

REQUEST FOR INTER PARTES REVIEW
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

David Sandelman, Daniel Shprecher

Inter Partes Review No.
Unassigned

U.S. Patent No. 6,147,601

Issued: November 14, 2000

Filing Date: May 24, 1999

Application No. 09/317,235

For: ELECTRONIC MESSAGE DELIVERY SYSTEM UTILIZABLE IN THE
MONITORING OF REMOTE EQUIPMENT AND METHOD OF SAME

**REQUEST FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 6,147,601 UNDER 35 U.S.C. §§ 311-319, 37 C.F.R. § 42**

Mail Patent Board
US Patent and Trademark Office
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Pursuant to 35 U.S.C. §§ 311-319 and 37 C.F.R. § 42, Petitioner Alarm.com Inc. (“Petitioner”) respectfully requests *Inter Partes* Review of claims 1-3, 22-24, 26, 30, 32, and 42-43 of U.S. Patent 6,147,601 (Ex. 1201, “the ’601 Patent”), which was filed on May 24, 1999 and issued on November 14, 2000 and is currently assigned to Vivint, Inc. (“Vivint”) according to the US Patent and Trademark Office assignment records. There is a reasonable likelihood that Petitioner will prevail with respect to at least one of the claims challenged in this Petition.

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EXHIBITS

Exhibit	Description
1201	U.S. Patent No. 6,147,601 (“’601 Patent”)
1202	File History of U.S. Patent No. 6,147,601
1203	U.S. Patent No. 6,067,477 (“Wewalaarachchi”)
1204	<i>Honeywell Engineering Manual of Automatic Control For Commercial Buildings</i>
1205	<i>BACnet: A Data Communication Protocol for Building Automation and Control Networks</i> (ANSI/ASHRAE Standard 135-1995)
1206	U.S. Patent No. 6,034,970 (“Levac”)
1207	Declaration of Arthur Zatarain, PE
1208	Power of Attorney
1209	<i>Scadaware System Design Concepts</i>
1210	U.S. Patent No. 5,808,907 (“Shetty”)
1211	U.S. Patent No. 6,040,770 (“Britton”)
1212	U.S. Patent No. 5,061,916 (“French”)
1213	Provisional Patent Application 60/140793

I. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(A)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

The Petitioner is Alarm.com Incorporated. In addition, related company Alarm.com Holdings, Inc. is a real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

Pursuant to 37 C.F.R. § 42.8(b)(2), the Petitioner states that the '601 Patent is the subject of the following patent infringement lawsuit by the assignee, Vivint, which may affect, or be affected by, a decision in this proceeding: *Vivint, Inc. v. Alarm.com Inc.*, 2:15-cv-00392-CW-BCW (D. Utah), filed June 2, 2015. The Petitioner is not aware of any pending prosecution of the '601 Patent.

In addition, the Petitioner has already requested IPR of the '601 Patent (case no. IPR2015-02004) and is concurrently requesting IPR of additional claims of the '601 Patent that are not addressed herein. Petitioner has also requested IPR of (i) U.S. Patent Nos. 6,462,654, 6,535,123, and 6,717,513, each of which issued from a chain of applications that were continuations or continuations-in-part of the application for the '601 Patent and (ii) U.S. Patent Nos. 6,924,727 and 7,884,713, which are not related to the '601 Patent. Each of these patents has been assigned to Vivint and has been asserted against the Petitioner in the Utah litigation.

C. Lead and Back-Up Counsel

Lead counsel for the Petitioner is William H. Mandir, Registration No.

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32,156 of Sughrue Mion, PLLC. Back-up counsel for the Petitioner are Roger G. Brooks and Teena-Ann V. Sankoorikal of Cravath, Swaine & Moore LLP, and Brian K. Shelton, Registration No. 50,245, of Sughrue Mion. Motions for Mr. Brooks and Ms. Sankoorikal to appear pro hac vice are filed concurrently. Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this Petition.

D. Service Information

Service information for lead and back-up counsel is provided above in the signature block below. The Petitioner consents to electronic service.

II. PAYMENT OF FEES – 37 C.F.R. § 42.013

Petitioner authorizes the Patent and Trademark Office to i) charge Deposit Account 19-4880 for the fees set forth in 37 C.F.R. § 42.15(a) for this Petition for IPR, and ii) to charge this Deposit Account for any additional fees.

III. REQUIREMENTS FOR IPR UNDER 37 C.F.R. §§ 42.104

A. Grounds for Standing Under 37 C.F.R. § 42.104(a)

The Petitioner certifies that the '601 Patent (Ex. 1201) is available for IPR and that the Petitioner is not barred or estopped from requesting IPR.

B. Prior Art Patents

The claims of the '601 Patent have an effective filing date no earlier than January 9, 1999, the filing date of U.S. Provisional Application No. 60/115,305

(“the ’305 provisional application”), of which applicants claimed the benefit.¹

Petitioners rely upon the following patents and publications, none of which was considered during the prosecution of the ’601 Patent, and all of which are prior art for all claims of the ’601 Patent:

Art available as prior art under 35 U.S.C. §§ 102(a) and 102(b):

Ex. 1205 - American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., *BACnet®: A Data Communication Protocol for Building Automation and Control Networks* (ANSI/ASHRAE Standard 135-1995) (“BACnet”), which was approved in, and has a copyright date of, 1995.

Ex. 1204 – *Honeywell Engineering Manual of Automatic Control For Commercial Buildings* (“Honeywell”), which has a copyright date of 1997 and bears Library of Congress Catalog Card Number 97-72971.

Art available as prior art under 35 U.S.C. § 102(e):

Ex. 1206 – U.S. Patent No. 6,034,970 (“Levac”), the application for which was filed on July 2, 1997, and which issued on March 7, 2000.

Ex. 1203 – U.S. Patent No. 6,067,477 (“Wewalaarachchi”), the application

¹ Petitioners reserve the right to assert in the litigation that some or all of the claims of the ’601 Patent are not adequately disclosed or supported in the ’305 provisional application, and that such claims have a later priority date.

for which was filed on January 15, 1998, and which issued on May 23, 2000.

C. Identification of Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Petitioners request IPR of claims 1-3, 22-24, 26, 30, 32, and 42-43 of the '601 Patent on the grounds set forth in the table below and request that each of the claims be found unpatentable. Detailed claim charts show where each element is found in the prior art. Additional explanation and support for each ground of rejection is set forth in the Declaration of Arthur Zatarain (Ex. 1207).

Ground	'601 Patent Claims	Basis for Rejection:
1	1-3, 22-24, 26, 30, 32, and 42-43	Obvious under Wewalaarachchi, Honeywell, and BACnet.
2	1-3, 22-24, 26, 30, 32, and 42-43	Obvious under Wewalaarachchi, Honeywell, and BACnet in view of Levac.

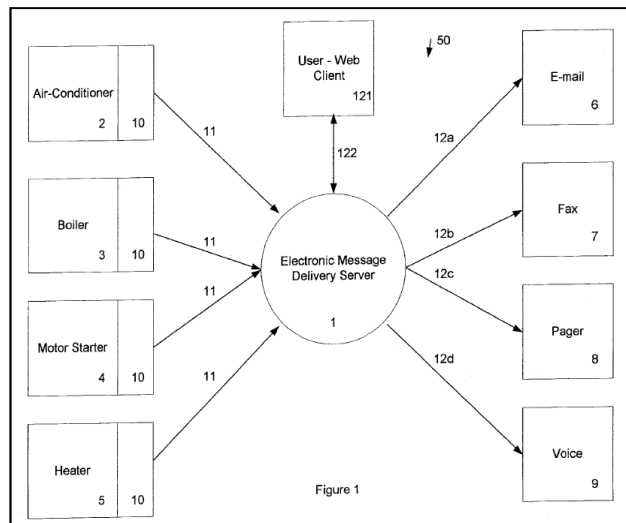
IV. SUMMARY OF THE '601 PATENT

A. Brief Description of the '601 Patent

The '601 Patent is directed to systems and methods for “monitoring remote equipment” such as HVAC equipment. *See* Ex. 1201 at FIG. 1, 5:37-42, Abstract. The information concerning the monitored equipment is communicated to a remote computer. If an abnormality is detected in the remote equipment, the server sends notifications to specified remote communication devices. The user specifies which

devices receive equipment-related notifications by remotely configuring a profile on the server via a user interface.

The '601 Patent provides examples of remote HVAC equipment, the status of which may be (a) monitored by a sensor and (b) communicated to a “central computer server” (the “electronic message



delivery server”) via an interface unit (denoted “10” in Figure 1). *See id.* at 2:55-65, 5:43-47, 8:21-32, 10:43-54, and FIG. 1. When an abnormality (called an “exception condition,” *id.* at 3:46-52) is detected in the monitored equipment, the interface unit sends an incoming message to the server. *Id.* at 2:60-65, 5:47-51. The interface unit may also send a “status signal,” which indicates that the monitored equipment is functioning properly. *See id.* at 5:44-47.

Upon receipt of an exception message, the server sends “an outgoing exception message” to at least one user-specified device. *See id.* at FIG. 1, 5:51-55, 2:60-3:10, 6:7-25. The user device(s) that receive exception messages are specified in a “message profile” (*see id.* at 3:3-17, 4:41-47, 5:51-55), which is stored on the server and may be remotely configured by the user via a user interface (*see id.* at 2:37-44, 3:17-20).

B. Summary of the Prosecution History of the '601 Patent

The '601 Patent issued from U.S. Pat. App. No. 09/317,235 (the "'235 Application"), which also claimed the benefit of the '305 Application. Ex. 1202.0003. In an office action dated January 20, 2000, the Examiner rejected all pending claims under 35 U.S.C. § 103 on the basis of U.S. Patent No. 5,400,246 ("Wilson"). Ex. 1202.0065-66. In response, applicants submitted proposed claim amendments, arguing three purportedly distinguishing features: (1) the ability to remotely configure the message profile via a user interface; (2) the ability to monitor "remote," as opposed to "local," equipment; and (3) the ability to accommodate multiple users via multiple user profiles. Ex. 1202.0074-89. The Examiner agreed that "the routing of outgoing message profiles pertaining to the operating status of monitored devices, the message profiles being user definable" would be sufficient to overcome the prior art of record. *See* Ex. 1202.0072. Applicants then amended the pending claims, and the Examiner allowed the application without further comment. *See also* Ex. 1207 at § V(B).

V. CLAIM CONSTRUCTION

A claim subject to *Inter Partes* Review is given its "broadest reasonable construction in light of the specification of the patent in which it appears." 37 C.F.R. § 42.100(b). The words of the claim are given their plain meaning from the perspective of one of ordinary skill in the art unless that meaning is

inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989).

Petitioner submits that a person of ordinary skill in the art of the '601 Patent would have had, as of January 1999, at least a bachelor's degree in computer science, electrical engineering, computer engineering, or equivalent coursework, and at least two years of experience in remote monitoring and control systems.

Petitioner submits that the following terms may need to be construed:²

A. “[M]essage profile containing outgoing message routing instructions” (claims 1 and 22)

The broadest reasonable construction of this term is “information identifying a communications device or devices to receive an outgoing message from the computer server.” The claimed message profile and routing instructions are used to determine at least one “user-defined communications device” to receive an outgoing “exception message” from the computer server.

Although certain portions of the specification appear to require that the message profile also include information about *when* and *how* to send messages (and not simply to which devices such messages are sent), this narrower interpretation would be inconsistent with the claim language. The specification describes a “message profile” as “a list of who to contact via what means

² Petitioner reserves the right to raise different constructions in the district court proceeding between Alarm.com and Vivint.

depending on which fault has occurred” (Ex. 1201 at 2:14-16), and “which exception conditions are reported to which individuals . . . [and] by which media (fax, e-mail, PCS) these individuals are to be notified.” Ex. 1201 at 4:41-43.

However, as used in the claims, a “message profile” does not necessarily include all of an exception type, media type, and specific device. Dependent claims 7 and 8 cover a user specifying device type and specific device in the message profile, which would be redundant if “message profile” already required those categories.

Claims 1 and 22 do not merely claim a “message profile,” however, but a “message profile containing outgoing message routing instructions.” The claim language and specification indicate that the “routing instructions” must identify the communication device or devices that will receive an outgoing message. *See also* Ex. 1207 at § VI(A).

B. “[M]essage generating mechanism” (claim 22)

Petitioner contends that the term “message generating mechanism” should be treated as a means-plus-function claim term under 35 U.S.C. § 112, ¶ 6 because it is a purely functional recitation and does not recite any definite structure for performing the function of “generating messages.” *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348, 1349 (Fed. Cir. 2015) (en banc). The term “message generating mechanism” is not understood by one of ordinary skill in the art as referring to any particular structure. *See also* Ex. 1207 at ¶ 65.

Construing a means-plus-function limitation is a two-step process: first, identifying the claimed function, and second, ascertaining the corresponding structure. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1331 (Fed. Cir. 2003). Here the claimed function is “generating messages.”

Petitioner contends that the specification does not disclose a sufficient structure for performing the function of “generating messages.” The claims make clear that the message generation is performed by the interface unit. The message sent from the interface unit to the server is “a multi-digit code” in which individual digits may represent: the “message format” (*e.g.*, status or exception message); the identity of the equipment to which the message relates; and, if one exists, the specific exception condition. *See* Ex. 1201 at 5:23-35; *see also* 5:39-51; 6:54-65; 8:22-26. But the specification does not disclose any processor at the interface unit capable of generating this multi-digit code; nor does it describe any program or algorithm that such a processor (or its equivalent) would use to generate the multi-digit code. Thus, the claim is indefinite. *See Williamson*, 792 F.3d at 1351.

However, if the Board concludes that the claim is not indefinite, then the only possible corresponding “structure” in the specification is “a processor of the interface unit executing an algorithm that generates a message including an indication of message format, an indication of the equipment to which the message relates, and an indication of the specific exception condition if an exception

condition exists,” as disclosed in lines 5:23-35 (Ex. 1201). Ex. 1207 at § VI(B).

C. “normalization module” (Claims 24, 32)

Petitioner contends that the term “normalization module” should be treated as a means-plus-function claim term under 35 U.S.C. § 112, ¶ 6 because it is a purely functional recitation and does not recite any definite structure for performing the function of “normalizing incoming messages into a uniform format.” *See Williamson*, 792 F.3d at 1348-49. The term “normalization module” is not understood by one of ordinary skill in the art to refer to any particular structure. Ex. 1207 at ¶ 69. Furthermore, “module” is a word that does not convey any actual structure. Thus, 35 U.S.C. § 112, ¶ 6 applies. *Williamson* at 1350.

Here, the claimed function is “normalizing incoming exception messages into a uniform format.” The specification confirms that “incoming messages are normalized at the normalization module 26 so that all incoming messages can then be processed without regard to their incoming medium.” Ex. 1201 at 7:16-19.

Petitioner contends that the specification does not disclose a sufficient structure corresponding to the “normalization module.” Claims 24 and 32 indicate that the “normalization module” is part of the “computer server.” Likewise, in the specification the normalization module is part of the “message delivery server,” which “[i]n the preferred embodiment ... includes four hardware devices 200, 300, 400, and 500.” *Id.* at 6:43-45. In Figure 4, the normalization module is simply a

label in “Device 200,” which is described as “responsible for receiving incoming messages, processing them in accordance with the user’s preferences, and routing them for output.” *Id.* at 6:45-48; *see also* FIG. 4, FIG. 5 (step S2). The specification teaches that “at step S2, normalization module 26 removes the required elements from the incoming message and arranges them in a normalized format and stores them as a record in a table.” *Id.* at 7:64-67.

Although these disclosures make clear that the normalization module is implemented on a processor within the server, the specification does not disclose any program, algorithm, or code that a processor would use to normalize messages. Consequentially, the claim is indefinite. *See Williamson*, 792 F.3d at 1351.

However, if the Board concludes that the claim is not indefinite, then the only possible corresponding structure in the Patent is “a processor of a computer server executing an algorithm that takes data from incoming messages, reformats that data, and stores the data in a standardized format on the computer server.” *See* Ex. 1201 at 5:33-36, 7:16-18 and 7:64-67; Ex. 1207 at § VI(C).

VI. THERE IS A REASONABLE LIKELIHOOD THAT AT LEAST ONE CLAIM OF THE '601 PATENT IS UNPATENTABLE

A. Ground 1: Claims 1-3, 22-24, 26, 30, 32, and 42-43 are rendered obvious by Wewalaarachchi [filed January, 1998], Honeywell [published 1997], and BACnet [published 1995].

1. Overview of Wewalaarachchi, Honeywell, and BACnet

As discussed in greater detail below, Wewalaarachchi disclosed an object-

oriented software approach to “computer implemented supervisory control and data acquisition systems (SCADA).” Ex. 1203 at 1:12-13. Status data is received from “an external device network 216 which provides communication with various distributed field devices.” *Id.* at 7:17-20. This network of devices can include a variety of sensors or building equipment (*see id.* at 4:22-26, 8:53-62, 16:46-63, 17:31-35, 20:2-5), and the data from the network is sent to a “central host computer,” where it is made available to applications such as alarm and notification applications. *See also id.* at 3:26-5:26; 18:19-19:63. Wewalaarachchi expressly disclosed a “user interface” through which a user can (1) specify alarm notification conditions based on equipment status data; (2) select an alarm message to be sent when the condition is satisfied; and (3) define particular types (*e.g.*, phones, pagers) and numbers of user devices to receive notifications. *See id.* at 19:34-63; FIGS. 15a, 15b, 15c; *see also* Ex. 1207 at ¶¶ 75-78.

As noted above, the system of Wewalaarachchi could be used with a wide variety of monitored devices, including building equipment, and was intended to be used with prior art systems. One such system is the system taught by Honeywell—it is a natural choice because Honeywell was (and still is) one of the leading manufacturers of building management systems. *See* Ex. 1207 at ¶¶ 75-78. When referencing building management systems (BMS) and building equipment (*e.g.*, Ex. 1203 at 4:22-26, 19:65-20:5, FIGS. 12, 16) that could be used in

conjunction with their invention, the inventors of Wewalaarachchi intended for one of skill in the art to read the specification in light of known BMS and SCADA systems. Honeywell summarized conventional prior art BMS systems, and one of skill in the art would understand Honeywell's sensors and controllers to comprise an "external device network" as that term is used by Wewalaarachchi.

See Ex. 1207 at ¶¶ 75-78.

Honeywell describes a state-of-the-art BMS with a systems architecture similar to that of Wewalaarachchi. See Ex.

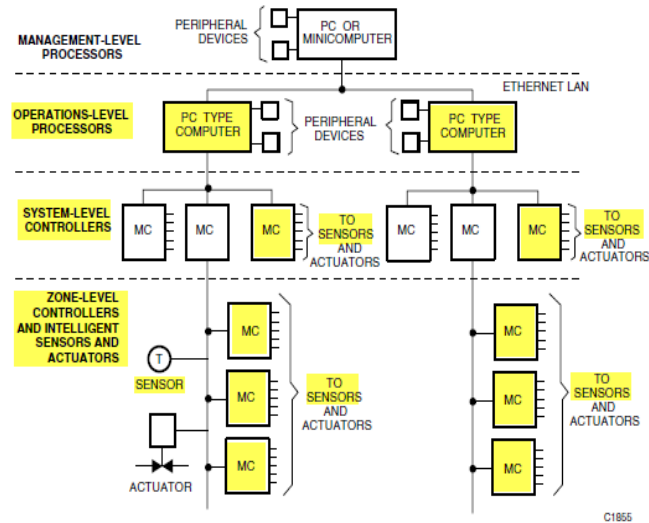


Fig. 1. Hierarchical BMS Configuration.

1204.0197, FIG 1. In Honeywell, HVAC equipment is monitored by sensors that communicate with digital "controllers." E.g., Ex. 1204.0019-24, 40-43, 145-47. These correspond to the "external device network" and "field devices" of Wewalaarachchi. The controllers, in turn, send data and alarms to a remote operations-level processor, corresponding to the central host computer of Wewalaarachchi. E.g., Ex. 1204.0152, 197-201; see also Ex. 1207 at ¶¶ 75-82. Because Wewalaarachchi was meant to be read in light of prior art BMS and SCADA systems, because Honeywell disclosed conventional such systems, and because both references disclosed similar systems architectures, it would have been

obvious for one of skill in the art to incorporate Honeywell's teachings of equipment/sensor controllers and communications of messages concerning equipment status in the system of Wewalaarachchi. *See* Ex. 1207 at ¶¶ 75-82.

It would have been obvious to use the BACnet protocol in the combined Wewalaarachchi/Honeywell system because both Wewalaarachchi and Honeywell expressly teach the use of BACnet as one of various communication protocols for communicating data concerning monitored equipment. *See* Ex. 1203 at 8:16-21; Ex. 1204.0207-08. BACnet was specifically developed for use with building automation systems. *E.g.*, Ex. 1205.0015. Therefore, it would have been obvious to use BACnet as the communication protocol in a system that implements the teachings of Wewalaarachchi and Honeywell. Doing so provides specific implementation details to one of skill in the art concerning the monitoring and control of remote equipment, including the disclosure of equipment/sensor ID, and specific data fields for indicating equipment status. Moreover, as described further below, BACnet was an object oriented-protocol, and as such, it would have been trivial for one of skill in the art to incorporate its teachings into the combined system of Wewalaarachchi and Honeywell. *See* Ex. 1207 at ¶¶ 83-84.

As described above, the inventors of Wewalaarachchi intended one of skill in the art to read their specification in light of the known art. The Honeywell system is exemplary of the "building management systems" referred to by

Wewalaarachchi, and both Wewalaarachchi and Honeywell expressly teach the use of BACnet as a useful communications protocol for use in a building management system. Wewalaarachchi simply added an object-oriented software approach and user interfaces to well-known BMSs (Honeywell) and protocols (BACnet) so as to extend their functionality. As such, it would be natural for a person of skill in the art to read the three references together. *See* Ex. 1207 at ¶¶ 83-84. In the analysis that follows, the system containing the teachings of Wewalaarachchi, Honeywell, and BACnet will be referred to herein as the “Object-Oriented BMS.”

2. The Object-Oriented BMS contains “remote equipment” with a “state” and “parameter” and contains a “sensor”

All claims of the '601 Patent require determining or detecting the “state” of a “parameter” of remote “equipment”; in claims 22 and 43, for example, the determination is made by a “sensor” in local communication with the equipment. These limitations are disclosed in each of the references comprising the Object-Oriented BMS. For example, Honeywell disclosed HVAC equipment and various types and purposes of sensors typically used in a BMS (see Ex. 1204.0019-24, 40-43), including sensors that verify whether a given piece of equipment is functioning: “[p]roof-of-operation sensors are often required... to monitor fan and pump operation status when a central monitoring and management system is provided” (Ex. 1204.0043). Honeywell specifically notes that “sensors... interface

directly with the controlled equipment.” Ex. 1204.0197.

Likewise, Wewalaarachchi disclosed a central computer that “communicates with an external device network 216 which provides communication with various distributed field devices 218...” (Ex. 1203 at 7:17-23; *see also id.* at 7:6-11, FIG. 2). The field devices can include HVAC equipment (*see id.* at 4:22-26, 8:53-62, 16:46-63, 20:2-5), and data can be measured by sensors (*see id.* at 3:63-4:2). One of skill in the art would understand this discussion of an “external device network” to refer to preexisting control networks and building management systems, such as the building management system taught by Honeywell. The data measurements in Wewalaarachchi are generally expressed in data packets that include a device ID, a device parameter name, and the real-time data for the device parameter, indicating that the state of the equipment parameter is determined. *See id.* at 8:22-28.

When the BACnet communications protocol is used, these data packets communicate information concerning “objects” (*see* Ex. 1205.0014), which are the data structures BACnet uses to represent physical devices in a building and their respective attributes (*see* Ex. 1205.0014, 0149; Ex. 1207 at ¶¶ 88-89.). For example, a sensor can be represented by an “Analog Input Object” (Ex. 1205.0153 (§ 12.1.6)), while a piece of “mechanical equipment” can be represented by a “Binary Input Object.” Ex. 1205.0167 (§12.1.4). Objects representing sensors or equipment have various “properties,” including an identifier for the device (*e.g.*,

Ex. 1205.0152 (§12.1.1); Ex. 1205.0168 (§12.4.1)), a present value of the input being measured (*e.g.*, Ex. 1205.0153 (§ 12.1.4); Ex. 1205.0168 (§12.4.4)), and an indication of whether or not the device is “in alarm” (*e.g.*, Ex. 1205.0153 (§12.1.7)). *See also* Ex. 1207 at § VII(A)(2)(a).

3. The Object-Oriented BMS disclosed an “interface unit” that is connected to a “sensor” and that has a “message generating mechanism” that generates “exception messages” sent to a remote “computer server”

Claims 1 and 42 require communicating a message concerning the state of the remote equipment, such as an exception message, to a computer server. Similarly, Claims 22 and 43 require an “interface unit” that is coupled to or locally connected to a sensor and that has a “message generating mechanism” for generating messages. As described above, the function of the “message generating mechanism” is “generating messages” concerning the equipment. Those messages include messages indicative of the state of an equipment parameter, as well as exception messages sent to the remote server when a sensor detects an equipment exception condition. The interface unit, the “message generating mechanism,” and the communication of messages to a remote computer server are each disclosed by the references making up the Object-Oriented BMS.

The “controller” disclosed in Honeywell corresponds to the claimed “interface unit,” and the sensors and controller of Honeywell corresponds to the

“network of field devices” of Wewalaarachchi. As shown in Figure 3 of

Honeywell, a controller includes a microprocessor that receives data from inputs that include locally connected sensors.

See Ex. 1204.0145; see also Ex.

1204.0043, 0143. The

microprocessor runs “alarm and monitoring software” (Ex.

1204.0147), which “[s]cans all analog

and digital points and tests for alarm status” (Ex. 1204.0152). Similarly, a

“controller must know [a digital input’s] normal state (open or closed), whether the given state is an alarm state or merely a status condition.” Ex. 1204.0153. As in

the ’601 Patent, the controller is coupled to or locally connected to sensors and recognizes when the sensor detects an exception condition in the monitored

equipment. See Ex. 1207 at § VII(A)(2)(b).

In addition to

communicating with

sensors, the controller in

Honeywell has a

communications port, which “allows dynamic data, setpoints, and parameters to be passed [to]... a central building management system” (Ex. 1204.0147; see also Ex.

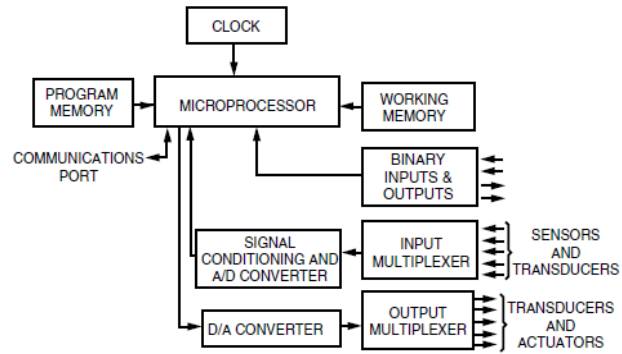


Fig. 3. Microprocessor Controller Configuration for Automatic Control Applications.

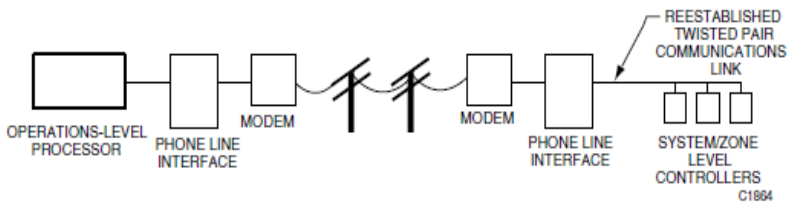


Fig. 4. Dialup to Remote Controllers.

1204.0145), such that “sensors and data files can be shared with building management system (BMS) functions.” Ex. 1204.0152. Thus, as shown in Figures 1 and 4 (*see* Ex. 1204.0197, 1204.0199), sensor data received by controllers may be sent to an “operations-level processor,” which is a “PC or other device.” Ex. 1204.0196. This PC corresponds to the “central host computer” of Wewalaarachchi and the claimed remote “computer server.” *See* Ex. 1207 at ¶¶ 96-97. The operations-level processor may be remote from the controllers, and as shown in Figure 4 of Honeywell, the controller may communicate with the processor via telephone lines.³ Using BMS software (*see* Ex. 1204.0152), a controller could communicate several types of data to the central operations-level processor using such protocols as BACnet.

First, the controller of Honeywell could forward alarms (*e.g.*, Ex. 1204.0201), including via a telephone link: “[c]ritical alarms can be programmed at the remote to dial the central system immediately” (Ex. 1204.0200). Second, the

³ Both Wewalaarachchi and BACnet disclosed sending equipment data via telephone links. Ex. 1203 at 8:16-17, 8:19-20; Ex. 1204.0023-25 (§ 4.1). Thus, each of Wewalaarachchi, Honeywell, and BACnet disclosed *remote* monitoring of equipment, which is one of the three alleged points of novelty on which the ’601 patent applicants relied (*see* Section IV.B).

controller could communicate “trend data,” which are data for particular points in the system (i.e., sensors) that are reported by a controller to the operations-level processor either periodically or upon data point changes. Ex. 1204.0201.

Wewalaarachchi and BACnet provide similar teachings with respect to sensors, messages concerning monitored equipment, and related messages. Wewalaarachchi, for instance, notes that in a “typical device protocol” such transmissions of sensor and equipment-related data generally take the form of “data packets [that] include a device ID, a parameter name, a type (application level and protocol specific), a data length, and the real time data.” Ex. 1203 at 8:26-28. BACnet taught objects, such as an analogue input object, with various properties including an “object identifier,” “object type,” “present value,” and “status flags” (“IN-ALARM” flag is ‘Logical FALSE(0) if the Event_State property (see 12.1.8) has a value of NORMAL, otherwise logical TRUE (1).’”) *See* 1205.0152-53 (§§ 12.1.1, 12.1.3, 12.1.7).

Because the controller in an Object-Oriented BMS is a microprocessor based component that generates messages to the central computer by executing an algorithm, including messages indicative of the state of equipment parameters, it performs the identical functions of the claimed “message generating mechanism” using an identical or equivalent structure: a processor executing the algorithm described above in section IV(B). Because the operations-level processor receives

data from multiple controllers, a person of ordinary skill in the art would understand a controller's software to perform communications functions by generating protocol-specific messages (such as BACnet messages) with fields that, for example, identify the relevant sensor or equipment, and report trend data or an alarm. *See* Section VI.A.2; Ex. 1207 at ¶¶ 114-16. If not identical, one of skill in the art would understand the structure to be equivalent because it performs the same function (generating equipment status messages) in the same way (indicating message format/equipment ID) to achieve the same result (assembling a message packet) and because there are no substantial differences between the CPU/algorithm disclosed by the Object-Oriented BMS, and the CPU/algorithm disclosed by the '601 Patent (to the extent that algorithm is sufficiently definite). *See, e.g., Chiuminatta Concrete Concepts v. Cardinal Indus.*, 145 F.3d 1303, 1309-10 (Fed. Cir. 1998); Ex. 1207 at ¶¶ 114-16.

4. The Object-Oriented BMS has a remote "computer server" that is adapted to receive incoming exception messages from the "interface unit" and that sends outgoing exception messages to "remote communications devices"

Claim 1 requires determining whether an incoming message to a computer server is an exception message and, if so, forwarding an associated outgoing exception message to one or more "remote communication devices." Similarly, claims 42 and 43 require determining from the incoming message whether an

outgoing exception message is to be sent to the remote communications device and, if so, sending the message. In addition, Claim 22 requires that the server be remote and be adapted to receive messages from the interface unit; the claim further requires that based on an incoming exception message, the server forwards an outgoing exception message to one or more “remote communication devices.”

The Object-Oriented BMS taught these features. As discussed previously (*see* Section VI.A.1), in the conventional BMS of Honeywell, the operations-level processor may be remote from the controller and may receive communications that include alarm or trend data, such as via BACnet communications. Honeywell further disclosed that the processor contains communications software for those purposes. *See* Ex. 1204.0201. Wewalaarachchi provides more specificity in the form of a “virtual application service [which] communicates with an external device network.... [and] typically execute[s] on a central host computer....” Ex. 1203 at 7:18-23. The “communications gateway” of that application service is responsible for receiving “real time data from the field devices” (*id.* at 3:36-40), in the form of the data packets referenced above (*id.* at 8:1-7, 8:22-28). The communication gateway operates with services such as MAPI (email) and TAPI (telephone), which confirms that monitored devices can be remote from the central host computer (*id.* at 8:17-21; *see also id.* at 11:60-62). Thus, the central computer in both Honeywell and Wewalaarachchi receives incoming exception messages.

BACnet taught a communications protocol that can be used in conjunction with either Honeywell or Wewalaarachchi. *See* Ex. 1207 at § VII(A)(2)(c); ¶ 117.

After they are received from the central controller (Honeywell) or device network (Wewalaarachchi), Honeywell and Wewalaarachchi teach the forwarding of exception messages to other devices. Honeywell disclosed that alarms can be forwarded to other devices, such as other computers or printers. *See* Ex.

1204.0201 (“Alarm Processing”). Wewalaarachchi extends this forwarding capability by teaching that the central computer can forward alarm notifications to user-specified remote devices. *See* Ex. 1203 at 18:20-31, 19:34-64. In this regard, the real-time device data received by the communications gateway of Wewalaarachchi’s central host computer is further processed in “application cells” (Ex. 1203 at 3:57-4:8, 8:47-9:12), then stored as a “data object” in an “object server” (*id.* at 4:9-21, 9:30-40). The application cells (of the central host computer, *id.* at 7:13-15, 7:22-23) can then use real-time monitored device data from the object server to perform actions based on user-specified conditions (*id.* at 19:16-33), including user notifications. In FIGS. 15a-c, Wewalaarachchi expressly disclosed “user interfaces of application cells for defining event driven automation for notification of a user of an alarm condition.” *Id.* at 19:34-36. Using this interface, the user is able to specify the data source and ranges that trigger alarm notification, specify the message or sound file comprising the alarm notification,

and specify the communications devices that receive the alarm, including selecting between a pager or a telephone. *Id.* at 19:34-60, FIGS. 15a-c. As a result, “the system can automatically notify any number of users directly by telephone or pager when an alarm condition is detected by a personalized SCADA [supervisory control and data acquisition] application.” *Id.* at 19:60-63;⁴ *See* Ex. 1207 at § VII(A)(2)(c) and (d); ¶ 117.

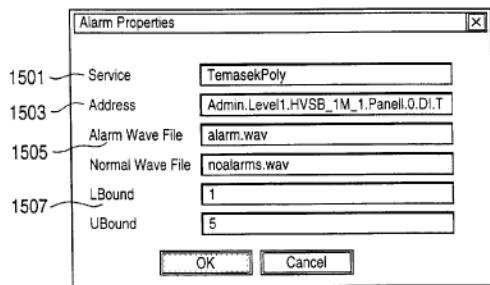


FIG. 15a

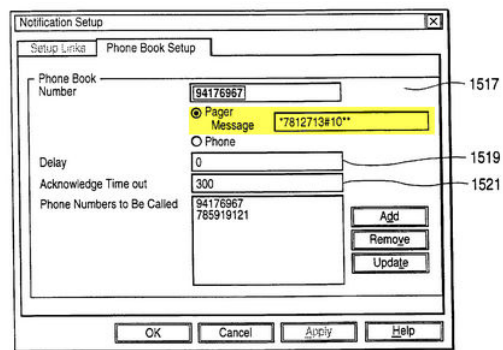


FIG. 15c

5. It would have been obvious to use a “message profile” and to permit the user to remotely configure that data structure

In all of the independent claims (1, 22, 42, and 43), the remote communication device that receives a given exception message from the server is specified in a “message profile” stored at the computer server. In each

⁴ Wewalaarachchi discloses an alternative embodiment in which “presentation cells,” can perform notifications that include “email” or “telephone” based on user-specified conditions involving monitored device data. Ex. 1203 at 18:19-40.

independent claim, the message profiles are remotely configured, created and/or modified by the user; in claims 22 and 43, remote configuration occurs via a “user interface.” Also, claims 42 and 43 require a plurality of message profiles. These limitations are rendered obvious by Wewalaarachchi in light of the knowledge of one of ordinary skill in the art.

As discussed above (*see* Section VI(A)(1)) and shown in Figures 15a, 15b, and 15c, Wewalaarachchi expressly disclosed a “user interface” by which users can specify which remote communication devices receive notifications based on particular user-specified exception conditions. The user interface is to “application cells for defining event driven automation for notification of a user of an alarm condition.” Ex. 1203 at 19:34-36. Wewalaarachchi describes an “application cell [as] a cell which communicates data between the communications gateway and the object server” to either update the values in the object server or to send commands/values to the communications gateway and field devices. *See id.* at 3:57-63. In the language of the ’601 Patent, application cells are data structures⁵ that receive data from the interface unit and process that data before passing it to the object server;

⁵ As described above, and as shown by FIG. 2, application cells are part of the “Virtual Application Service,” which Wewalaarachchi teaches “typically execute on a central host computer.” Ex. 1203 at 7:22-23.

as described below, certain types of application cells could also process data coming into or being passed out of the object server to provide alarm notification to user devices as specified in a message profile. *See also* Ex. 1207 at ¶ 97.

The interface in FIG. 15a allowed the user to define “the object server [and] the data object which provides the input data to be monitored” (Ex. 1203 at 19:36-39), in other words, the particular sensors or devices (*see id.* at 9:41-56) to be monitored for alarms. The interface also allowed the user to specify the criteria for an alarm notification. *Id.* at 19:39-40. In the interface of FIG. 15b, the user could specify the communications “service” to be used for notification, such as TAPI (telephony), and the sound file that communicated the alarm notification. *See id.* at 19:41-52. In the interface of FIG. 15c, the user could “define[] telephone numbers of various persons to dial when the alarm condition is met” (*id.* at 19:53-54). As a result of the user choices entered via these interfaces, “the system can automatically notify any number of users directly by telephone or pager when an alarm condition is detected” (*id.* at 19:60-62). *See also* Ex. 1207 at ¶ 98.

A person of ordinary skill in the art would know that in order to send notifications based on exception conditions detected using that data, the application cells (or some related data structure) would have stored the user-specified criteria that defined exception conditions, as well as the user-specified contact numbers and device types (*e.g.*, pager or telephone) of the devices that were notified. *See*

Ex. 1207 at ¶¶ 98-100. Thus, Wewalaarachchi rendered obvious the claimed “message profile.” Because Wewalaarachchi taught that multiple users can use the system (*see* Ex. 1203 at 5:67-6:2), a person of ordinary skill in the art would understand there to be multiple such user profiles. Wewalaarachchi also taught that the application cells are stored in a “base” or “subframework” (*id.* at 8:48-51), and even without such a teaching, a person of ordinary skill would find it obvious to store data in a database.⁶ *See* Ex. 1207 at ¶¶ 98-100.

Finally, Wewalaarachchi at a minimum renders obvious remote configuration of a “message profile.” Its invention “enables each end user to define and operate from any remote location, a personalized SCADA application,” which would include the interfaces shown in FIGS. 15a-15c. Even if this disclosure did not directly disclose remote access, the Federal Circuit has held that modifying a system to make use of web browsers or the Internet was obvious as of at least May 1998. *See Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1326 (Fed. Cir. 2008) (“[As of] May 29, 1998, the use of web browsers was well known” and “adapting existing electronic processes to incorporate modern internet and web browser technology was similarly commonplace [as of May 1998]”.); *see*

⁶ *See also supra* 4 n.4 for discussion of an alternate embodiment; Ex. 1207 at ¶ 98 n.3.

also Soverain Software LLC v. Newegg Inc., 705 F.3d 1333, 1337 (Fed. Cir. 2013) (subsequent history omitted). Therefore, it would have been obvious to implement Wewalaarachchi's user interface over the Internet, thereby allowing users to input or edit data corresponding to the claimed "message profiles." *See also* Ex. 1207 at ¶¶ 99-100.

6. The Object-Oriented BMS disclosed "normalizing" incoming messages using a structure equivalent to a "normalization module," storing normalized incoming messages, and basing outgoing exception messages on normalized incoming messages

Independent claims 42 and 43, and dependent claims 3, 24, and 32 each require "normalizing" incoming messages to the computer server into a uniform format, and generating outgoing exception messages on the basis of the normalized messages. Normalizing is performed by a "normalization module" in claims 24 and 32, and by a "message normalizer" in claim 43. In claims 42 and 43, the normalized messages are stored in a normalized message database. As discussed above, the structure corresponding to the "normalization module" is "a processor of a computer server executing an algorithm that takes data from incoming messages, reformats that data, and stores the data in a standardized format on the computer server" and the function of the normalization module is "normalizing incoming exception messages into a uniform format." *See* Section IV.C.

Normalization functions are common to BMSs and other SCADA systems

(Ex. 1207 at ¶ 101). Wewalaarachchi disclosed structure equivalent to the claimed normalization module, and disclosed the additional claimed normalization limitations listed above. Wewalaarachchi disclosed that data from the monitored field devices was received and normalized by the “communications gateway” before being sent to application cells:

the input format to a communication gateway 202 comprises a low level byte stream of data packets containing real time data formatted according to a particular device protocol by the device network 216. In the typical device protocol, the data packets include a device ID, a parameter name, a type (application level and protocol specific), a data length, and the real time data.... The communication gateway converts this information into a standardized data format that includes fully structured and typed data, with an indication of the source and the value of the data. Ex. 1203 at 8:22-35; *see also id.* at 8:35-46, 3:38-51, 17:31-42.

The data could be further processed in the application cells (*id.* at 8:63-67), and the normalized data are stored in the standardized <name, value> format on the object server (*id.* at 9:30-40). *See* Ex. 1207 at 101-03.

Wewalaarachchi thus disclosed normalization of all incoming device data and storage of that data in an object server, which is a “data store.” Ex. 1203 at 9:30-35. Wewalaarachchi also disclosed that generation of notification messages is based on normalized data. As discussed above, notification operations are

performed by application cells and presentation cells, each of which receive their data from the object server (*see id.* at 18:4-8, 18:19-31, 9:30-40; 19:36-40).

The “communications gateway” and “application cell base” are identical or equivalent to the “normalization module” of claims 24 and 32. Each of these components is implemented by software algorithms executing on a central host computer. *See id.* at 7:7-15; 7:22-23. As the descriptions above indicate, this software performs “an algorithm that takes incoming data messages, reformats the data and stores it in standardized format” in the object server (which is found on a central computer that corresponds to the claimed “computer server”). As a result, to the extent the claimed “normalization module” is not indefinite,

Wewalaarachchi disclosed identical structure. Ex. 1207 at ¶¶ 118-20.¶

Alternatively, Wewalaarachchi disclosed structure equivalent to that disclosed in the '601 Patent because it performs the same function (reformatting received data) in the same way (a CPU executing software reformats the data) to accomplish the same result (data is stored in a standardized format). *Id.* at ¶¶ 118-20.

Claims 1-3, 22-24, 26, 30, 32, and 42-43 of the '601 Patent are obvious under Wewalaarachchi, Honeywell, and BACnet, as shown below.

Claim 1	Wewalaarachchi, Honeywell, and BACnet
1. A method of monitoring remote equipment comprising the steps of:	“A system and <i>method provide for the creation and operation of real-time enterprise-wide, personalize[d] supervisory and control data acquisition systems.</i> ” Ex. 1203 at Abstract; <i>see also id.</i> at 4:24-25; 5:6-8; 16:46-

Claim 1	Wewalaarachchi, Honeywell, and BACnet
	<p>67; 19:65-20:4; FIGS. 12, 16.</p> <p><i>See</i> Ex. 1207 at § VII(A)(1).</p>
<p>a) determining a state of at least one parameter of at least one piece of the remote equipment;</p>	<p><i>“Proof-of-operation sensors are often required... to monitor fan and pump operation status when a central monitoring and management system is provided.”</i> Ex. 1204.0043; <i>see also</i> FIG. 3, 1204.0145, 1204.0143.</p> <p><i>“If the point is digital, the controller must know its normal state (open or closed), whether the given state is an alarm state or merely a status condition, and whether or not the condition triggers an event-initiated program.”</i> Ex. 1204.0153; <i>see also</i> 1204.0152.</p> <p><i>See also</i> Ex. 1204.0040; Ex. 1203 at 4:24-25, 4:65-5:1, 5:6-8, 8:22-28, 16:46-67, 19:65-20:4, FIGS. 12, 16.</p>
<p>b) communicating a message indicative of the state from the piece of remote equipment to a computer server as an incoming message;</p>	<p><i>See</i> claim chart for Claim 1(a), Ground 1.</p> <p><i>“The virtual application services 200 typically execute on a central host computer....”</i> Ex. 1203 at 7:22-23.</p> <p><i>“Each virtual application service 200 includes its own communication gateway 202.... responsible for receiving real time data from the field devices 218...”</i> <i>Id.</i> at 8:2-7; <i>see also id.</i> at 3:38-40, 8:22-31, 11:60-62.</p> <p><i>“Zone- and system-level controllers should be equipped with a communications port. This allows dynamic data, setpoints, and parameters to be passed between a local operator terminal, a central building management system, and/or other controllers.”</i> Ex. 1204.0147.</p> <p><i>“Critical alarms can be programmed at the remote to dial the central system immediately.”</i> Ex. 1204.0200.</p> <p><i>“Upon receiving an alarm from a controller, operations-level processors initiate alarm processing...”</i> Ex. 1204.0201; <i>see also</i> FIG. 1,</p>

Claim 1	Wewalaarachchi, Honeywell, and BACnet
	<p>1204.0197; FIG. 3, 1204.0145; 1204.0152; 1204.0197; 1204.0196; FIG. 4, 1204.0199; 1204.0205.</p> <p><i>See also</i> Ex. 1203 at 7:17-20; Ex. 1205.0230-32; Ex. 1205.0152-53 (§§ 12.1, 12.1.6, 12.1.7).</p> <p><i>See</i> Ex. 1207 at § VII(A)(2)(b).</p>
<p>c) enabling a user to remotely configure or modify a user-defined message profile containing outgoing message routing instructions, the user-defined message profile being storable on the computer server;</p>	<p>“FIGS. 15a, 15b, and 15c illustrate <i>user interfaces of application cells for defining event driven automation for notification of a user of an alarm condition</i>. In FIG. 15a, the user defines, via service 1501, the object server, and via 1503 the data object which provides the input data to be monitored, and via bounds 1507 defines the valid range of input data.... In 1513, <i>the user defines the notification to be provided to the recipient (whether the alarm message specified in the linked cells, or a particular sound file)</i>.... In FIG. 15c, under the phonebook setup tab <i>the user defines 1517 telephone numbers of various persons to dial when the alarm condition is met and the notification occurs</i>.... The notification cell will cause the specified telephone numbers to be dialed, and will play either the alarm wave file specified at 1505, or a default message file specified at 1513. In this manner <i>the system can automatically notify any number of users directly by telephone or pager when an alarm condition is detected by a personalized SCADA application</i>.” Ex. 1203 at 19:34-63; <i>see also id.</i> at 7:13-23, FIGS. 15a, 15b, 15c.</p> <p><i>See</i> Ex. 1207 at § VII(A)(2)(d) and (e).</p>
<p>d) determining whether an incoming message is an incoming exception message indicative of improper operation of the piece of remote equipment;</p>	<p><i>See</i> claim chart for Claim 1(b) and 1(c) (<i>e.g.</i>, Ex. 1203 at 19:34-63), Ground 1.</p> <p>“A <i>notification operation</i> is similar to the monitoring operation, but takes the additional step of <i>causing a condition to occur and an action such as sound alert, email, telephone</i>. For a <i>notification operation</i>, a <i>presentation cell 302</i> will have a user defined</p>

Claim 1	Wewalaarachchi, Honeywell, and BACnet
	<i>conditional behavior defined by a rule condition, an action to perform if the condition is satisfied, and a target entity (presentation cell or application cell) on which to perform the action. . . . [T]he presentation cell 302 determines whether the condition is satisfied. If so, the presentation cell initiates the action upon the target.”</i> Ex. 1203 at 18:20-31.
e) if it is determined in step d) that an incoming message is an incoming exception message, forwarding at least one outgoing exception message based on the incoming message to at least one user-defined communication device specifiable in the user-defined message profile,	See claim chart for 1(b), 1(c), and 1(d), Ground 1. “ <i>The notification cell will cause the specified telephone numbers to be dialed, and will play either the alarm wave file specified at 1505, or a default message file specified at 1513. In this manner the system can automatically notify any number of users directly by telephone or pager when an alarm condition is detected by a personalized SCADA application.</i> ” Ex. 1203 at 19:34-36; 19:57-63.
[f] wherein the user can remotely configure or modify the user-defined message profile by remotely accessing the computer server.	See also claim chart for Claim 1(c), Ground 1.

Claim 2	Wewalaarachchi, Honeywell, and BACnet
2. A method according to claim 1, wherein said step b) further comprises the step of communicating a plurality of incoming messages to the computer server via one of a plurality of different communication media.	See claim charts for Claim 1(b), Ground 1. “The communication gateway 202 operates with such protocols as BacNet (building automation), <i>LonBus</i> (control networks), and Echelon (control networks), <i>MAPI</i> (email applications), <i>TAPI</i> (telephony applications)...” Ex. 1203 at 8:16-20; <i>see also id.</i> at 7:22-23, 8:2-3, 8:6-7. “The most common choices for BMS transmission trunks are: — Twisted copper pairs[;] — Fiber optic cable[;] —

Claim 2	Wewalaarachchi, Honeywell, and BACnet
	<i>Common carrier telephone channels.” Ex. 1204.0199.</i>

Claim 3	Wewalaarachchi, Honeywell, and BACnet
3. A method according to claim 2, further comprising the step of normalizing the incoming messages into a uniform format to create normalized messages, wherein the outgoing exception messages are generated based on the normalized messages.	<p><i>“The communication gateway converts this information into a <u>standardized data format</u> that includes fully structured and typed data, with an indication of the source and the value of the data. The indication of source specifies the particular field device 218 or application 220 which generated the data. . . . This reformatted data is preferably in the <u>format of <name, value> pairs</u>, where the name indicates the data source, and the value is the structured real time data. In this manner, <u>unstructured, raw real time data</u> from many different sources, having different and often incompatible protocols, <u>is restructured into a consistent representation and format.</u>” Ex. 1203 at 8:32-46; see also <i>id.</i> at 8:47-53, 3:38-51, 8:2-11.</i></p> <p><i>See also claim charts for claims 1(e) and 2, Ground 1.</i></p> <p><i>See Ex. 1207 at § VII(A)(2)(f).</i></p>

Claim 22	Wewalaarachchi, Honeywell, and BACnet
A system for monitoring remote equipment, comprising:	<i>See claim chart for claim 1 preamble, Ground 1.</i>
[22a] a sensor in local communication with a piece of remote equipment, said sensor detecting a state of at least one parameter of the piece of remote equipment;	<p><i>“[I]n a building management system, the raw, real time data from the field devices will be for many different types of field devices, such as lights, heating units, thermostats, window controls, ventilation systems.... data from different field devices (e.g., readings from different temperature <u>sensors in the same tank</u>).” Ex. 1203 at 4:22-31; see also <i>id.</i> at 3:63-4:2, 16:47-48, 4:50-52, 17:31-35.</i></p> <p><i>“Proof-of-operation sensors are often required... to monitor fan and pump operation status when a central monitoring and management system is provided.” Ex. 1204.0043; see also Ex. 1204.0040, 1204.0197-98.</i></p>

Claim 22	Wewalaarachchi, Honeywell, and BACnet
<p>[22b] an interface unit, locally connected to said sensor, said interface unit having a message generating mechanism; and</p> <p>[22c1] a computer server in remote communication with said interface unit, said server adapted to receive messages generated by said interface unit,</p>	<p>See claim charts for claims 1(b) and 2 Ground 1.</p> <p>“[M]icroprocessor-based <i>controllers... measure signals from sensors....</i> Microprocessor-based controllers can be used... as <i>controllers incorporated into a building management system utilizing a personal computer (PC) as a host....</i>” Ex. 1204.0143; <i>see also</i> Ex. 1204.0043, 1204.0040, 1204.0153.</p> <p>“Zone- and system-level <i>controllers should be equipped with a communications port.</i> This allows <i>dynamic data, setpoints, and parameters</i> to be passed between a local operator terminal, a <i>central building management system....</i>” Ex. 1204.0147; <i>see also</i> Ex. 1204.0146, 1204.0153.</p> <p>“The following <i>BMS software is normally included in the controller.... Communications module: Controls transmissions between controllers and <u>between controllers and a central computer....</u></i>” Ex. 1204.0152.</p> <p>“<i>The trend report utility allows for archival of <u>data point status and values</u> for subsequent review. Archival may be based upon a time interval or a change in status or value.... Trend sample requirements are usually set-up in the controller and <u>automatically reported to the BMS thereafter.</u></i>” Ex. 1204.0201.</p> <p>“<i>Software at the operations level communicates with all system- and zone-level processors in a peer-to-peer fashion. Communications functions include.... Receiving alarm and return-to-normal reports (including remote device communications failures)[;] Receiving trend status’ and values.</i>” Ex. 1204.0201; <i>see also</i> FIG. 1, 1204.0197.</p>
<p>[22c2] said computer server having a user interface, a user being capable of</p>	<p>See claim charts for claim 1(c), Ground 1.</p>

Claim 22	Wewalaarachchi, Honeywell, and BACnet
remotely accessing said computer server via said user interface to remotely configure a user-defined message profile containing outgoing message routing instructions,	
[22d] wherein when said sensor detects an exception condition in the piece of remote equipment, said interface unit generates an incoming exception message indicative of the exception condition and forwards said message to said server,	<p><i>“Microprocessor-based controllers are used extensively as data gathering panels (DGP) for building management systems. . . . [M]any sensors and data files can be shared with building management system (BMS) functions. . . . The following BMS software is normally included in the <u>controller</u>.... Alarm monitoring: Scans all analog and digital points and tests for <u>alarm status</u>....[;]</i></p> <p><i>Communications module: Controls transmissions between controllers and <u>between controllers and a central computer</u> based on an established bus protocol.”</i> Ex. 1204.0152.</p> <p><i>“<u>Critical alarms can be programmed at the remote to dial the central system immediately.</u>”</i> Ex. 1204.0200; see FIG. 4 (reproduced in chart for Claim 22b and 22c1).</p> <p><i>See also claim charts for [22b] and [22c1], Ground 1.</i></p>
[22e] and wherein said server forwards at least one outgoing exception message to at least one predetermined user-defined remote communication device based on said incoming exception message as specified in said user-defined	<p><i>See claim chart for Claim 1(e), Ground 1.</i></p> <p><i>See Ex. 1207 at § (A)(2)(d) and (e).</i></p>

Claim 22	Wewalaarachchi, Honeywell, and BACnet
message profile.	

Claim 23	Wewalaarachchi, Honeywell, BACnet, & Levac
A system according to claim 22, wherein said message generating mechanism of the interface unit forwards said incoming exception messages to said computer server via at least one of a plurality of communication media, said media comprising at least one of a cellular telephone network, radio transmissions, telephone lines, and the Internet.	See claim charts for claim 22, particularly claim [22b] and [22c1], Ground 1.

Claim 24	Wewalaarachchi, Honeywell, and BACnet
A system according to claim 23, said server comprising a normalization module, wherein said server receives said incoming exception messages from said interface unit and said normalization module normalizes said incoming exception messages into a uniform format to create normalized messages, wherein said outgoing exception messages are generated based on said normalized messages.	See claim charts for claims 3 and 23, Ground 1. “The <i>software architecture</i> comprises a framework for application development which in turn <i>includes... a virtual application service 200....</i> The <i>virtual application service 200 includes a communications gateway....</i> The <i>virtual application services 200 typically execute on a central host computer....</i> ” Ex. 1203 at 7:8-23.

Claim 26	Wewalaarachchi, Honeywell, and BACnet
A system according to claim 22, said system monitoring a plurality of pieces of equipment, each piece having an identification code, said server further comprising:	See claim charts for claims 1(a) and [22a], Ground 1; <i>see also</i> claim charts for claim 22, Ground 1. “The presentation cells thereby <i>allow the user to visually monitor and control <u>any number of</u> field devices</i> directly from their remote computers, while having assurance of real time quality of service.” Ex. 1203 at 5:5-9. <i>See also</i> Ex. 1205.0167-68 (§§ 12.4, 12.4.1, 12.4.2).

Claim 26	Wewalaarachchi, Honeywell, and BACnet
[26a] a first memory on which equipment identification codes of all monitored equipment are stored;	<p>“The <i>virtual application service 200</i> includes a communications gateway 202, an application cell base 204, and <i>an object server 206</i>.... The <i>virtual application services 200</i> typically execute on a <i>central host computer</i>.” Ex. 1203 at 7:13-15; 7:22-23; <i>see also id.</i> at 8:32-36, 8:48-51.</p> <p>“<i>The object server 206</i> is a <i>data store</i> that receives from a number of application cells the derived real time data and stores that data in various data objects. <i>Data objects store both the context or source of the data</i>.... The published data is in the form of <i><name, value> pairs</i>, as described above.” <i>Id.</i> at 9:31-34; 9:38-40.</p>
[26b] a second memory in which communication device identification codes of all of said user-defined communication remote devices are stored, said communication device identification codes being configured in a plurality of said user-defined message profiles.	See claim chart for claim [1c], Ground 1.

Claim 30	Wewalaarachchi, Honeywell, and BACnet
A system according to claim 26, wherein said interface unit periodically generates a normal status message if	<p>See claim charts for Claim [22b] and 26, Ground 1.</p> <p>“[M]icroprocessor-based controllers used in commercial buildings.... <i>measure signals from sensors</i>.... Microprocessor-based controllers can be used... as <i>controllers incorporated into a building management system utilizing a personal computer (PC) as a host</i>....”</p>

Claim 30	Wewalaarachchi, Honeywell, and BACnet
<p>said sensor to which said interface unit is connected detects a normal status condition indicative of proper operation of said respective piece of equipment to which said sensor is connected, said normal status message including an equipment identification code of said respective piece of equipment.</p>	<p>Ex. 1204.0143.</p> <p><i>“Proof-of-operation sensors are often required... to <u>monitor fan and pump operation status</u> when a central monitoring and management system is provided.”</i> Ex. 1204.0043.</p> <p><i>“Trend sample requirements are usually set-up in the <u>controller and automatically reported to the BMS thereafter</u>.”</i> Ex. 1204.0201.</p> <p>Ex. 1205.0167 (§12.4):</p> <p>12.4 Binary Input Object Type</p> <p>The Binary Input object type defines a standardized object whose properties represent the externally visible characteristics of a binary input. A "binary input" is a physical device or hardware input that can be in only one of two distinct states. In this description, those states are referred to as ACTIVE and INACTIVE. A typical use of a binary input is to indicate whether a particular piece of mechanical equipment, such as a fan or pump, is running or idle. The state ACTIVE corresponds to the situation when the equipment is on or running, and INACTIVE corresponds to the situation when the equipment is off or idle.</p> <p>...</p> <p>12.4.1 Object_Identifier</p> <p>This property, of type BACnetObjectIdentifier, is a numeric code that is used to identify the object. It shall be unique within the BACnet Device that maintains it.</p> <p>12.4.2 Object_Name</p> <p>This property, of type CharacterString, shall represent a name for the object that is unique within the BACnet Device that maintains it. The minimum length of the string shall be one character. The set of characters used in the Object_Name shall be restricted to printable characters.</p> <p>...</p> <p>12.4.6 Device_Type</p> <p>This property, of type CharacterString, is a text description of the physical device connected to the binary input. It will typically be used to describe the type of device attached to the binary input.</p> <p>...</p> <p>12.4.7 Status_Flags</p> <p>This property, of type BACnetStatusFlags, represents four Boolean flags that indicate the general "health" of a binary input. Three of the flags are associated with the values of other properties of this object. A more detailed status could be determined by reading the properties that are linked to these flags. The relationship between individual flags is not defined by the protocol. The four flags are</p> <p>{IN_ALARM, FAULT, OVERRIDDEN, OUT_OF_SERVICE}</p> <p>See also Ex. 1205.0152-53 (§§12.1, 12.1.1, 12.1.2, 12.1.6, 12.1.7).</p> <p>See Ex. 1207 at ¶¶ 92-96, 115.</p>

Claim 32	Wewalaarachchi, Honeywell, and BACnet
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Claim 32	Wewalaarachchi, Honeywell, and BACnet
A system according to claim 30, said server further comprising a normalization module, wherein said server receives said incoming exception messages from said interface unit and said normalization module normalizes said incoming exception messages into a uniform format to create normalized messages, wherein said outgoing exception messages are generated based on said normalized messages.	See claim charts for claims 3, 24 and 30, Ground 1. See Ex. 1207 at § (A)(2)(f).

Claim 42	Wewalaarachchi, Honeywell, and BACnet
A method for monitoring remote equipment comprising the steps of:	See claim chart for claim 1 preamble.
a) determining a state of at least one parameter of at least one piece of the remote equipment;	See claim chart for Claim 1(a), Ground 1.
b) communicating a message indicative of the state to a computer server as an incoming message, the incoming message having a respective incoming format;	See claim chart for Claim 1(b), Ground 1. “More particularly, the input format to a communication gateway 202 comprises a low level byte stream of <i>data packets containing real time data formatted according to a particular device protocol</i> by the device network 216. In the typical device protocol, the <i>data packets</i> include a <i>device ID</i> , a <i>parameter name</i> ... and the <i>real time data</i> .” Ex. 1203 at 8:22-28.
c) normalizing the incoming message to form a corresponding normalized message having a predetermined uniform format;	See claim charts for claim 3, Ground 1. See Ex. 1207 at § A(2)(f).
d) storing the normalized message in a normalized message database on the computer server;	“The <i>object server 206</i> is a <i>data store</i> that receives from a number of application cells the <i>derived real time data</i> and <i>stores that data in various data objects</i> ...” Ex. 1203 at 9:31-33; see also <i>id.</i> at 8:54-66.

Claim 42	Wewalaarachchi, Honeywell, and BACnet
	<i>See</i> Ex. 1207 at § A(2)(f).
e) determining from the incoming message whether at least one exception message related to the incoming message is to be sent to at least one remote communication device specified by a plurality of message profiles stored at the computer server;	<i>See</i> claim chart for claims 1(c) and 1(d), Ground 1.
f) if it is determined in step e) that at least one exception message related to the incoming message is to be sent, deriving the at least one exception message from the stored normalized message corresponding to the related incoming message and the message profiles, the at least one exception message derived thereby having a respective format suitable for reception by the at least one remote communication device to which the at least one exception message is to be sent; and g) sending the at least one exception message derived in step f) to the at least one remote communication device specified by the message profiles,	<p><i>See</i> claim charts for claim 1(e), 42(d), Ground 1.</p> <p><i>“An automation operation... takes place automatically based on either an <u>event</u> (condition satisfaction).... For event driven automation, the application cell contains a <u>user defined data input source</u>, a <u>condition which is to be satisfied by the data received</u>, an <u>output data or action to be performed</u>, and a <u>target entity for receiving the output</u>. The <u>input source</u> will be a <u>selected data object 400</u> from an <u>object server 206</u>....”</i> Ex. 1203 at 19:17-26.</p> <p><i>“In FIG. 15a, the user defines... the <u>data object</u> which provides the input data to be monitored, and... the valid range of input data.... In 1513, the user defines the <u>notification</u> to be provided to the recipient (whether the alarm message specified in the linked cells, or a particular sound file).”</i> <i>Id.</i> at 19:36-40, 19:48-50; <i>see also id.</i> at 19:57-62.</p>

Claim 42	Wewalaarachchi, Honeywell, and BACnet
42[h] wherein the message profiles may be created or modified at least in part by a user by remote access of the computer server.	<i>See claim charts for claim 1(c), Ground 1.</i>

Claim 43	Wewalaarachchi, Honeywell, and BACnet
43. A system for monitoring remote equipment, comprising:	<i>See claim chart for preamble of claim 22, Ground 1.</i>
[43a]. a sensor in communication with a piece of the remote equipment for detecting the state of at least one parameter thereof;	<i>See claim chart for claim [22a], Ground 1.</i>
[43b]. an interface unit, coupled to said sensor, said interface unit having a message generating mechanism for generating messages indicative of the state of the at least one parameter of the piece of the remote equipment; and	<i>See claim charts for claims 1(a), [22b], and [22c1], Ground 1.</i>
[43c]. a computer server in communication with said interface unit, said server comprising:	<i>See claim charts for claims [22b] and [22c1], Ground 1.</i>
[43d]. a message interface for receiving messages generated by said interface unit;	<i>See claim charts for Claim 1(b), Claim 22[c1], Ground 1.</i>
43[e]. a message normalizer for normalizing each one of the messages received from the interface unit to form corresponding normalized messages having a predetermined uniform format;	<i>See claim charts for claims 3 and 24, Ground 1.</i>
[43f]. a normalized message database for storing normalized messages, including normalized messages from the message normalizer;	<i>See claim charts for claim 42(d), Ground 1.</i>
[43g]. a message profile database for storing a plurality of message profiles;	<i>See claim charts for claims 1(c), 1(f) and 10, Ground 1.</i>

Claim 43	Wewalaarachchi, Honeywell, and BACnet
[43h]. a message processor for determining from each one of the messages received from the interface unit whether at least one exception message related to the received message is to be sent to at least one remote communication device specified by the message profiles;	<i>See</i> claim chart for claims 1(d), 42(e), Ground 1.
[43i]. an exception message generator for deriving the at least one exception message determined to be sent by the message processor to the at least one remote communication device, the at least one exception message being derived from a normalized message corresponding to the related message received from the interface unit and the message profiles, the at least one exception message derived thereby having at least one respective format suitable for reception by the at least one remote communication device to which the at least one exception message is to be sent;	<i>See</i> claim chart for claim 42(f), Ground 1. <i>See also</i> claim charts for Claim 1(e).
[43j]. a message interface for sending the at least one exception message derived by the exception message generator to the at least one remote communication device specified by the message profiles; and	<i>See</i> claim charts for claims 1(e) and 42(g), Ground 1. <i>See also</i> Ex. 1203 at 19:43-45 (“the user defines a <u>target service 1509</u> , <u>here a telephony interface TAPI</u> which will be accessed in response to the alarm condition....”).
[43k]. a user interface for enabling a user at a remote location to create or modify at least a portion of the message profiles in the message profile database,	<i>See</i> claim chart for Claim 1(c), Ground 1.

B. Ground 2: Claims 1-3, 22-24, 26, 30, 32, and 42-43 are rendered obvious by Wewalaarachchi [filed January, 1998], Honeywell [published 1997], and BACnet [published 1995] in view of Levac [filed July, 1997].

1. Motivation to add the teachings of Levac to the Object-Oriented BMS

As discussed above, Wewalaarachchi specifically taught customizing automatic notifications to user-specified devices (including different types of devices) based on specific triggers defined with reference to data from an external source. *See* Section VI(A)(4), (5). Because Wewalaarachchi does not expressly teach the particulars of how notification messages are generated and sent to different types of user devices, it would have been obvious to incorporate the more specific teachings of Levac, as discussed in greater detail below.

Levac disclosed a “system and method for automatically conveying a message generated by one of a variety of message sources to designated message recipients... via at least one of many types of communication devices.” Ex. 1206 at 2:21-25. As in Wewalaarachchi, these devices are of various types, including e-mail and pagers (*see id.* at FIG. 5; 3:49-57, 6:66-7:27, 7:49-53). Levac taught that the invention “is particularly suited for use in many applications, such as employee communications, emergency messaging” (*id.* at 3:58-60), and the “[t]ypes of messages include... alarm notifications, variable data updates” (*id.* at 3:62-64), which are the functionalities at which Wewalaarachchi is directed. Thus, a person of skill in the art would recognize that Levac’s teachings were highly pertinent to the Object-Oriented BMS. Ex. 1207 at ¶ 123.

The basic architecture of Levac is disclosed in Figure 1. A “message server 14” has a “variable database 29” that can store a “.msa file,” also referred to as a “message template” or “message file” (*id.* at FIG. 2; 4:36-39; 7:63-8:9; 11:8-13). The .msa file includes information identifying the particular user who saved the file (*id.* at 4:48-57); the content of the message to be sent (*id.* at 4:63-67); “the variable conditions that must be

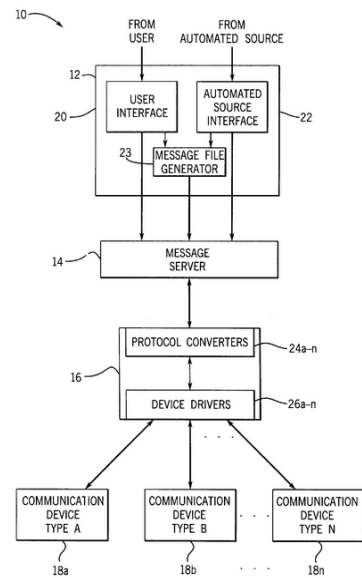


FIG. 1

satisfied before triggering a message to run” (*id.* at 5:35-38); and the “destination parameters” (*id.* at 5:49-52), which includes “designated recipients” (*id.* at 8:14-17). Triggers for messages can include “a real-time data source, a sensor” (*id.* at 3:50-51), as in Wewalaarachchi, or as Levac notes, “other software applications or hardware devices....” *Id.* at 3:51-52. Messages may be triggered when data variables from an “automated source” match predetermined criteria: “variable data can be monitored and pending messages can be activated when the variable attains a specified value,” i.e., the value specified in the .msa file. *See id.* at 6:35-43. Based on the content of the .msa file, the message server routes the message to the “communications device interface 16” (*id.* at 6:28-30), which “converts the message embedded in the .msa file... to a protocol compatible with the communication devices 18a-n used by the designated recipients,” “then convey[s

it] to the appropriate communication devices 18*a-n* which are located at communication destinations selected based on the message parameters.” *Id.* at 6:47-57. *See also* Ex. 1207 at ¶ 124.

As discussed above (*see* Section VI(A)(4), (5)) in the context of Object-Oriented BMS, Wewalaarachchi disclosed user selection of the conditions that trigger notification, the content of the notification, the types of devices that receive notification (telephone versus pager), and the specific device contact numbers. However, Wewalaarachchi did not expressly disclose the particulars of the data structure that holds these categories of information. Because Levac’s .msa file has fields corresponding to each of these categories, it would have been obvious to use Levac’s .msa file (or an equivalent structure) for this purpose. In addition, as discussed below, a person of ordinary skill in the art would have been motivated to include in the Object-Oriented BMS the additional features associated with Levac’s .msa file and notification capabilities. Ex. 1207 at ¶ 125.

First, Levac disclosed that the .msa file contains user identification information (Ex. 1206 at 4:48-57), which allows different users to set up different .msa files, each with specific messaging triggers, destinations, etc. Ex. 1207 at ¶ 126. Levac thus disclosed multiple message profiles (one of the three points of alleged novelty upon which the ’601 Patent applicants relied, Section IV(B)). Since Wewalaarachchi expressly taught that its system is intended to serve

multiple users (Ex. 1203 at 3:18-31), it would have been desirable to include a specific implementation for allowing multiple users to customize notifications. Ex. 1207 at ¶ 126.

Second, like Wewalaarachchi, Levac disclosed another of the three alleged points of novelty by the applicants during the prosecution of the '601 Patent,⁷ remote configuration of the notification particulars via a user interface:

User interface 20 permits an individual... to provide message parameters providing information about the message, such as the designated recipients, running time for the message etc. User interface 20 also... allows the individual to create a message template that may be used in conjunction with data, messages, or other information received by automated source interface 22. Ex. 1206 at 4:16-21; *see also id.* at 11:8-12; Ex. 1207 at ¶ 127.

In addition, Levac disclosed that the user could submit .msa files remotely to the message server, including via the Internet:

Message server 14 includes an in-box 28 providing the interface for receiving message files.... Message server 14 supports various interfaces, such as... TCP/IP messaging. Thus, message files can be received from a variety of local or remote message sources and can be generated either by automated sources or individual users. Id. at

⁷ The remaining alleged point of novelty—remote monitoring of equipment—is disclosed by each of Wewalaarachchi, Honeywell, and BACnet. *See* § IV(B).

7:64-8:5 (emphasis added).

Levac thus disclosed the remote configuration of a message profile. Ex.

1207 at ¶¶ 128-29.

As the foregoing demonstrates, Wewalaarachchi and Levac disclosed overlapping, but not identical, functionalities concerning user notification. While each taught user interfaces for remotely configuring message profiles governing which devices receive notifications for particular conditions, Wewalaarachchi disclosed specific examples of graphical user interfaces that utilize BMS or other SCADA data. Conversely, while each system requires the storage of user selections to govern subsequent notifications, Levac disclosed a particular data structure and fields (the “.msa file”) for that purpose. Each taught remote configuration in somewhat different ways: Levac disclosed configuration of message profiles in the form of modifying “.msa files” over the Internet, while Wewalaarachchi taught the importance of remote user access to the system (*e.g.*, Ex. 1203 at 7:41-50), and taught remote Internet access to the object server on which monitored equipment data is stored (*id.* at 14:58-61). For these reasons, a person of ordinary skill in the art would have been motivated by Levac to add Internet access to the user interface taught by Wewalaarachchi (to the extent such an addition was not already obvious—*see* Section VI(A)(4), (5). *See also* Ex. 1207 at ¶¶ 130-31.

Thus, because Levac provides a detailed implementation of the functionality disclosed by Wewalaarachchi in the context of the Object-Oriented BMS—namely, sending messages to particular communications devices based on specific triggering conditions received from external sources—it would have been obvious to utilize the teachings of Levac in implementing the BMS. *Id.* at ¶¶ 130-31.

Claims 1-3, 22-24, 26, 30, 32, and 42-43 of the '601 Patent are obvious under Wewalaarachchi, Honeywell, and BACnet in view of Levac, as shown below.

Claim 1	Wewalaarachchi, Honeywell, BACnet & Levac
1. A method of monitoring remote equipment comprising the steps of:	<i>See claim chart for claim 1 preamble, Ground 1.</i>
a) determining a state of at least one parameter of at least one piece of the remote equipment;	<i>See claim chart for claim 1(a), Ground 1.</i>
b) communicating a message indicative of the state from the piece of remote equipment to a computer server as an incoming message;	<i>See claim chart for claim 1(b), Ground 1.</i>
c) enabling a user to remotely configure or modify a user-defined message profile containing outgoing message routing instructions, the user-defined message profile	<i>See claim chart for claim 1(c), Ground 1.</i> <i>“<u>Message server 14</u> supports various <u>interfaces</u>, such as... <u>TCP/IP messaging</u>. Thus, <u>message files</u> can be received from a variety of local or <u>remote</u> message sources and <u>can be generated</u> either by automated sources or <u>individual users</u>.” Ex. 1206 at 8:1-5.</i>

Claim 1	Wewalaarachchi, Honeywell, BACnet & Levac
being storable on the computer server;	<p><i>“[T]he message template with the variable value may be submitted to message server 14 through user interface 20 and message file generator 23 as a .msa file. The .msa file can then be stored in variable database 29 to await receipt of variable data...” Id. at 11:8-13.</i></p> <p><i>“Preferably, the .msa file created by message file generator 23 may incorporate... the following information: 4. DATA: contains the message.... 7. VARSTART: describes the <u>variable conditions that must be satisfied before triggering a message to run....</u> 10. DESTPARAMS: supplies a list of destination parameters, such as recipient site location, required for transmitting the message to the destination.” Id. at 4:48-50, 4:63, 5:35-36, 5:49-53, see also id. at 8:14-17, 3:49-56, 4:4-21, 2:21-25, FIG. 1.</i></p> <p><i>See Ex. 1207 at § VII(B).</i></p>
d) determining whether an incoming message is an incoming exception message indicative of improper operation of the piece of remote equipment;	<p><i>See claim chart for claim 1(d), Ground 1.</i></p> <p><i>“[A]utomated source interface 22 provides an avenue for automated sources, such as real-time production databases, to provide variable data.... variable data can be monitored and pending messages can be activated when the variable attains a specified value. . . [M]essage server 14 then routes the variable data and any activated messages to communication device interface 16.” Ex. 1206 at 6:35-46.</i></p>
e) if it is determined in step d) that an incoming message is an incoming exception message, forwarding at least one outgoing exception message based on the incoming message to at least one user-defined communication device	<p><i>See claim chart for claim 1(e), Ground 1.</i></p> <p><i>“[S]ystem 10 is particularly suited for use in many applications, such as... emergency messaging.... Types of messages include... alarm notifications, variable data updates...” Ex. 1206 at 3:58-64; see also id. at 6:66-7:27, 7:49-53.</i></p>

Claim 1	Wewalaarachchi, Honeywell, BACnet & Levac
specifiable in the user-defined message profile,	
[f] wherein the user can remotely configure or modify the user-defined message profile by remotely accessing the computer server.	<p>See claim chart for claim 1[f], Ground 1.</p> <p><i>“Message server 14 includes an in-box 28 providing the interface for receiving message files, commands and variable data from communication source interface 12.... Message server 14 supports various interfaces, such as... TCP/IP messaging. Thus, message files can be received from a variety of local or remote message sources and can be generated either by automated sources or individual users.”</i> Ex. 1206 at 7:64-8:5.</p> <p>See Ex. 1207 at § VII(B).</p>

Claim 2	See claim charts for claim 1, Ground 2 and claim 2, Ground 1.
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Claim 3	See claim charts for claim 1, Ground 2 and claim 2, Ground 1.
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Claim 22	Wewalaarachchi, Honeywell, BACnet & Levac
A system for monitoring remote equipment, comprising:	See claim chart for claim 1 preamble, Ground 1.
[22a] a sensor in local communication with a piece of remote equipment, said sensor detecting a state of at least one parameter of the piece of remote equipment;	See claim chart for claim 22[a], Ground 1.
[22b] an interface unit, locally connected to said sensor, said interface unit having a message generating mechanism; and [22c1] a computer server in remote communication with said interface unit, said server adapted to receive messages generated by said interface unit,	See claim charts for claims 1b and 2, Ground 2, and claim 22[b], [c1], Ground 1.
[22c2] said computer server having a user interface, a user being capable of remotely accessing said computer server via said user interface to remotely configure a user-defined message profile containing outgoing message routing instructions,	See claim charts for claim 1(c), Ground 2 and claim 22[c2], Ground 1.

Claim 22	Wewalaarachchi, Honeywell, BACnet & Levac
[22d] wherein when said sensor detects an exception condition in the piece of remote equipment, said interface unit generates an incoming exception message indicative of the exception condition and forwards said message to said server,	See claim charts for claims 22[d], Ground 1, and 22[b] and 22[c1], Ground 2.
[22e] and wherein said server forwards at least one outgoing exception message to at least one predetermined user-defined remote communication device based on said incoming exception message as specified in said user-defined message profile.	See claim chart for Claim 1(e), Ground 2, and claim 22[e], Ground 1.

Claim 23	See claim charts for claim 22, (including [22b] and [c1]), Ground 2.
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Claim 24	See claim charts for claims 3 and 23, Ground 2, claim 24, Ground 1.
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Claim 26	Wewalaarachchi, Honeywell, BACnet & Levac
A system according to claim 22, said system monitoring a plurality of pieces of equipment, each piece having an identification code, said server further comprising:	See claim charts for claims 1a, and Claim 22 (particularly claim [22a]), Ground 2, and claim 26, Ground 1.
[26a] a first memory on which equipment identification codes of all monitored equipment are stored;	See claim chart for claim [26a], Ground 1.
[26b] a second memory in which communication device identification codes of all of said user-defined communication remote devices are stored, said communication device	See claim charts for Claim 1(c), Ground 2, and claim [26b], Ground 1. “[T]he <u>message template</u> with the variable value <i>may be submitted to message server 14 through user interface 20</i> and message file generator 23 <i>as a .msa file</i> . The <i>.msa file can then be stored in variable database 29</i> to await receipt of variable data...” Ex.

Claim 26	Wewalaarachchi, Honeywell, BACnet & Levac
identification codes being configured in a plurality of said user-defined message profiles.	1206 at 11:8-13. “Preferably, <i>the .msa file</i> created by message file generator 23 <i>may incorporate... the following information:</i> 1. OWNER: <i>identifies the user who created the file....</i> 10. DESTPARAMS: <i>supplies a list of destination parameters, such as recipient site location, required for transmitting the message to the destination.</i> ” Ex. 1206 at 4:48-4:52; 5:49-53; <i>see also id.</i> at 8:14-17. <i>See</i> Ex. 1207 at § VII(B).

Claim 30	<i>See</i> claim charts for Claim [22b], 26, Ground 2; claim 30, Ground 1.
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Claim 32	<i>See</i> claim charts for Claims 3 and 24; Ground 2; claim 30, Ground 1.
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Claim 42	Wewalaarachchi, Honeywell, BACnet & Levac
A method for monitoring remote equipment comprising the steps of:	<i>See</i> claim chart for Claim 1 preamble, Ground 2.
a) determining a state of at least one parameter of at least one piece of the remote equipment;	<i>See</i> claim chart for Claim 1(a), Ground 1.
b) communicating a message indicative of the state to a computer server as an incoming message, the incoming message having a respective incoming format;	<i>See</i> claim chart for Claim 1(b), Ground 1 and claim 42(b), Ground 1.
c) normalizing the incoming message to form a corresponding normalized message having a predetermined uniform format;	<i>See</i> claim charts for claim 1, Ground 2, and claim 3, Ground 1
d) storing the normalized message in a normalized message database on the computer server;	<i>See</i> claim chart for Claim 42(d), Ground 1.
e) determining from the incoming message whether at least one	<i>See</i> claim chart for claims 1(c) and 1(d), Ground 2.

Claim 42	Wewalaarachchi, Honeywell, BACnet & Levac
<p>exception message related to the incoming message is to be sent to at least one remote communication device specified by a plurality of message profiles stored at the computer server;</p>	<p>“Preferably, <i>the .msa file created by message file generator 23 may incorporate... the following information: 7. VARSTART: describes the <u>variable conditions that must be satisfied before triggering a message to run</u>.... 10. DESTPARAMS: supplies a list of destination parameters, such as recipient site location, required for transmitting the message to the destination.</i>” Ex. 1206 at 4:48-50, 4:63-67, 5:49-53; <i>see also id.</i> at 8:14-17.</p> <p>“<i>Variable data can be monitored and pending messages can be activated when the variable attains a specified value. . . [M]essage server 14 then routes the variable data and any activated messages to communication device interface 16.</i>” <i>Id.</i> at 6:35-46.</p> <p><i>See Ex. 1207 at § VII(B).</i></p>
<p>f) if it is determined in step e) that at least one exception message related to the incoming message is to be sent, deriving the at least one exception message from the stored normalized message corresponding to the related incoming message and the message profiles, the at least one exception message derived thereby having a respective format suitable for reception by the at least one remote communication device to which the at least one exception message is to be sent; and</p> <p>g) sending the at least one exception message derived in step</p>	<p><i>See claim charts for claim 1(e), Ground 2, and 42(d), Ground 1.</i></p> <p>“<i>An automation operation... takes place automatically based on either an <u>event (condition satisfaction)</u>.... For event driven automation, the application cell contains a <u>user defined data input source, a condition which is to be satisfied by the data received, an output data or action to be performed, and a <u>target entity</u> for receiving the output. The <u>input source</u> will be a <u>selected data object 400 from an <u>object server 206</u></u>....</u></i>” Ex. 1203 at 19:17-26.</p> <p>“<i>In FIG. 15a, the user defines... the <u>data object</u> which provides the input data to be</i></p>

Claim 42	Wewalaarachchi, Honeywell, BACnet & Levac
f) to the at least one remote communication device specified by the message profiles,	<i>monitored, and... the valid range of input data.... In 1513, the user defines the <u>notification</u> to be provided to the recipient (whether the alarm message specified in the linked cells, or a particular sound file).” Id. at 19:37-50; see also id. at 19:57-62.</i>
42[h] wherein the message profiles may be created or modified at least in part by a user by remote access of the computer server.	<i>See claim charts for Claims 1(c), Ground 2.</i>

Claim 43	Wewalaarachchi, Honeywell, BACnet & Levac
43. A system for monitoring remote equipment, comprising:	<i>See claim chart for claim 1 preamble, Ground 1.</i>
[43a]. a sensor in communication with a piece of the remote equipment for detecting the state of at least one parameter thereof;	<i>See claim chart for claim [22a], Ground 1.</i>
[43b]. an interface unit, coupled to said sensor, said interface unit having a message generating mechanism for generating messages indicative of the state of the at least one parameter of the piece of the remote equipment; and	<i>See claim charts for claims 1(a), [22b], and [22c1].</i>
[43c]. a computer server in communication with said interface unit, said server comprising:	<i>See claim charts for claims [22b] and [22c1], Ground 2.</i>
[43d]. a message interface for receiving messages generated by said interface unit;	<i>See claim charts for claim 1(b), claim [22c1], Ground 2.</i>
[43e]. a message normalizer for normalizing each one of the messages received from the interface unit to form corresponding normalized messages having a predetermined uniform format;	<i>See claim charts for Claims 3 and 24, Ground 2.</i>
[43f]. a normalized message database for storing normalized messages, including normalized messages from the message normalizer;	<i>See claim charts for Claim 42(d), Ground 1.</i>

Claim 43	Wewalaarachchi, Honeywell, BACnet & Levac
[43g]. a message profile database for storing a plurality of message profiles;	<i>See</i> claim charts for claims 1(c), 1(f), and [26b], Ground 2.
[43h]. a message processor for determining from each one of the messages received from the interface unit whether at least one exception message related to the received message is to be sent to at least one remote communication device specified by the message profiles;	<i>See</i> claim chart for claims 1(d) and 42(e), Ground 2.
[43i]. an exception message generator for deriving the at least one exception message determined to be sent by the message processor to the at least one remote communication device, the at least one exception message being derived from a normalized message corresponding to the related message received from the interface unit and the message profiles, the at least one exception message derived thereby having at least one respective format suitable for reception by the at least one remote communication device to which the at least one exception message is to be sent;	<i>See</i> claim chart for claim 42(f), Ground 2. <i>See also</i> claim chart for claim 1(e), Ground 2.
[43j]. a message interface for sending the at least one exception message derived by the exception message generator to the at least one remote communication device specified by the message profiles; and	<i>See</i> claim charts for claims 1(e), and 42(g), Ground 2 and claim 43[j], Ground 1.
[43k]. a user interface for enabling a user at a remote location to create or modify at least a portion of the message profiles in the message profile database,	<i>See</i> claim chart for claim 1(c), Ground 2.

VII. THIS PETITION IS NOT CUMULATIVE OF CO-PENDING AND PRIOR REQUESTS FOR IPR OF THE '601 PATENT

A. Non-Cumulativeness with Co-Pending Petition

The grounds of the instant petition are not cumulative of the grounds presented in the co-pending petition, which relies primarily upon the Shetty reference. While each petition challenges claims 1 and 22, the Object-Oriented

BMS and Shetty disclosed the limitations of claims 1 and 22 in different ways.

Other than claims 1, 2, 22, and 23, the two petitions do not address any of the same claims, as the Shetty petition does not challenge the normalization claims.

While both Shetty and the Object-Oriented BMS disclosed sensors and an interface unit, they did so with varying levels of clarity: Shetty expressly disclosed “sensors” and an “on-board information manager”; Wewalaarachchi disclosed a Supervisory Control and Data Acquisition system for monitoring equipment and was combined with Honeywell to more clearly disclose local “controllers” (interface unit) and “sensors.” Shetty also more clearly disclosed the sending of incoming “exception messages” than Wewalaarachchi: Shetty expressly disclosed sending messages based on “events,” which included monitored temperature being too high. Wewalaarachchi instead described processing that can be done within “application cells” or “presentation cells” to allow users to define exception conditions and to provide “notification of a user of an alarm condition.”

On the other hand, the Object-Oriented BMS more clearly disclosed the algorithm of a microprocessor-based “message generating mechanism” than Shetty. A person of skill in the art would know that the information manager of Shetty included equipment identifiers and data concerning the nature of the exception condition in its generated messages, whereas the Object-Oriented BMS explicitly disclosed sending a “device ID” and “IN_ALARM” flags from a local

controller to a central server, along with other detailed information concerning the equipment. For these and other reasons apparent from the grounds of each petition, the grounds of the instant petition are not cumulative of the grounds of the petition relying primarily on Wewalaarachchi and the Object-Oriented BMS.

B. Non-Cumulativeness of Prior Petition

Petition IPR2015-02004 presented grounds based on the ScadaWare reference (Ex. 1209) that are different in kind from the instant grounds.

ScadaWare anticipated the independent claims, while the Object-Oriented BMS is a combination under § 103. Additionally, ScadaWare is prior art under § 102(b), whereas the Wewalaarachchi reference is prior art under § 102(e).

With regards to the independent claims, ScadaWare and the object oriented BMS disclosed some limitations differently, or with different levels of detail. For instance, ScadaWare simply disclosed that “field transmitters” (which comprise sensors) monitor remote equipment, whereas each of Honeywell and Wewalaarachchi disclosed sensors explicitly. Each reference differently disclosed the claimed “message profiles”: ScadaWare disclosed a combination of “channel,” “link,” and “callout group” files stored on a host that corresponded to the claimed message profiles, whereas Wewalaarachchi disclosed “event driven automation for notification of a user of an alarm condition” by modifying “application cells.” Each reference also differently disclosed a “user interface” for modifying message

profiles: Scadaware disclosed a remote terminal for modifying the above-mentioned files, whereas Wewalaarachchi disclosed a graphical user interface to modify the rules and logic contained in the application or presentation cells.

There are also differences with respect to the extent each reference disclosed the normalization claim limitations. For instance, Scadaware taught a single normalization step that could occur either on a local RTU unit or at a central Host location, whereas Wewalaarachchi taught two normalization steps: first, data are converted from device specific formats to “a standardized data format that includes fully structured and typed data”; and second, application cells further process the data and store it in “<name>,<value>” pairs on an object server.

Finally, the Scadaware petition addressed all claims of the '601 Patent, whereas the instant petition only challenges the independent claims, dependent claims 2 and 23, and the normalization claims.

For these and other reasons evident from reading the grounds of each petition, the grounds of the instant petition are not redundant or cumulative of the grounds contained in petition IPR2015-02004, and vice-versa.

VIII. CONCLUSION

For the above reasons, Petitioner respectfully requests institution of *Inter Partes* Review of claims 1-3, 22-24, 26, 30, 32, and 42-43 of the '601 Patent.

Respectfully submitted,

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Dated: November 5, 2015

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CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the attached Petition for *Inter Partes* Review of U.S. Patent No. 6,147,601 and supporting materials were sent via overnight Federal Express on November 5, 2015, to the following:

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