responsive system has a controller and a plurality of remotes. Each remote typically has a corresponding sensor and/or actuator. Applications for this system include, but are not limited to heating, ventilating, and air conditioning systems, lighting systems, security systems, energy management systems, home automation systems, and home entertainment systems.

21 Claims, 14 Drawing Sheets

off depending on whether someone is present. In further accordance with the present invention, the controller identifies particular individuals using an IR, RF, or light source to communicate with a sensor in the room and conforms activation of the home appliance based on the information stored in the controller regarding previous time periods (for example, individual x listens to new wave music in the morning, but listens to classical in the evening). Conflicts between individuals are settled based upon a priority listing programmed in the system.

655 Paper 27[Petitioner Reply] at 20.

655 Paper 1[Petition] at 50.

655 EX1022[Lincoln] at 22:3-10.

Lincoln

Mr. Zatkovich testified:

Q. What would it mean that there are conflicts between individuals?

[. . .]

Q. Is it fair to interpret this to mean that it's conflicts based on the aspects of the system relevant to one person or the other?

A. I think that's a reasonable interpretation.

655 Paper 27[Petitioner Reply] at 20.

655 EX1041[Zatkovich Dep. I] at 67:2-3, 12-16.

Lincoln

Mr. Zatkovich testified:

Q. Okay. Would it be fair to say that user one is in a class of priority one and user two is in a class of priority two?

A. Again, there's no structure for that in Lincoln, but I -- I'm suppose -- I suppose we could hypothesize on that, sure.

Q. And so using those two users as an example, user one having a higher priority than user two, wouldn't you agree that user two is subordinate to user one?

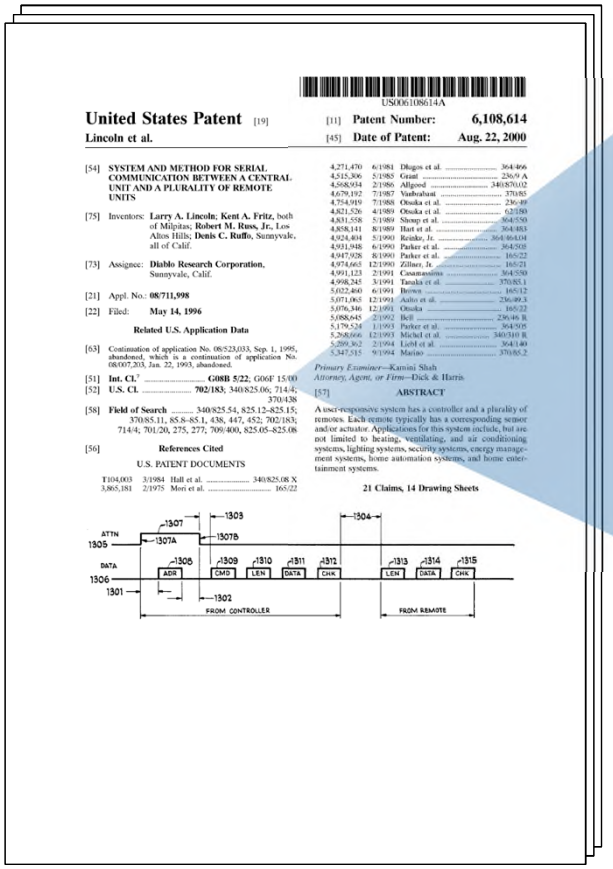
A. In the hypothetical.

655 Paper 27[Petitioner Reply] at 20-21.

655 EX1041[Zatkovich Dep. I] at 69:9-19.

Lincoln

Lincoln discloses:



US006108614A

United States Patent [19]
Lincoln et al.

[11] **Patent Number: 6,108,614**
[45] **Date of Patent: Aug. 22, 2000**

[54] **SYSTEM AND METHOD FOR SERIAL COMMUNICATION BETWEEN A CENTRAL UNIT AND A PLURALITY OF REMOTE UNITS**

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[73] Assignee: **Diablo Research Corporation**, Sunnyvale, Calif.

[21] Appl. No.: **08/711,998**

[22] Filed: **May 14, 1996**

Related U.S. Application Data

[63] Continuation of application No. 08/523,033, Sep. 1, 1995, abandoned, which is a continuation of application No. 08/107,203, Jan. 22, 1993, abandoned.

[51] **Int. Cl.**[7] **G08B 5/22**; G06F 15/00

[52] **U.S. Cl.** **702/183**; 340/825.06; 714/4; 370/438

[58] **Field of Search** 340/825.54, 825.12-825.15; 370/85.11, 85.8-85.1, 438, 447, 452; 702/183; 714/4; 701/20, 275, 277; 709/400, 825.05-825.08

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Primary Examiner—Kamini Shah
Attorney, Agent, or Firm—Dick & Harris

[57] **ABSTRACT**

A user-responsive system has a controller and a plurality of remotes. Each remote typically has a corresponding sensor and/or actuator. Applications for this system include, but are not limited to heating, ventilating, and air conditioning systems, lighting systems, security systems, energy management systems, home automation systems, and home entertainment systems.

21 Claims, 14 Drawing Sheets

off depending on whether someone is present. In further accordance with the present invention, the controller identifies particular individuals using an IR, RF, or light source to communicate with a sensor in the room and conforms activation of the home appliance based on the information stored in the controller regarding previous time periods (for example, individual x listens to new wave music in the morning, but listens to classical in the evening). Conflicts between individuals are settled based upon a priority listing programmed in the system.

655 Paper 1[Petition] at 50.

655 EX1022[Lincoln] at 22:3-10.

Lincoln

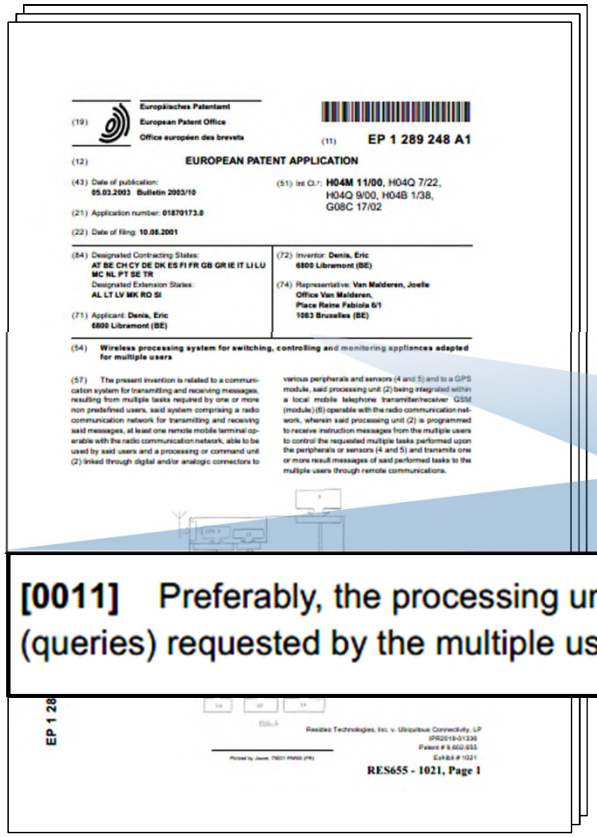
Mr. Zatkovich testified:

> Q. What does that -- what does that mean, "selectively"?
>
> A. It's going to treat the subordinate command differently than a non-subordinate command.

655 Paper 27[Petitioner Reply] at 20.

655 EX1041[Zatkovich Dep. I] at 60:9-13.

Denis



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(54) Wireless processing system for switching, controlling and monitoring appliances adapted for multiple users

(57) The present invention is related to a communication system for transmitting and receiving messages, resulting from multiple tasks required by one or more non predefined users, said system comprising a radio communication network for transmitting and receiving said messages, at least one remote mobile terminal operable with the radio communication network, able to be used by said users and a processing or command unit (2) linked through digital and/or analogic connectors to various peripherals and sensors (4 and 5) and to a GPS module, said processing unit (2) being integrated within a local mobile telephone transmitter/receiver GSM (module) (6) operable with the radio communication network, wherein said processing unit (2) is programmed to receive instruction messages from the multiple users to control the requested multiple tasks performed upon the peripherals or sensors (4 and 5) and transmits one or more result messages of said performed tasks to the multiple users through remote communications.

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Patent # 9,602,655
Exhibit # 1021

RES655 - 1021, Page 1

[0011] Preferably, the processing unit is programmed to receive and treat chronologically the instruction messages (queries) requested by the multiple users.

655 Paper 1[Petition] at 48.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing PETITIONERS' DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT was served electronically on October 22, 2020 on counsel of record for Patent Owner as follows:

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Date

By /S. Benjamin Pleune/
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