Exhibit AA

Claim chart comparing claims 1-7, 10, 11, and 14, 15, 18, and 19
to Lindquist, alone and in view of Dietz.

I. GROUNDS OF UNPATENTABILITY

Ground	Claim(s)	Statute(s)	Prior Art
1	1-4, 7, 10, 11, and 14, 15, 18, and 19	102	**Lindquist**
2	1-7, 10, 11, and 14, 15, 18, and 19	103	**Lindquist**
3	1-7, 10, 11, and 14, 15, 18, and 19	103	**Lindquist** in view of **Dietz**

A. Prior Art Relied Upon

The tables cited below reflect the grounds cited upon in the corresponding Request for Reexamination, which includes the pertinent motivations to combine the relevant art. Further, corroborated evidence reflecting the perspective and knowledge of a person having ordinary skill in the art at the time of the invention of the '166 Patent (a "POSA") is provided in the attached declaration by Unified's expert, Scott Andrews ("*Andrews*," **Ex. 1003**).

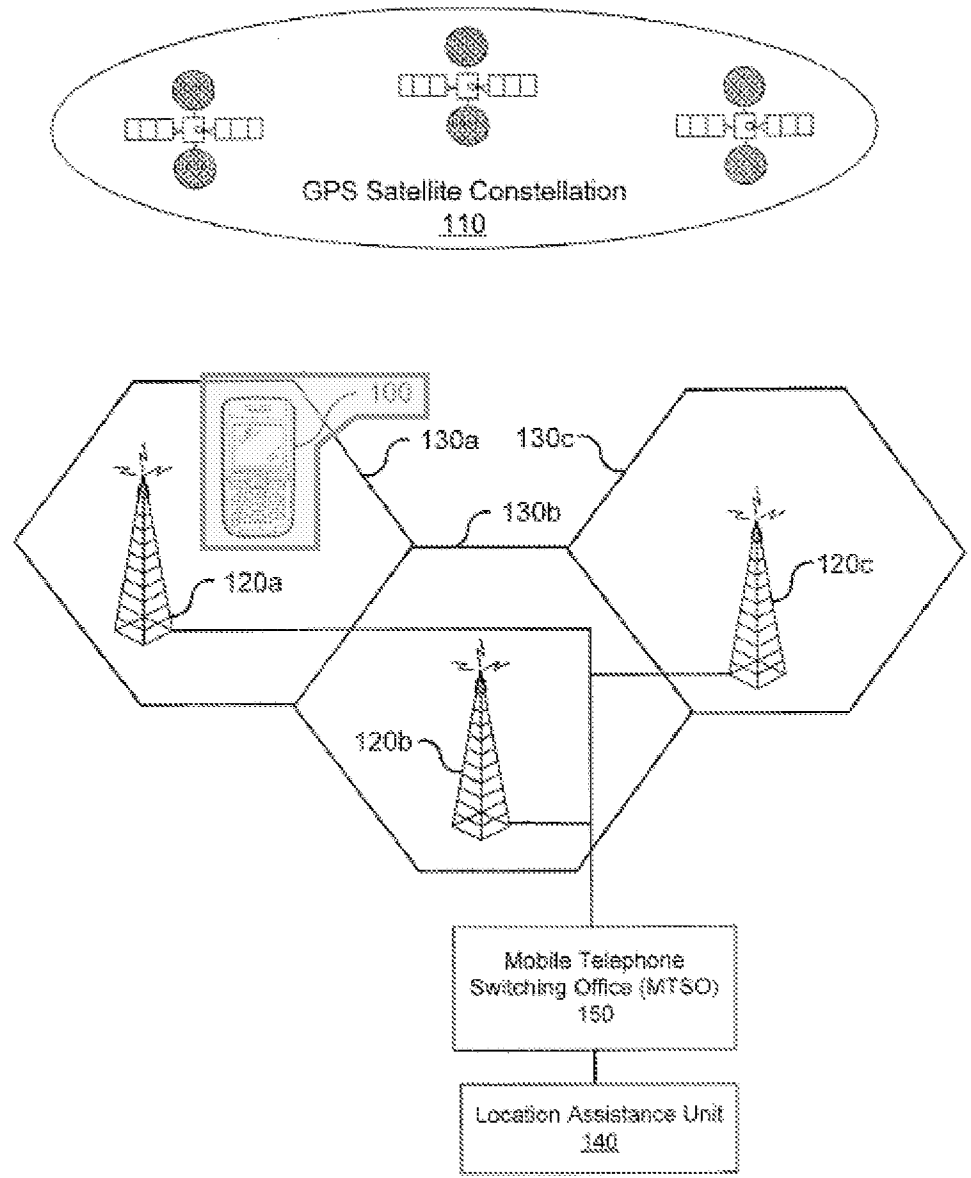
Primary Reference
Ex. 1005 ("Lindquist"): Lindquist (U.S. Publication 2009/0098880) was filed on October 16, 2007 and published on April 16, 2009. Lindquist later issued as U.S. Patent 8,467,804. Lindquist is prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).
Ex. 1006 ("Dietz"): Dietz (U.S. Publication 2010/0210301) was filed on February 18, 2009 and published on August 19, 2010. Dietz later issued as U.S. Patent 8,355,751. Dietz is therefore prior art at least under 35 U.S.C. §§ 102(a), (b), and (e).

B. Claim Charts

Claims	Relevant Disclosures in the Prior Art[1]
Claim 1	
[1.pre] A mobile device, comprising	Lindquist discloses *a mobile device* (e.g., a mobile terminal 100). For example, Lindquist discloses mobile terminals such as cellular mobile terminals, personal digital assistants (PDAs), and laptop computers that are equipped with GPS receivers. ***E.g.*, Lindquist**: A method for determining location of ***a mobile terminal*** includes repetitively switching power-on and power-off to a GPS receiver circuit which determines location of the mobile terminal using GPS signals. The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location. The power-on to power-off duty cycle can be regulated in response to identifying GPS isolation, in response to an acceleration-determined distance from previous GPS-determine location, an acceleration-determined velocity of the mobile terminal, availability of position assistance information from a cellular system, presence/absence of signals from a WLAN/Bluetooth device, and/or detection of a new cellular base station ID. *Lindquist* (Ex. 1005), Abstract. ***The present invention relates to mobile terminals and methods for determining mobile terminal location*** and, more particularly, to apparatus and methods for determining mobile terminal location based on Global Positioning System (GPS) signals. ***Many mobile terminals, such as cellular mobile terminals, personal digital assistants (PDAs), laptop computers***, and the like, are now equipped with GPS receivers. GPS is a space-based radio triangulation system using a constellation of satellites in orbit around the earth. A GPS receiver triangulates its position based on timing of radio signals it receives from various ones of the satellites and the known location of those satellites. *Id.*, [0001]-[0002]. Referring to FIGS. 1 and 2, ***the mobile terminal 100 includes a GPS receiver circuit 200 that determines geographic location of the mobile terminal 100 using GPS radio signals that are received from a constellation of GPS satellites 110***. The GPS receiver circuit 200 receives GPS radio signals from visible satellites and measures the time that the radio signals take to travel from the respective GPS satellites to the mobile terminal 100. By multiplying the travel time by the propagation speed, the GPS receiver circuit 200 calculates a range for each satellite in view. Ephemeris information provided in the GPS radio signal describes the satellite's orbit and velocity, thereby enabling the GPS receiver circuit 200 to

[1] Unless otherwise indicated, all emphases in quotations has been added.

Claims	Relevant Disclosures in the Prior Art[1]
	calculate the position of the mobile terminal 100 through a process of triangulation. *Id.*, [0044]. ***The mobile terminal 100 can include a cellular transceiver 230*** that can communicate with a plurality of cellular base stations 120 a-c, each of which provides cellular communications within their respective cells 130 a-c. The cellular transceiver 230 can be configured to encode/decode and control communications according to one or more cellular protocols, which may include, but are not limited to, ***Global Standard for Mobile (GSM) communication, General Packet Radio Service (GPRS), enhanced data rates for GSM evolution (EDGE), code division multiple access (CDMA), wideband-CDMA, CDMA2000, and/or Universal Mobile Telecommunications System (UMTS)***. *Id.*, [0046]; *see also* [0041].

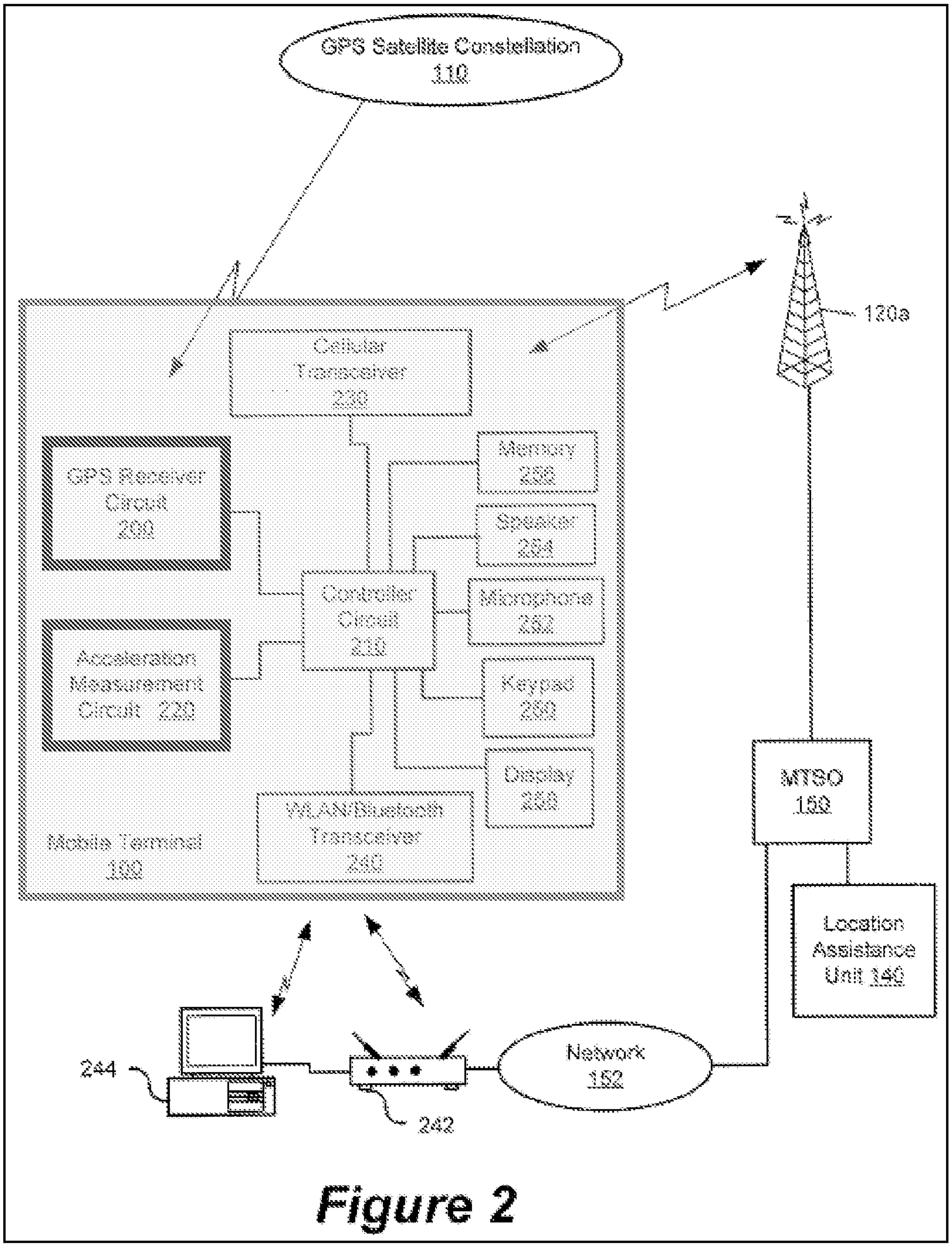
Claims	Relevant Disclosures in the Prior Art[1]
	 **Figure 1** *Lindquist* (Ex. 1005), Fig. 1 (annotated to highlight mobile terminal 100).
[1(a)] a plurality of sensors and a plurality of sensor groups, wherein each of the sensor groups is assigned at least one of the sensors, and	Lindquist discloses *a plurality of sensors* (e.g., one or more accelerometers and/or tilt sensors and a GPS receiver) *and a plurality of sensor groups* (e.g., an accelerometer circuit, a GPS receiver circuit, respectively), *wherein each of the sensor groups is assigned at least one of the sensors* (e.g., the accelerometer circuit

Claims	Relevant Disclosures in the Prior Art[1]
	220 is assigned to one or more accelerometers and a tilt sensor, and the *GPS receiver circuit 200 is assigned to at least one GPS receiver*, respectively).[2] ***E.g.*, Lindquist**: A method for determining location of a mobile terminal includes repetitively switching power-on and power-off to *a GPS receiver circuit which determines location of the mobile terminal using GPS signals*. The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location. The power-on to power-off duty cycle can be regulated in response to identifying GPS isolation, in response to *an acceleration-determined distance from previous GPS-determine location, an acceleration-determined velocity of the mobile terminal*, availability of position assistance information from a cellular system, presence/absence of signals from a WLAN/Bluetooth device, and/or detection of a new cellular base station ID. *Lindquist* (Ex. 1005), Abstract. Referring to FIGS. 1 and 2, *the mobile terminal 100 includes a GPS receiver circuit 200 that determines geographic location of the mobile terminal 100 using GPS radio signals that are received from a constellation of GPS satellites 110*. The GPS receiver circuit 200 receives GPS radio signals from visible satellites and measures the time that the radio signals take to travel from the respective GPS satellites to the mobile terminal 100. By multiplying the travel time by the propagation speed, the GPS receiver circuit 200 calculates a range for each satellite in view. Ephemeris information provided in the GPS radio signal describes the satellite's orbit and velocity, thereby enabling the GPS receiver circuit 200 to calculate the position of the mobile terminal 100 through a process of triangulation. *Id.*, [0044]. The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. *While the GPS receiver 200* is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile terminal 100 and a previous location that was determined by the *GPS receiver circuit 200 from GPS signals*. For example, the controller 210 can double integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. *Because the mobile terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-*

[2] Lindquist also discloses other sensor groups that may be relevant to the claims, such as WiFi, base station, and Bluetooth sensors.

Claims	Relevant Disclosures in the Prior Art[1]
	axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground. *Id.*, [0061]. The present invention relates to mobile terminals and methods for determining mobile terminal location and, more particularly, to apparatus and methods for determining mobile terminal location based on Global Positioning System (GPS) signals. Many mobile terminals, such as cellular mobile terminals, personal digital assistants (PDAs), laptop computers, and the like, are now equipped with GPS receivers. *GPS is a space-based radio triangulation system using a constellation of satellites in orbit around the earth. A GPS receiver triangulates its position based on timing of radio signals it receives from various ones of the satellites and the known location of those satellites*. *Id.*, [0001]-[0002]. Some embodiments of the present invention are directed to *a method for determining location of a mobile terminal which includes repetitively switching power-on and power-off to a GPS receiver circuit which determines location of the mobile terminal using GPS signals*. The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location. *Id.*, [0005]; *see also* [0041]. Significant reduction in power consumption by the mobile terminal may be achieved by *selectively powering-off the GPS receiver circuit*, and by determining when to power-on the GPS receiver circuit using the acceleration information from *the acceleration circuit* to determine how far the mobile terminal has moved. *Id.*, [0007]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: *determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle*; *determining a present acceleration-based location of the mobile terminal using acceleration information from an accelerometer circuit* in the mobile terminal during the power-off cycle of the GPS receiver circuit; and extending duration of the power-off cycle of the GPS receiver circuit until the distance between the present acceleration-based location and the GPS-based location of the mobile terminal exceeds a threshold distance. *Id.*, [0010]. In some further embodiments, regulation of the power-on to power-off duty cycle of the *GPS receiver circuit includes: determining a GPS-based location of the mobile terminal using the GPS receiver circuit* during the power-on cycle; *determining velocity of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal* during the power-off cycle of the

Claims	Relevant Disclosures in the Prior Art[1]
	GPS receiver circuit; and regulating the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal.. *Id*., [0011]; *see also* [0012], While various embodiments of the invention are described herein with reference to GPS satellites, it will be appreciated that they are applicable to positioning systems which utilize pseudolites or a combination of satellites and pseudolites. Pseudolites are ground based transmitters that broadcast a signal similar to a traditional satellite-sourced GPS signal modulated on an L-band carrier signal, generally synchronized with GPS time. The term "satellite", as used herein, is intended to include pseudolites or equivalents of pseudolites, and the term GPS signals, as used herein, is intended to include GPS-like signals from pseudolites or equivalents of pseudolites. Also, while the following discussion references the United States GPS system, various embodiments herein can be applicable to similar satellite positioning systems, such as the GLONASS system or GALILEO system. ***The term "GPS", as used herein, includes such alternative satellite positioning systems, including the GLONASS system and the GALILEO system. Thus, the term "GPS signals" can include signals from such alternative satellite positioning systems***. *Id*., [0042].

Claims	Relevant Disclosures in the Prior Art[1]
	 **Figure 2** *Id.*, Fig. 2 (annotated to highlight the mobile terminal and two sensor groups).
[1(b)] wherein the sensor groups are arranged according to a hierarchy; and	The ’791 Patent describes, in its preferred embodiment, a system in which a satellite global positioning system, which demands the most energy, is at the highest level of a hierarchy of sensor groups, while sensor groups demanding less energy, such as accelerometers, are at a lower level of the hierarchy based on the sequential nature of powering on the higher-level sensor group after a less-demanding sensor group. *’791 Patent* (Ex. 1001), 4:30-50; *see also* 5:54-67, 9:14-42. In preferred embodiments, the lower-level sensor group is on “continuously,” but it may operate periodically or be

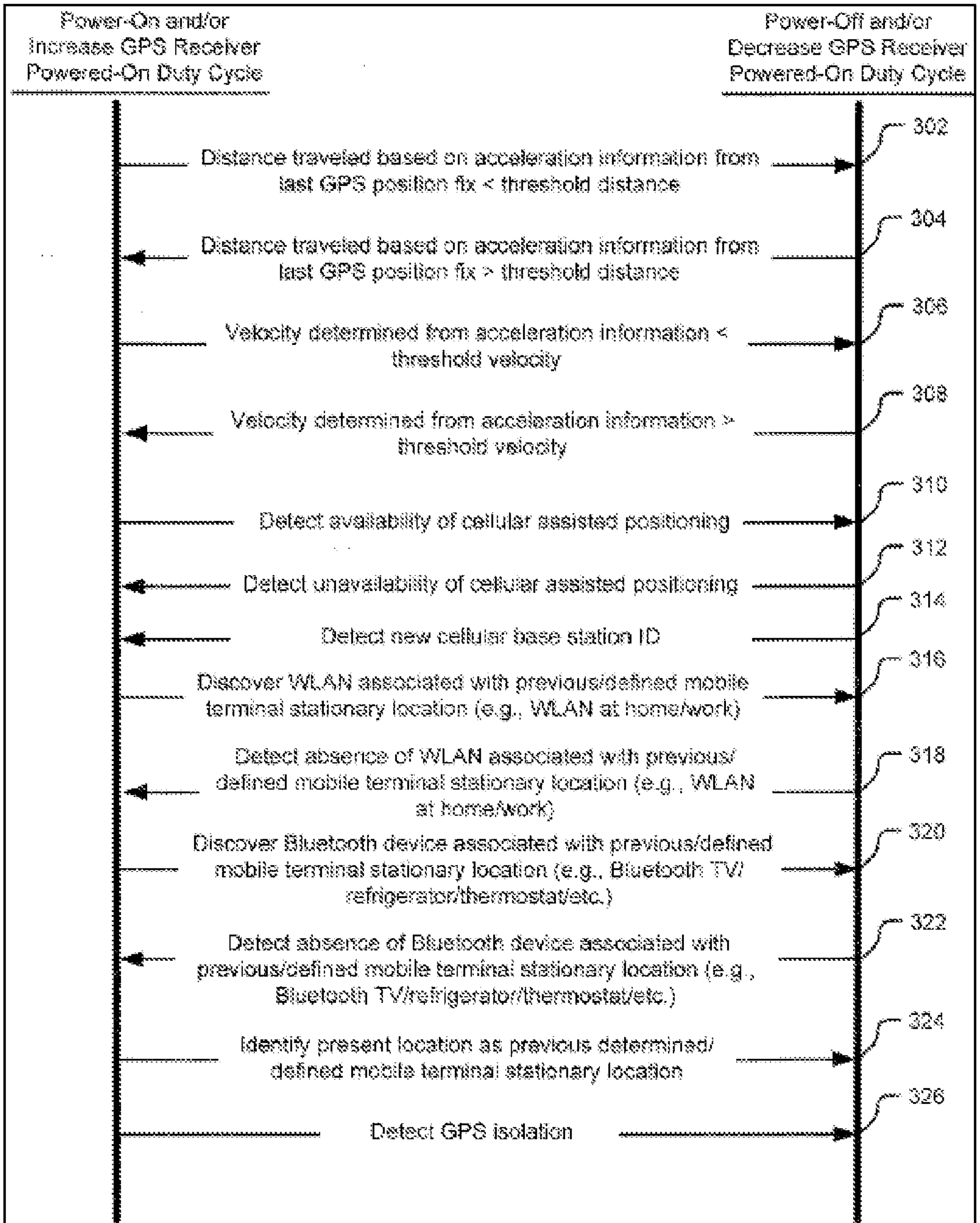
Claims	Relevant Disclosures in the Prior Art[1]
	powered off when the higher sensor groups are powered on. *Id.*, 10:18-19, 10:32-34, 9:53-61. **Lindquist** discloses that the *sensor groups are arranged according to a hierarchy* in two ways like those described in the preferred embodiment in the '791 Patent: (1) there is a specified execution order of sensors to implement the hierarchy, and (2) the GPS receiver circuit is considered more accurate than the accelerometer measurement circuit for making a determination of different context and is used to correct the accelerometer measurement circuit. Thus, the second sensor group, the GPS receiver circuit, is at a higher level than the first sensor group, the accelerometer circuit. For example, the more energy-demanding and accurate GPS receiver circuit is powered on after a distance traveled and/or velocity reaches a certain threshold, as determined by a lower-level accelerometer circuit, which may be calibrated by the GPS circuit. ***E.g.*, Lindquist**: Significant ***reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by determining when to power-on the GPS receiver circuit using the acceleration information from the acceleration circuit to determine how far the mobile terminal has moved***. In some further embodiments, the method further includes calibrating the accelerometer circuit in response to a distance between a present acceleration-based location and a previous GPS-determined location of the mobile terminal exceeding a threshold calibration distance. *Lindquist* (Ex. 1005), [0007]-[0008]. ***The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. While the GPS receiver 200 is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile terminal 100 and a previous location that was determined by the GPS receiver circuit 200 from GPS signals***. For example, the controller 210 can double integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. Because the mobile terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground. ***Significant reduction in power consumption by the mobile terminal 100 may be achieved by selectively powering-off the GPS receiver circuit 200, and by determining when to power-on the GPS receiver circuit 200 using the acceleration information from the acceleration measurement circuit 220*** to

Claims	Relevant Disclosures in the Prior Art[1]
	determine how far the mobile terminal 100 has moved. ***For example, the GPS receiver circuit 200 may consume at least 30 mW of power, while, in sharp contrast, the accelerometer circuit 220 may consume less than 3 mW of power. Consequently, using the accelerometer circuit 220 to more continuously determine location and repetitively powering-on/off the GPS receiver circuit 200 to update the mobile terminal's location can significantly extend the operational life of the mobile terminal 100 while powered by a battery***. *Id.*, [0061]-[0062]; *see also* [0063]. ***Significant reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by determining when to power-on the GPS receiver circuit using the acceleration information from the acceleration circuit*** to determine how far the mobile terminal has moved. *Id.*, [0007]; *see also* [0041] (describing that the present invention "may be embodied generally in any mobile terminal that includes a GPS receiver circuit that determines location of the mobile terminal using GPS signals, and which is configured to switch power-on and power-off to the GPS receiver circuit in response to various defined triggering events.") In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: ***determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; determining a present acceleration-based location of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and extending duration of the power-off cycle of the GPS receiver circuit until the distance between the present acceleration-based location and the GPS-based location of the mobile terminal exceeds a threshold distance***. *Id.*, [0010]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; determining velocity of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and regulating the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal includes: ***increasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity exceeding a threshold velocity; and decreasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity being less than a threshold velocity***. *Id.*, [0011]-[0012].

Claims	Relevant Disclosures in the Prior Art[1]
	For purposes of illustration and explanation only, various embodiments of the present invention are described herein in the context of mobile terminals that are configured to carry out cellular communications (e.g., cellular voice and/or data communications). It will be understood, however, that the present invention is not limited to such embodiments and ***may be embodied generally in any mobile terminal that includes a GPS receiver circuit that determines location of the mobile terminal using GPS signals, and which is configured to switch power-on and power-off to the GPS receiver circuit in response to various defined triggering events***. *Id.*, [0042].
[1(c)] a plurality of classifiers, wherein each classifier is assigned to a sensor group, and	This limitation is disclosed by **Lindquist**; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**. The '791 Patent describes as "classifiers" as modules or software that makes a classification based on readings from a sensor. *'791 Patent* (Ex. 1001), 5:9-41; *see also* 6:29-40, 8:46-57, 10:57-11:3; *see also* Fig. 1, Fig. 4. The '791 Patent confirms that classifiers performing classifications regarding a device's context were well known before the time of its invention. *See, e.g., id.*, 3:5-37. Additional classifications that may be made of the classifier may include, for example, the time of day or the when the user has planned an activity on their calendar. *Id.*, 10:6-17. **Lindquist** discloses *a plurality of classifiers* (e.g., position/location classifiers for classifying a distance traveled relative to some threshold, and velocity classifiers for classifying a mobile device's velocity relative to some threshold) *wherein each classifier is assigned to a sensor group* (e.g., **Lindquist** discloses that an "acceleration-based position determination circuit" and a "velocity-determination circuit" are each classifiers assigned to the accelerometer circuit, and a GPS-based position/location classifier is assigned to the GPS receiver circuit). Lindquist also indicates that the GPS receiver-circuit may also have a speed-sensor assigned to it, and a POSA would have recognized that GPS units were typically used to independently measure velocity. *See, e.g.*, [0080]; *see also Andrews* (Ex. 1003), ¶¶38, 41. ***E.g.*, Lindquist**: The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. ***While the GPS receiver 200 is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile terminal 100 and a previous location that was determined by the GPS receiver circuit 200 from GPS signals***. For example, the controller 210 can double integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. ***Because the mobile***

Claims	Relevant Disclosures in the Prior Art[1]
	terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground*.** *Lindquist* (Ex. 1005), [0061]. ***Significant reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by determining when to power-on the GPS receiver circuit using the acceleration information from the acceleration circuit to determine how far the mobile terminal has moved. *Id.*, [0007]; *see also* [0041] (describing that the present invention "may be embodied generally in any mobile terminal that includes a GPS receiver circuit that determines location of the mobile terminal using GPS signals, and which is configured to switch power-on and power-off to the GPS receiver circuit in response to various defined triggering events.") In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and an ***acceleration-based position determination circuit configured to determine a present accelerometer-based location of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit*. *The GPS receiver circuit determines a GPS-based location of the mobile terminal during the power-on cycle***. The controller circuit extends the duration of the power-off cycle of the GPS receiver circuit until the distance between the present accelerometer-based location and the GPS-based location of the mobile terminal exceeds a threshold distance. *Id.*, [0021]; *see also* [0010]; [0058]-[0059]. In some further embodiments, the mobile terminal further includes: an ***accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and a velocity determination circuit configured to determine velocity of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit***. The controller circuit is configured to increase the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal exceeding a threshold velocity, and to decrease the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal being less than a threshold velocity.. *Id.*, [0023]; *see also* [0012], [0063]. Referring to trigger events 306 and 308, the controller 210 can regulate power to the GPS receiver circuit 200 in response to velocity of the mobile terminal 100. ***The controller 210 can determine velocity from the acceleration information (i.e., velocity can be determined from a single integration of acceleration***

Claims	Relevant Disclosures in the Prior Art[1]
	information over time). When the velocity is less than a threshold velocity, the controller 210 can power-off the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, can decrease the power-on to power-off duty cycle of the GPS receiver circuit 200. When the velocity is greater than a threshold velocity, the controller 210 can power-on the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, increase the power-on to power-off duty cycle. Accordingly, the GPS receiver circuit 200 can be maintained powered-off when the mobile terminal 100 is substantially stationary, and can be repetitively cycled on and off when the mobile terminal 100 is moving. The GPS receiver circuit 200 can be maintained powered-off for longer periods of time when the mobile terminal 100 is being carried by a person who is walking slowly, and it can maintained powered-on for longer periods of time when the mobile terminal 100 is within a faster moving car. *Id.*, [0063]. For example, the controller 210 may calibrate the acceleration measurement circuit 220 by filtering (e.g., scaling, smoothing, and/or combining a known value/functional relationship with) the acceleration information and/or ***by adjusting clock timing*** used to double integrate the acceleration information over time. ***The controller 210 may using a clock to count time intervals (dt) and measure the average acceleration (vector A(i)) over the time intervals. The change in velocity (vector dV) in interval dt is A(i) times dt, which is dV. The change in position (vector dP) is then dV times dt or A(i) times dt and dt. Over time, the change in position P from position P1 to position P2 equals the sum of all dP(i) over the time used to move between P1 and P2***. If P2 does not match the observed positions P'2, determined using the GPS signals, then the controller 210 can multiply a correction factor to the acceleration information so that the values for position P2 and P'2 are equal, thereby calibrating the acceleration measurement circuit 220. *Id.*, [0070]. Although the exemplary GPS receiver circuit 200 has been described as being configured to determine geographic location of the mobile terminal 100 using GPS signals, it is not limited to carrying out the entire location determination by itself. For example, the GPS receiver circuit 200 may include RF receiver circuitry that receives GPS signals, and may include additional first processing circuitry that uses the GPS signals to generate timing measurements between the GPS receiver circuit 200 and corresponding GPS satellites, ***second processing circuitry that converts the timing measurements to distance measurements between the GPS receiver circuit 200 and the corresponding GPS satellites (e.g., by multiplying the timing measurements by the GPS signal propagation speed), third processing circuitry that uses translation, or other like mathematical techniques, to determine the position coordinates of the mobile terminal based on known locations of the GPS satellites and the distance measurements***. The first, second, and/or third processing circuitry may be entirely within the GPS receiver circuit 200, or at least some of that circuitry may be embodied within the controller circuit 210 and/or within other circuitry of the mobile terminal 100.

Claims	Relevant Disclosures in the Prior Art[1]
	Accordingly, the controller circuit 210 can power-on and power-off the RF receiver circuitry and may further regulate power to other processing circuitry within the GPS receiver circuit 200 and/or elsewhere within the mobile terminal 100 that performs such position determination functionality. *Id.*, [0081].  **Figure 3** *Id.*, Figure 3.

Claims	Relevant Disclosures in the Prior Art[1]
	To the extent additional functionality, such as the determination of a vector such as velocity, would be helpful or necessary to disclose a "classifier" assigned to the GPS receiver circuit, such is obvious over **Lindquist** in view of **Dietz**. Like **Lindquist**, **Dietz** discloses that it was often beneficial to await activating a GPS receiver circuit until a determination from other sensor groups indicated that the mobile device reached a given velocity threshold to save power to the mobile device. Further, **Dietz** confirms that GPS receivers, such as that disclosed by **Lindquist**, were also commonly used to accurately determine the velocity of a mobile device. For the reasons discussed in the Request, a POSA would have been motivated to incorporate, and would have had a reasonable expectation of success in incorporating, **Dietz**'s teachings regarding using software assigned to a GPS receiver circuit to calculate velocity, particularly when it is determined that the velocity of a device exceeds a certain threshold. *See Andrews* (Ex. 1003), ¶¶58-62. ***E.g.*, Dietz**: ***It is generally beneficial to know when a mobile communications device is in motion and at what speed***. For example, the knowledge of the speed of mobile devices has many uses in the wireless industry. Such knowledge may be used to better characterize the radio channel. Accurate channel characterization plays an important role in determining data rate selection in future wireless networks and can assist with optimization techniques if the radio channel. Additionally, a driver safety feature may be activated upon determining that a mobile device is moving in excess of a threshold speed, which may, if configured, disable some features of the device that are considered to be distracting to an operator of a motor vehicle, such as accepting input at an input device or generating output at an output device of the mobile device. ***While satellite navigation systems such as GPS are becoming increasingly more common in mobile devices and provide accurate speed measurement, when activated***, they consume considerable power (one estimate is that a receiver may draw up to 40 mA), which is generally at a premium in mobile devices. If activated on a full-time basis, the standby time of a mobile device could be limited to a few hours, which is generally considered to be undesirable from a user point of view. *Dietz* (Ex. 1006), [0001]-[0002]. A system and method is disclosed that permits speed measurement of a mobile device ***using a speed sensor such as a satellite navigation system*** or an accelerometer without such speed sensor having to be continually activated. *Id.*, [0017]. ***In addition to a positional fix, time of day and velocity information may be deduced from the signals transmitted by the satellites***. Optimal reception is obtained when the navigation satellite receiver is situated outdoors and with good visibility to most of the sky. Significantly degraded performance may be obtained when the navigation satellite receiver is situated

Claims	Relevant Disclosures in the Prior Art[1]
	indoors, in caves or in deep canyons where sky visibility may be severely restricted. Typically, clouds or bad weather do not degrade receiver performance. Clearly, the performance and accuracy of the navigation satellite receiver is dependent upon synchronization of the coded timing signals transmitted by each satellite. Several atomic reference clocks are used in the satellite to generate and synchronize the reference clock signals used to encode the coded timing signals to a common reference clock frequency. ***Typically, the navigation satellite receiver contains a fixed, free-running clock oscillator circuit, making use of a quartz crystal to determine its frequency.*** ***From the foregoing, a GPS or other navigation satellite receiver may comprise, if implemented or bundled within a mobile device such as device 300, shown in FIG. 3, a speed sensor.*** For the purposes of the present disclosure, ***alternative speed sensors may be used in conjunction with or as a substitute for a GPS or other navigation satellite receiver***. Such other speed sensors may include an accelerometer implemented or integrated within a mobile device 300, for various other purposes, for example, to detect movement of the device when used as a game controller and the like. *Id.*, [0027]-[0031]. ***It is only when the indication is greater than the initial threshold 112, that the speed sensor, for example, the GPS satellite receiver 460 shown in FIG. 4, is activated 120.*** In the discussion that follows, the GPS (or other navigation) satellite receiver 460 is considered to be the speed sensor, although other components may also be suitable. Preferably, the GPS satellite receiver 460 is not activated at step 120 if it is already powered up through another mechanism (not discussed herein). Thereafter, the monitor 471 is disregarded for the time being and ***the speed of the mobile device 300 is accurately monitored, more or less continuously, by the GPS satellite receiver 460***. *Id.*, [0041]-[0042]. Thereafter, ***the GPS satellite receiver 460 will continue to monitor the speed of the mobile device 300***, whether continuously, as is likely to be the case where the speed sensor is the GPS satellite receiver 460, or periodically and compared against a second threshold value 170. ***If the speed of the mobile device 300 should happen to fall below such second threshold value 171, the at-speed processing function controllers may be reversed or disengaged 175. Thereafter, the GPS satellite receiver 460 is powered down 145 so as to conserve battery power*** and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115. On the other hand, if the speed of the mobile device 300 continues to meet or exceed such second threshold 172, ***then the GPS satellite receiver 460 may simply continue to monitor 160 the speed of the mobile device 300***. *Id.*, [0049]-[0050]; *see also* Figs. 1-4.
[1(d)] wherein each classifier is	**Lindquist** discloses this limitation; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**.

Claims	Relevant Disclosures in the Prior Art[1]
configured to evaluate one or more contexts of the mobile device based on signals from one or more sensors assigned to the same sensor group as the classifier;	The '719 Patent describes context as "awareness of the device regarding the environment in which it is located, the current activity of the user and/or the circumstances in which the user finds himself." *'791 Patent* (Ex. 1001), 1:29-35. An example of a context cited by the '791 Patent is whether the device is moving in a vehicle, such as based on the exceeding of some threshold speed. *Id.*, 9:30-39. **Lindquist** discloses that a first *classifier* (e.g., the acceleration-based position determination circuit, a position/location classifier) is configured to *evaluate one or more contexts of the mobile device* (e.g., a user-activity context, such as whether the user has traveled a threshold distance from some position, such as work, home, or a bad-reception area) *based on signals from the one or more sensors assigned to the same sensor group as the classifier* (e.g., the accelerometers and tilt sensors, which are also assigned to the accelerometer circuit). **Lindquist** discloses that a second *classifier* (e.g., the velocity-determination circuit of the accelerometer circuit, a velocity classifier) *is configured to evaluate one or more contexts* (e.g., whether a mobile device user is walking or driving) *based on signals from the one or more sensors assigned to the same sensor group as the classifier* (e.g., the accelerometers and tilt sensors, which are also assigned to the accelerometer circuit). Finally, **Lindquist** discloses that the third *classifier* (e.g., the position/location-based classifier of the GPS-receiver circuit) is *configured to evaluate one or more contexts of the mobile device* (e.g., it is configured to evaluate whether the position of the mobile terminal is near a "isolation location" where a receiver is unlikely to have reception or areas with it will remain substantially stationary for long periods of time, such as at the user's work or home) *based on signals from the one or more sensors assigned to the same sensor group as the classifier* (e.g., the GPS receivers, also assigned to the GPS receiver circuit). Further, as mentioned above, and explained by Mr. Andrews, a POSA would have appreciated that GPS receiver circuits would typically have processors measure speed, as a velocity classifier. *See Andrews* (Ex. 1003), ¶¶37-38, 41. ***E.g.*, <u>Lindquist</u>**: Referring to trigger events 306 and 308, the controller 210 can regulate power to the GPS receiver circuit 200 in response to velocity of the mobile terminal 100. The controller 210 can determine velocity from the acceleration information (i.e., velocity can be determined from a single integration of acceleration information over time). When the velocity is less than a threshold velocity, the controller 210 can power-off the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, can decrease the power-on to power-off duty cycle of the GPS receiver circuit 200. When the velocity is greater than a threshold velocity, the controller 210 can power-on the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, increase the power-on to power-off duty cycle. Accordingly, the GPS receiver circuit 200 can be maintained powered-off when the mobile terminal 100 is substantially

Claims	Relevant Disclosures in the Prior Art[1]
	stationary, and can be repetitively cycled on and off when the mobile terminal 100 is moving. ***The GPS receiver circuit 200 can be maintained powered-off for longer periods of time when the mobile terminal 100 is being carried by a person who is walking slowly, and it can maintained powered-on for longer periods of time when the mobile terminal 100 is within a faster moving car***. *Id.*, [0063]. ***The distance between the mobile terminal 100 and a location, which was previously determined based on GPS signals, is detected based on sensed acceleration of the mobile terminal 100***. Referring to trigger event 302, when, after a threshold time has elapsed since the previous GPS position determination, the mobile terminal 100 is determined to still be less than a threshold distance away from a previously determined GPS position, the controller 210 can respond by powering-off the GPS receiver circuit 200. When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 may decreasing the power-on to power-off duty cycle by extending the power-off time of the GPS receiver circuit 200 and/or decreasing the power-on time. ***In contrast, referring to trigger event 304, when the mobile terminal 100 is determined to be at least the threshold distance away from the previously determined GPS position, the controller circuit 210 can respond by turning-on the GPS receiver circuit 200.*** When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 can increase the power-on to power-off duty cycle of the GPS receiver circuit 200 by decreasing the power-off time of the GPS receiver circuit 200 and/or increasing the power-on time. The threshold distance need not be static, as may be regulated by the controller 210 to vary in response to, for example, time, velocity of the mobile terminal 100, number and/or type of other communication networks that are detected by the mobile terminal (e.g., presence/absence of defined cellular system/ WLAN/Bluetooth network). *Id.*, [0058]-[0060]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; ***and an acceleration-based position determination circuit configured to determine a present acceleration-based location of the mobile terminal using the acceleration information from the accelerometer circuit*** during the power-off cycle of the GPS receiver circuit. ***The GPS receiver circuit is configured to detect when the mobile terminal is GPS isolated in response to insufficient GPS signal strength to determine location of the mobile terminal during at least a threshold length of time***. The controller circuit is configured to power-off the GPS receiver circuit in response to detecting that the mobile terminal is GPS isolated, to extend duration of the power-off cycle of the GPS receiver circuit until a distance between the present acceleration-based location and a previous GPS-determine location of the mobile terminal exceeds a threshold distance, and to attempt to determine a present GPS-determined location of the mobile terminal upon powering-on the GPS receiver circuit. *Id.*, [0020].

Claims	Relevant Disclosures in the Prior Art[1]
	Referring to trigger event 324, ***the controller 210 can identify when the mobile terminal 100 is presently at a location that was previously determined, and/or which has been defined, as a location where the mobile terminal 100 has or will remain stationary for at least a threshold time. For example, the controller 210 can learn when the mobile terminal 100 arrives at work and/or at home, it will remain substantially stationary at that location for a sufficiently long period of time that the controller 210 can achieve substantial power savings by powering-off the GPS receiver circuit 200***. ***The controller 210 can then maintain the GPS receiver circuit 200 powered-off until it senses that it has moved at least a threshold distance from that location (e.g., via the acceleration information***, sensing a new cellular base station ID, and/or detecting absence of RF signals from a previously identified WLAN and/or Bluetooth device). The controller 210 may decrease the power-on to power-off duty cycle of the GPS receiver circuit 200 to maintain the GPS receiver circuit 200 powered-off for longer periods of time between when it is powered-on to briefly attempt to detect its location using GPS signals. Referring to trigger event 326, ***the controller 210 can identify when the mobile terminal 100 is located where it is isolated from GPS signals, such as can be determined from an insufficient GPS signal strength for the GPS receiver circuit 200 to determine its location during at least a threshold length of time***. The threshold length of time may be defined so as to reduce/eliminate false GPS isolation determinations which may otherwise occur due to brief interruption of the GPS signals, such as from a user's temporary body positioning, other temporary signal path obstructions, and/or signal interference/multipath signal fading effects on the GPS signals. *Lindquist* (Ex. 1005), [0073]-[0074] ***The controller 210 may also respond to the indication of GPS isolation by logging its location in the memory 256, and using the logged GPS isolation locations to determine when the mobile terminal 100 is located at a known GPS isolation location. When the mobile terminal 100 is located at a known GPS isolation location, the controller 210 may respond, via trigger event 326, by powering-off the GPS receiver circuit 200*** until the mobile terminal 100 is determined to have moved at least a threshold distance away from that location. The controller 210 may additionally/alternatively decrease the GPS power-on to power-off duty cycle of the GPS receiver circuit 200 so that it remains powered-off for longer periods of time between power-on attempts to determine its location using GPS signals. The mobile terminal 100 (via the controller 210) may be configured to share the GPS isolation locations that is has identified and, which may be, logged into memory 256 with other mobile terminals. For example, the mobile terminal 100 may communicate its known GPS isolation locations via the cellular transceiver 230 and/or the WLAN/Bluetooth transceiver 240 to other mobile terminals and/or to a centralized database that functions as a centralized repository of known GPS isolation locations. The mobile terminal 100 may similarly receive known GPS isolation locations from another mobile terminal and/or from a centralized

Claims	Relevant Disclosures in the Prior Art[1]
	repository of known GPS isolation locations. The GPS isolation locations may, for example, identify regions of a building where GPS signals do not have sufficient strength to allow location determination, and may similarly identify other regions of the building where GPS signals have sufficient strength to enable location determination. ***GPS isolation locations that are identified in the centralized repository and/or within the memory 256 may be displayed on the mobile terminal 100 as a graphical overlay on a digitized map and/or on a satellite picture. A user may thereby visually observe where GPS signals coverage is blocked or otherwise insufficient to determine locatio***n. For example, when a user is operating the mobile terminal 100 within a building, a satellite image showing the building may be displayed on the mobile terminal and known GPS isolation locations may be overlayed on the displayed building. The user may thereby visually identify locations within the building where the user may acquire sufficient GPS signal strength to use the GPS receiver circuit 200 to determine location. Similarly, other electronic devices that can access the centralized repository and/or obtain GPS isolation locations directly/indirectly from the mobile terminal 100 may display those locations as a graphical overlay on a digitized map and/or on a satellite picture. ***The controller 210 may maintain the GPS receiver circuit 200 powered-off while the mobile terminal 100 is located within a defined distance of a known GPS isolation location, and, upon determining that it has moved a sufficient distance therefrom (e.g., via the acceleration information), may power-on the GPS receiver circuit 200 to determine its location***. *Id.*, [0077]-[0080]. Additionally, or alternatively, it would have been obvious to implement **Lindquist** to include a velocity-related classifier assigned to the GPS receiver circuit, the same sensor group as the GPS sensors, in view of the disclosure of **Dietz**. For example, **Dietz** discloses that a GPS receiver may be used to calculate speed and, when appropriate, take certain actions when the signals from the GPS receiver indicate that a person is traveling above a threshold speed indicating that they are moving in a vehicle. For example, **Dietz** discloses that certain actions related to the evaluated context (e.g., engaging driver safety features, initiating a mapping application) are taken only the GPS receiver circuit confirms the context evaluated by the lower-level sensor groups, which **Dietz** refers to as "monitors." For the reasons discussed in the Request and as discussed above regarding limitation 1(c), a POSA would have been motivated to incorporate, and would have had a reasonable expectation of success in incorporating, **Dietz**'s disclosure regarding using sensors of a GPS receiver circuit to track speed/velocity and configuring the same to evaluate the context of a mobile device (e.g., determine whether a user driving) into **Lindquist**'s system. *See Andrews* (Ex. 1003), ¶¶58-62. ***E.g.*, Dietz**:

Claims	Relevant Disclosures in the Prior Art[1]
	It is generally beneficial to know when a mobile communications device is in motion and at what speed. For example, the knowledge of the speed of mobile devices has many uses in the wireless industry. Such knowledge may be used to better characterize the radio channel. Accurate channel characterization plays an important role in determining data rate selection in future wireless networks and can assist with optimization techniques if the radio channel. ***Additionally, a driver safety feature may be activated upon determining that a mobile device is moving in excess of a threshold speed, which may, if configured, disable some features of the device that are considered to be distracting to an operator of a motor vehicle, such as accepting input at an input device or generating output at an output device of the mobile device***. While ***satellite navigation systems such as GPS are becoming increasingly more common in mobile devices and provide accurate speed measurement***, when activated, they consume considerable power (one estimate is that a receiver may draw up to 40 mA), which is generally at a premium in mobile devices. If activated on a full-time basis, the standby time of a mobile device could be limited to a few hours, which is generally considered to be undesirable from a user point of view. *Dietz* (Ex. 1006), [0002]-[0004]. ***It is only when the indication is greater than the initial threshold 112, that the speed sensor, for example, the GPS satellite receiver 460 shown in FIG. 4, is activated 120***. In the discussion that follows, the GPS (or other navigation) satellite receiver 460 is considered to be the speed sensor, although other components may also be suitable. Preferably, the GPS satellite receiver 460 is not activated at step 120 if it is already powered up through another mechanism (not discussed herein). Thereafter, the monitor 471 is disregarded for the time being and the speed of the mobile device 300 is accurately monitored, more or less continuously, by the GPS satellite receiver 460. The speed of the mobile device 300 is thereafter compared, either constantly or periodically, against the initial threshold 140. ***If the speed of the mobile device 300 as measured by the GPS satellite receiver 460 is less than or equal to the initial threshold 111, the GPS satellite receiver 460 is deactivated 145 so as to conserve battery power and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115***. Preferably, the GPS satellite receiver 460 is not deactivated at step 145 if it has already been powered down through another mechanism (not discussed herein). This scenario may arise in one of two ways. First, and the most likely scenario, is that the monitor 471 provided an indication of speed that inaccurately read higher than its actual speed. In this way, false positives are easily dealt with by the disclosed methodology, as they will be ignored. Second, it is possible that the indication of speed provided by the monitor 471 was accurate, but that in the time to energize the GPS satellite receiver 460, the speed of the mobile device 300 had dropped below the initial threshold. In any event, ***it is only where the GPS satellite receiver 460 determines that the mobile device 300 is greater than the initial threshold that any processing relying or conditioned on the motion of the mobile device 300 is initiated***. Such

Claims	Relevant Disclosures in the Prior Art[1]
	processing may include better characterizing the radio channel, including determining data rate selection and/or applying optimization techniques through an optimizer (not shown) and/or ***engaging a driver safety and/or other function controller such as, by way of non-limiting example, the driver safety feature*** disclosed in co-pending and commonly assigned U.S. patent application Ser. No. 12/043,495 described above, ***and may have additional controls disclosed therein or inferred therefrom that, for example, permit a user to selectively disengage the driver safety feature if the user is a passenger in a vehicle as opposed to being a driver.*** ***Such processing may also or in the alternative comprise engaging other user features, for example, automatic enablement of a mapping module (shown as 447 in FIG. 4) to take advantage of the engagement of the GPS satellite receiver 460, or of an output device, for example, a display view on the mobile communications device 300 or audio indicator, for example, to show the current speed, heading and/or salient points of interest to a driver, or indeed to obtain a position fix for the mobile device 300***. … ***Thereafter, the GPS satellite receiver 460 will continue to monitor the speed of the mobile device 300, whether continuously, as is likely to be the case where the speed sensor is the GPS satellite receiver 460***, or periodically and compared against a second threshold value 170. If the speed of the mobile device 300 should happen to fall below such second threshold value 171, the at-speed processing function controllers may be reversed or disengaged 175. Thereafter, the GPS satellite receiver 460 is powered down 145 so as to conserve battery power and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115. *Id.*, [0041]-[0051].
[1(e)] wherein the mobile device is configured to	As discussed above regarding the preamble, Lindquist discloses a mobile device.
[1(e)(i)] activate a classification by a classifier assigned to a first sensor group to evaluate a first context of the mobile device, wherein the first sensor group is at a lowest level in the hierarchy;	Lindquist discloses *activating a classification* (e.g., a positive classification when a device is above a threshold certain distance traveled and/or velocity traveled) *by a classifier assigned to a first sensor group* (i.e., the determination circuits assigned to the accelerometer receiver circuit; *see supra*, limitations 1(c)-(d)) *to evaluate a first context of the mobile device* (e.g., in the case of the acceleration-based position determination circuit, whether the mobile device has traveled above a threshold certain distance, such as from home, work, or an area that lacks GPS reception; in the case of the acceleration-based velocity determination circuit, whether the device has traveled above a threshold velocity, such as to indicate that the user of the mobile device is driving), *wherein the first sensor group is at a lowest level in the hierarchy* (e.g., as discussed regarding limitation 1(b), the accelerometer measurement circuit is at the lowest level in the hierarchy relative to the GPS receiver circuit, both sequentially and in terms of accuracy).

Claims	Relevant Disclosures in the Prior Art[1]
	E.g.*, Lindquist**: Significant reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by determining when to power-on the GPS receiver circuit ***using the acceleration information from the acceleration circuit to determine how far the mobile terminal has moved. *Lindquist* (Ex. 1005), [0007]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: ***determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; determining a present acceleration-based location of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and extending duration of the power-off cycle of the GPS receiver circuit until the distance between the present acceleration-based location and the GPS-based location of the mobile terminal exceeds a threshold distance***. *Id.*, [0010]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; ***determining velocity of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit***; and regulating the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal includes: ***increasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity exceeding a threshold velocity***; and decreasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity being less than a threshold velocity. *Id.*, [0011]-[0012]. In some further embodiments, the mobile terminal further includes: ***an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and an acceleration-based position determination circuit configured to determine a present acceleration-based location of the mobile terminal using the acceleration information from the accelerometer circuit*** during the power-off cycle of the GPS receiver circuit. The GPS receiver circuit is configured to detect when the mobile terminal is GPS isolated in response to insufficient GPS signal strength to determine location of the mobile terminal during at least a threshold length of time. The controller circuit

Claims	Relevant Disclosures in the Prior Art[1]
	is configured to power-off the GPS receiver circuit in response to detecting that the mobile terminal is GPS isolated, to extend duration of the power-off cycle of the GPS receiver circuit ***until a distance between the present acceleration-based location and a previous GPS-determine location of the mobile terminal exceeds a threshold distance***, and to attempt to determine a present GPS-determined location of the mobile terminal upon powering-on the GPS receiver circuit. *Id.*, [0020]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and ***a velocity determination circuit configured to determine velocity of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit. The controller circuit is configured to increase the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal exceeding a threshold velocity***, and to decrease the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal being less than a threshold velocity. *Id.*, [0023] ***The distance between the mobile terminal 100 and a location, which was previously determined based on GPS signals, is detected based on sensed acceleration of the mobile terminal 100***. Referring to trigger event 302, when, after a threshold time has elapsed since the previous GPS position determination, the mobile terminal 100 is determined to still be less than a threshold distance away from a previously determined GPS position, the controller 210 can respond by powering-off the GPS receiver circuit 200. When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 may decreasing the power-on to power-off duty cycle by extending the power-off time of the GPS receiver circuit 200 and/or decreasing the power-on time. ***In contrast, referring to trigger event 304, when the mobile terminal 100 is determined to be at least the threshold distance away from the previously determined GPS position***, the controller circuit 210 can respond by turning-on the GPS receiver circuit 200. When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 can increase the power-on to power-off duty cycle of the GPS receiver circuit 200 by decreasing the power-off time of the GPS receiver circuit 200 and/or increasing the power-on time. The threshold distance need not be static, as may be regulated by the controller 210 to vary in response to, for example, time, velocity of the mobile terminal 100, number and/or type of other communication networks that are detected by the mobile terminal (e.g., presence/absence of defined cellular system/ WLAN/Bluetooth network). ***The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. While the GPS receiver 200 is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile***

Claims	Relevant Disclosures in the Prior Art[1]
	terminal 100 and a previous location that was determined by the GPS receiver circuit 200 from GPS signals. For example, the controller 210 can double integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. Because the mobile terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground. Significant reduction in power consumption by the mobile terminal 100 may be achieved by selectively powering-off the GPS receiver circuit 200, and ***by determining when to power-on the GPS receiver circuit 200 using the acceleration information from the acceleration measurement circuit 220 to determine how far the mobile terminal 100 has moved***. For example, the GPS receiver circuit 200 may consume at least 30 mW of power, while, in sharp contrast, the accelerometer circuit 220 may consume less than 3 mW of power. Consequently***, using the accelerometer circuit 220 to more continuously determine location and repetitively powering-on/off the GPS receiver circuit 200 to update the mobile terminal's location can significantly extend the operational life of the mobile terminal 100 while powered by a battery***. *Id.*, [0058]-[0062]. ***Referring to trigger events 306 and 308, the controller 210 can regulate power to the GPS receiver circuit 200 in response to velocity of the mobile terminal 100. The controller 210 can determine velocity from the acceleration information (i.e., velocity can be determined from a single integration of acceleration information over time)***. When the velocity is less than a threshold velocity, the controller 210 can power-off the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, can decrease the power-on to power-off duty cycle of the GPS receiver circuit 200. ***When the velocity is greater than a threshold velocity***, the controller 210 can power-on the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, increase the power-on to power-off duty cycle. Accordingly, the GPS receiver circuit 200 can be maintained powered-off when the mobile terminal 100 is substantially stationary, and can be repetitively cycled on and off when the mobile terminal 100 is moving. ***The GPS receiver circuit 200 can be maintained powered-off for longer periods of time when the mobile terminal 100 is being carried by a person who is walking slowly, and it can maintained powered-on for longer periods of time when the mobile terminal 100 is within a faster moving car***. *Id.*, [0063]. Referring to trigger event 324, the controller 210 can identify when the mobile terminal 100 is presently at a location that was previously determined, and/or which has been defined, as a location where the mobile terminal 100 has or will

Claims	Relevant Disclosures in the Prior Art[1]
	remain stationary for at least a threshold time. For example, the controller 210 can learn when the mobile terminal 100 arrives at work and/or at home, it will remain substantially stationary at that location for a sufficiently long period of time that the controller 210 can achieve substantial power savings by powering-off the GPS receiver circuit 200. The controller 210 can then maintain the GPS receiver circuit 200 powered-off until ***it senses that it has moved at least a threshold distance from that location (e.g., via the acceleration information***, sensing a new cellular base station ID, and/or detecting absence of RF signals from a previously identified WLAN and/or Bluetooth device). The controller 210 may decrease the power-on to power-off duty cycle of the GPS receiver circuit 200 to maintain the GPS receiver circuit 200 powered-off for longer periods of time between when it is powered-on to briefly attempt to detect its location using GPS signals. *Lindquist* (Ex. 1005), [0073]. The controller 210 may maintain the GPS receiver circuit 200 powered-off while the mobile terminal 100 is located within a defined distance of a known GPS isolation location, and, ***upon determining that it has moved a sufficient distance therefrom (e.g., via the acceleration information), may power-on the GPS receiver circuit 200 to determine its location***. *Id.*, [0080]
[1(e)(ii)] activate a classification by a classifier assigned to a second sensor group to evaluate the first context of the mobile device after a result of the classification by the classifier assigned to the first sensor group; and	**Lindquist** discloses this limitation; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**. **Lindquist** discloses that the mobile device *activate[s]* a position-based *classification* (e.g., a determination of a threshold distance that the mobile device has moved from a previous GPS-estimated position) *by a classifier assigned to a second sensor group* (i.e., by a GPS-based position/location classifier assigned to the GPS receiver circuit) *to evaluate the first context of the mobile device* (e.g., context related to the activity of the user of the mobile device, such as whether their position is close or far from a previous GPS-tracked position or a specific location, such as home, work, or a location without GPS reception) *after a result of the classification by the classifier assigned to the first sensor group* (e.g., the distance classification by a position-based classifier of a GPS receiver circuit does is not activated until the GPS is powered *after* a positive classification of a threshold distance by the acceleration position determination circuit). ***<u>E.g.</u>*, <u>Lindquist</u>**: Significant reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by ***determining when to power-on the GPS receiver circuit using the acceleration information from the acceleration circuit to determine how far the mobile terminal has moved***. *Lindquist* (Ex. 1005), [0007].

Claims	Relevant Disclosures in the Prior Art[1]
	In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: ***determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; determining a present acceleration-based location of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and extending duration of the power-off cycle of the GPS receiver circuit until the distance between the present acceleration-based location and the GPS-based location of the mobile terminal exceeds a threshold distance***. *Id.*, [0010]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and an acceleration-based position determination circuit configured to determine a present acceleration-based location of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit. ***The GPS receiver circuit is configured to detect when the mobile terminal is GPS isolated in response to insufficient GPS signal strength to determine location of the mobile terminal during at least a threshold length of time. The controller circuit is configured to power-off the GPS receiver circuit in response to detecting that the mobile terminal is GPS isolated, to extend duration of the power-off cycle of the GPS receiver circuit until a distance between the present acceleration-based location and a previous GPS-determine location of the mobile terminal exceeds a threshold distance, and to attempt to determine a present GPS-determined location of the mobile terminal upon powering-on the GPS receiver circuit***. *Id.*, [0020]. ***In contrast, referring to trigger event 304, when the mobile terminal 100 is determined to be at least the threshold distance away from the previously determined GPS position, the controller circuit 210 can respond by turning-on the GPS receiver circuit 200.*** When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 can increase the power-on to power-off duty cycle of the GPS receiver circuit 200 by decreasing the power-off time of the GPS receiver circuit 200 and/or increasing the power-on time. The threshold distance need not be static, as may be regulated by the controller 210 to vary in response to, for example, time, velocity of the mobile terminal 100, number and/or type of other communication networks that are detected by the mobile terminal (e.g., presence/absence of defined cellular system/ WLAN/Bluetooth network). ***The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. While the GPS receiver 200 is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile terminal 100 and a previous location that was determined by the GPS receiver circuit 200 from GPS signals***. For example, the controller 210 can double

Claims	Relevant Disclosures in the Prior Art[1]
	integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. Because the mobile terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground. Significant reduction in power consumption by the mobile terminal 100 may be achieved by selectively powering-off the GPS receiver circuit 200, and ***by determining when to power-on the GPS receiver circuit 200 using the acceleration information from the acceleration measurement circuit 220 to determine how far the mobile terminal 100 has moved***. For example, the GPS receiver circuit 200 may consume at least 30 mW of power, while, in sharp contrast, the accelerometer circuit 220 may consume less than 3 mW of power. Consequently***, using the accelerometer circuit 220 to more continuously determine location and repetitively powering-on/off the GPS receiver circuit 200 to update the mobile terminal's location can significantly extend the operational life of the mobile terminal 100 while powered by a battery***. *Id.*, [0059]-[0062]. ***Referring to trigger event 324, the controller 210 can identify when the mobile terminal 100 is presently at a location that was previously determined, and/or which has been defined, as a location where the mobile terminal 100 has or will remain stationary for at least a threshold time. For example, the controller 210 can learn when the mobile terminal 100 arrives at work and/or at home, it will remain substantially stationary at that location for a sufficiently long period of time that the controller 210 can achieve substantial power savings by powering-off the GPS receiver circuit 200. The controller 210 can then maintain the GPS receiver circuit 200 powered-off until it senses that it has moved at least a threshold distance from that location (e.g., via the acceleration information***, sensing a new cellular base station ID, and/or detecting absence of RF signals from a previously identified WLAN and/or Bluetooth device). The controller 210 may decrease the power-on to power-off duty cycle of the GPS receiver circuit 200 to maintain the GPS receiver circuit 200 powered-off for longer periods of time between when it is powered-on to briefly attempt to detect its location using GPS signals. *Lindquist* (Ex. 1005), [0073]. The controller 210 may maintain the GPS receiver circuit 200 powered-off while the mobile terminal 100 is located within a defined distance of a known GPS isolation location, and, ***upon determining that it has moved a sufficient distance therefrom (e.g., via the acceleration information), may power-on the GPS receiver circuit 200 to determine its location***. *Id.*, [0080].

Claims	Relevant Disclosures in the Prior Art[1]
	A method for determining location of a mobile terminal includes repetitively switching power-on and power-off to a GPS receiver circuit which determines location of the mobile terminal using GPS signals. ***The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location***. ***The power-on to power-off duty cycle can be regulated in response to identifying GPS isolation, in response to an acceleration-determined distance from previous GPS-determine location***, an acceleration-determined velocity of the mobile terminal, availability of position assistance information from a cellular system, presence/absence of signals from a WLAN/Bluetooth device, and/or detection of a new cellular base station ID. *Id.*, Abstract; *see also* claims 1-4, 6, 13-15. Additionally, or alternatively, **Lindquist** in view of **Dietz** disclose this limitation in a velocity-based context. Specifically, as modified by **Dietz** to permit the GPS receiver circuit to sense velocity and determine a threshold speed in addition to position, **Lindquist** discloses that the mobile device *activate[s] a classification* (e.g., a positive or negative classification of being above a threshold speed) *by a classifier assigned to a second sensor group* (e.g., by a classifier assigned to a GPS-receiver circuit) *to evaluate the first context of the mobile device* (e.g., context related to the mobile device user's activity, such as whether or not they are driving) *after a result of the classification by the classifier assigned to the first sensor group* (e.g., after a positive classification by a classifier assigned to the first sensor group, such as **Lindquist**'s accelerometer-circuit). For the reasons discussed in the Request, a POSA would have been motivated to incorporate, and would have had a reasonable expectation of success in incorporating, **Dietz**'s teachings related to the use of a the more accurate GPS sensor circuit to evaluate whether a user was traveling above a threshold speed (e.g., such as when driving) after an indication of such a speed by lower-level sensors groups, which **Dietz** refers to as "monitors." *See Andrews* (Ex. 1003), ¶¶58-62. ***<u>E.g.</u>*, <u>Lindquist</u>**: ***Referring to trigger events 306 and 308, the controller 210 can regulate power to the GPS receiver circuit 200 in response to velocity of the mobile terminal 100. The controller 210 can determine velocity from the acceleration information (i.e., velocity can be determined from a single integration of acceleration information over time)***. When the velocity is less than a threshold velocity, the controller 210 can power-off the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, can decrease the power-on to power-off duty cycle of the GPS receiver circuit 200. ***When the velocity is greater than a threshold velocity, the controller 210 can power-on the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, increase the power-on to power-off duty cycle***. Accordingly, the GPS receiver circuit 200 can be maintained powered-off when the mobile terminal 100 is substantially stationary, and can be repetitively cycled

Claims	Relevant Disclosures in the Prior Art[1]
	on and off when the mobile terminal 100 is moving. **The GPS receiver circuit 200 can be maintained powered-off for longer periods of time when the mobile terminal 100 is being carried by a person who is walking slowly, and it can maintained powered-on for longer periods *of time when the mobile terminal 100 is within a faster moving car*.** *Lindquist*, [0063]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; ***determining velocity of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and regulating the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal.*** In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal includes: ***increasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity exceeding a threshold velocity; and decreasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity being less than a threshold velocity***. *Id.*, [0011]-[0012]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and ***a velocity determination circuit configured to determine velocity of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit. The controller circuit is configured to increase the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal exceeding a threshold velocity***, and to decrease the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal being less than a threshold velocity. *Id.*, [0023] A method for determining location of a mobile terminal includes repetitively switching power-on and power-off to a GPS receiver circuit which determines location of the mobile terminal using GPS signals. The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location. ***The power-on to power-off duty cycle can be regulated in response to … acceleration-determined velocity of the mobile terminal*** …. *Id.*, Abstract; *see also* claims 7-8, 17.

Claims	Relevant Disclosures in the Prior Art[1]
	<u>**E.g., Dietz**</u>: ***It is generally beneficial to know when a mobile communications device is in motion and at what speed***. For example, the knowledge of the speed of mobile devices has many uses in the wireless industry. Such knowledge may be used to better characterize the radio channel. Accurate channel characterization plays an important role in determining data rate selection in future wireless networks and can assist with optimization techniques if the radio channel. ***Additionally, a driver safety feature may be activated upon determining that a mobile device is moving in excess of a threshold speed, which may, if configured, disable some features of the device that are considered to be distracting to an operator of a motor vehicle, such as accepting input at an input device or generating output at an output device of the mobile device***. ***While satellite navigation systems such as GPS are becoming increasingly more common in mobile devices and provide accurate speed measurement***, when activated, they consume considerable power (one estimate is that a receiver may draw up to 40 mA), which is generally at a premium in mobile devices. If activated on a full-time basis, the standby time of a mobile device could be limited to a few hours, which is generally considered to be undesirable from a user point of view. *Dietz* (Ex. 1006), [0002]-[0004]. ***It is only when the indication is greater than the initial threshold 112, that the speed sensor, for example, the GPS satellite receiver 460 shown in FIG. 4, is activated 120***. ***In the discussion that follows, the GPS (or other navigation) satellite receiver 460 is considered to be the speed sensor***, although other components may also be suitable. Preferably, the GPS satellite receiver 460 is not activated at step 120 if it is already powered up through another mechanism (not discussed herein). Thereafter, the monitor 471 is disregarded for the time being and the speed of the mobile device 300 is accurately monitored, more or less continuously, by the GPS satellite receiver 460. The speed of the mobile device 300 is thereafter compared, either constantly or periodically, against the initial threshold 140. ***If the speed of the mobile device 300 as measured by the GPS satellite receiver 460 is less than or equal to the initial threshold 111, the GPS satellite receiver 460 is deactivated 145 so as to conserve battery power and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115***. Preferably, the GPS satellite receiver 460 is not deactivated at step 145 if it has already been powered down through another mechanism (not discussed herein). This scenario may arise in one of two ways. First, and the most likely scenario, is that the monitor 471 provided an indication of speed that inaccurately read higher than its actual speed. In this way, false positives are easily dealt with by the disclosed methodology, as they will be ignored. Second, it is possible that the indication of speed provided by the monitor 471 was accurate, but that in the time to energize the GPS satellite receiver 460, the speed of the mobile device 300 had dropped below the initial threshold.

Claims	Relevant Disclosures in the Prior Art[1]
	In any event, ***it is only where the GPS satellite receiver 460 determines that the mobile device 300 is greater than the initial threshold that any processing relying or conditioned on the motion of the mobile device 300 is initiated***. Such processing may include better characterizing the radio channel, including determining data rate selection and/or applying optimization techniques through an optimizer (not shown) and/or ***engaging a driver safety and/or other function controller such as, by way of non-limiting example, the driver safety feature*** disclosed in co-pending and commonly assigned U.S. patent application Ser. No. 12/043,495 described above, ***and may have additional controls disclosed therein or inferred therefrom that, for example, permit a user to selectively disengage the driver safety feature if the user is a passenger in a vehicle as opposed to being a driver.*** ***Such processing may also or in the alternative comprise engaging other user features, for example, automatic enablement of a mapping module (shown as 447 in FIG. 4) to take advantage of the engagement of the GPS satellite receiver 460, or of an output device, for example, a display view on the mobile communications device 300 or audio indicator, for example, to show the current speed, heading and/or salient points of interest to a driver, or indeed to obtain a position fix for the mobile device 300***. . . . ***Thereafter, the GPS satellite receiver 460 will continue to monitor the speed of the mobile device 300, whether continuously, as is likely to be the case where the speed sensor is the GPS satellite receiver 460***, or periodically and compared against a second threshold value 170. ***If the speed of the mobile device 300 should happen to fall below such second threshold value 171, the at-speed processing function controllers may be reversed or disengaged 175. Thereafter, the GPS satellite receiver 460 is powered down 145 so as to conserve battery power*** and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115. *Id.*, [0041]-[0051].
[1(e)(iii)] adapt a configuration of the classifier assigned to the first sensor group based, at least in part, on a result of the classification by the classifier assigned to the second sensor group.	Lindquist discloses this limitation; additionally or alternatively, this limitation is obvious over Lindquist in view of Dietz. The '791 Patent describes an adaptation module that changes the configuration of a lower-level classifier based on feedback signals in the form of a result of a classification by a higher level sensor group. *See, e.g. '791 Patent* (Ex. 1001), 9:8-13. In some embodiments, the lower-level sensor group essentially "learns" from the high-level sensor group based on this feedback. *Id.*, 11:4-14. **Lindquist** discloses the mobile device *adapts a configuration of the classifier assigned to the first sensor group* (e.g., **Lindquist** discloses calibrating certain hardware and software components of the acceleration-based determination circuits) *based, at least in part, on a result of the classification by the classifier assigned to the second sensor group* (e.g., this calibration step takes place when the information received from the GPS receiver circuit indicates the distance traveled since it was last powered off exceeds a certain threshold).

Claims	Relevant Disclosures in the Prior Art[1]
	Additionally or alternatively, as a POSA would have appreciated, the steps described by **Lindquist** for using a GPS to calibrate position and distance measurements made by an accelerometer-related software and hardware components (e.g., through filtering, adjusting clock timing, and/or multiplying accelerometer-based results for speed by a correction factor) would apply equally to calibrate the software and hardware for making classifications about velocity, as velocity is simply the rate of change of position over time. *Andrews* (Ex. 1003), ¶41. As discussed above regarding limitations 1(c)-(d), **Dietz** discloses that GPS receiver circuits were known to be accurate speed sensors. For the same reasons described in the Request, a POSA would have been motivated to incorporate, and would have had a reasonable expectation of success of incorporating, **Dietz**'s teachings regarding the use of GPS as an accurate speed sensor into **Lindquist**'s mobile device and using the same to *adapt a configuration of* (e.g., calibrate) velocity-determination circuits assigned to the accelerometer circuit. Thus, **Lindquist** in view of **Dietz** renders this limitation obvious with respect to velocity-context classifiers. **<u>E.g., Lindquist</u>**: ***The controller 210 may calibrate the acceleration measurement circuit 220 in response to determining from the acceleration information that the mobile terminal 100 has moved at least a threshold calibration distance away from a previous location that was determined using GPS signals***. For example, after moving at least a threshold calibration distance away from the previous GPS-determine location, ***the controller 210 can obtain to measurements for how far is it is traveled using the previous GPS-determined location and a new GPS-determined location, and using the previous GPS-determined location and the acceleration information while it was moving. The controller 210 can use the difference between the two distance measurements to calibrate how it determines location using the acceleration information***. For example, ***the controller 210 may calibrate the acceleration measurement circuit 220 by filtering (e.g., scaling, smoothing, and/or combining a known value/functional relationship with) the acceleration information and/or by adjusting clock timing used to double integrate the acceleration information over time***. The controller 210 may using a clock to count time intervals (dt) and measure the average acceleration (vector A(i)) over the time intervals. ***The change in velocity (vector dV) in interval dt is A(i) times dt, which is dV. The change in position (vector dP) is then dV times dt or A(i) times dt and dt. Over time, the change in position P from position P1 to position P2 equals the sum of all dP(i) over the time used to move between P1 and P2. If P2 does not match the observed positions P'2, determined using the GPS signals, then the controller 210 can multiply a correction factor to the acceleration information so that the values for position P2 and P'2 are equal, thereby calibrating the acceleration measurement circuit 220***. Lindquist (Ex. 1005), ¶¶ [0069]-[0070]. In some further embodiments, ***the mobile terminal further includes a calibration circuit configured to calibrate the accelerometer circuit in response to a distance***

Claims	Relevant Disclosures in the Prior Art[1]
	between a present acceleration-based location and a previous GPS-determined location of the mobile terminal exceeding a threshold calibration distance. *Id.*, [0022]; *see also* [0008].
Claim 2	
2. The mobile device of claim 1, wherein at least one of the sensor groups is assigned two or more of the classifiers.	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist** discloses the additional limitation of claim 2; additionally or alternatively, the additional limitation of claim 2 is obvious over Lindquist in view of **Dietz**. As discussed regarding limitation 1(c), **Lindquist** discloses that the accelerometer circuit (i.e., *the first sensor group*) is assigned at least two classifiers: (1) position/location classifiers (e.g., the acceleration-based position determination circuit), and (2) velocity classifiers (e.g., the velocity determination circuit). Additionally or alternatively, as discussed regarding limitation 1(c), **Lindquist** in view of **Dietz** discloses that the GPS receiver circuit (i.e., the second sensor group) is assigned at least two classifiers: (1) position/location classifiers, and (2) velocity classifiers.
Claim 3	
3. The mobile device of claim 2, wherein the two or more classifiers assigned to the same sensor group are configured to evaluate different contexts of the mobile device.	As discussed, **Lindquist** discloses claim 2**;** alternatively, claim 2 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist** discloses the additional limitation of claim 3; additionally or alternatively, the additional limitation of claim 3 is obvious over **Lindquist** in view of **Dietz**. As discussed regarding limitation 1(d), **Lindquist** discloses that *the two or more classifiers assigned to* the accelerometer circuit (i.e., the first sensor group) are *configured to evaluate different contexts of the mobile device*: 1. the position/location classifier (e.g., the accelerometer-based position determination circuit) is configured to evaluate whether the user has moved a threshold distance away from a given location, such as work, home, or an area without good reception for a GPS receiver (*See, e.g.*, *Lindquist* (Ex. 1005), [0058]-[0062], [0073]), and 2. the velocity classifier (e.g., the velocity determination circuit) is configured to evaluate whether the user has exceeded a threshold speed, for example, to indicate that the use is in a moving vehicle. *See, e.g. Lindquist* (Ex. 1005), [0063]. Additionally, or alternatively, as discussed regarding limitation 1(d), **Lindquist** in view of **Dietz** discloses that *the two or more classifiers assigned to* the GPS receiver circuit (i.e., the second sensor group) *are configured to evaluate different contexts of the mobile device*: 1. As disclosed by **Lindquist**, circuitry associated with the GPS receiver circuit determines whether the current position/location of the mobile device is below a threshold distance from an area where a user may be stationary (e.g., work or

Claims	Relevant Disclosures in the Prior Art[1]
	home) or where they would lack good reception, in which a below-threshold classification would prompt the device controller to power of the GPS receiver circuit; (*see, e.g.*, *Lindquist* (Ex. 1005), [0073]-[0074]) and 2. **Lindquist** as modified by **Dietz** discloses circuitry associated with the GPS receiver circuit determining whether the device is above or below a certain velocity threshold, upon either determination the device will take appropriate action such as powering off the GPS receiver circuit (upon a lower-than-threshold-velocity classification) or take certain driver safety measures and activate mapping applications (upon a higher-than-threshold-velocity classification). *See, e.g.*, *Lindquist* (Ex. 1005), [0063]; *see also, e.g.*, *Dietz*, [0041]-[0051]. `
Claim 4	
4. The mobile device of claim 1, wherein at least one of the classifiers is configured to evaluate a plurality of contexts of the mobile device.	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist** discloses the additional limitation of claim 4. Lindquist discloses that at least one of the classifiers is configured to evaluate a plurality of contexts of the mobile device. For example, **Lindquist** discloses *one of the classifiers* (e.g., position/location determination software and hardware assigned to the GPS receiver circuit) *is configured to evaluate a plurality of contexts of the mobile device*, such as (a) when the device has been stationary for a long period of time, indicating that the user is inactive, (b) when the device is nearing a location where the user is likely to be stationary, such as when the user is at work or home (*see, e.g.*, *Lindquist* (Ex. 1005), [0073]), or (c) when the device is nearing an "isolated" location where GPS signals will be weak (*see id.*, [0074]).
Claim 5	
5. The mobile device of claim 1, wherein one or more of the classifiers provide a numerical result that directly or indirectly indicates a probability of an identified context of the mobile device.	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist**, alone or in view of **Dietz**, renders obvious the additional limitation of claim 5. For example, as discussed regarding limitations 1(c)-1(e)(iii), **Lindquist** discloses that one of the classifiers (e.g., the velocity determination circuit) assigned to the accelerometer circuit compare a detected result with some "threshold" velocity, and **Lindquist** as modified by **Dietz** discloses that the classifier assigned to the GPS receiver circuit also compare a detected result with some threshold velocity. For example, Dietz discloses that such a threshold may be "on the order of 10 to 15 kilometers per hour" to indicate that a user is driving because it is "***indicative of an upper bound for pedestrian traffic***." *Dietz* (Ex. 1006), [0039]. Thus, the numerical result indirectly indicates a probability of an identified context of a mobile device, such as whether a user is driving or not. For example, as **Dietz** discloses, the user may be a passenger in a vehicle, and not driving, so the system provides the user with the ability to disengage driver safety features in such contexts. *Id.*, [0046].

Claims	Relevant Disclosures in the Prior Art[1]
Claim 6	
6. The mobile device of claim 5, wherein a result of a classification by the one or more classifiers that provide a numerical result is determined by comparing the numerical result to a threshold value.	As discussed, **Lindquist** discloses claim 5**;** alternatively, claim 5 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist**, alone or in view of **Dietz**, renders obvious the additional limitation of claim 6. For example, as discussed regarding limitations 1(c)-1(e)(iii) and claim 5, **Lindquist** discloses that one of the classifiers (e.g., the velocity determination circuit) assigned to the accelerometer circuit compare a detected result with some "threshold" velocity, and **Lindquist** as modified by **Dietz** discloses that the classifier assigned to the GPS receiver circuit also compare a detected result with some threshold velocity, such as a number of kilometers per hour. *See, e.g. Dietz* (Ex. 1006), [0039].
Claim 7	
7. The mobile device of claim 1, wherein classification by the classifier assigned to the first sensor group to evaluate the first context of the mobile device is performed continuously.	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist** discloses the additional limitation of claim 7. For example Lindquist discloses *that the classification by the classifier assigned to the first sensor group* (e.g., the classifications made by either, or both, of the acceleration-based position determination circuit and/or the velocity determination circuit, assigned to the accelerometer circuit) *to evaluate the first context of the mobile device* (e.g., distance/position and/or velocity related contexts, discussed above regarding limitations 1(c)-1(e)(iii)) *is performed continuously*. ***E.g.*, Lindquist**: Significant reduction in power consumption by the mobile terminal 100 may be achieved by selectively powering-off the GPS receiver circuit 200, and by determining when to power-on the GPS receiver circuit 200 using the acceleration information from the acceleration measurement circuit 220 to determine how far the mobile terminal 100 has moved. For example, the GPS receiver circuit 200 may consume at least 30 mW of power, while, in sharp contrast, the accelerometer circuit 220 may consume less than 3 mW of power. ***Consequently, using the accelerometer circuit 220 to more continuously determine location and repetitively powering-on/off the GPS receiver circuit 200 to update the mobile terminal's location can significantly extend the operational life of the mobile terminal 100 while powered by a battery***. *Lindquist* (Ex. 1005), [0062]
Claim 10	
10. The mobile device of claim 1, wherein the mobile device is configured to	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist**, alone or in further view of **Dietz**, discloses the additional limitation of claim 10.

Claims	Relevant Disclosures in the Prior Art[1]
change a mode of operation of one or more sensors assigned to the second sensor group from a first power state to a second power state when the classification by the classifier assigned to the second sensor group is activated.	For example, as discussed regarding limitation 1(e)(ii), both **Lindquist** and **Dietz** disclose *chang[ing] a mode of operation of one or more sensors assigned to the second sensor group from a first power state to a second power state* (e.g., powering on and off a GPS receiver circuit) *when the classification by the classifier assigned to the second sensor group is activated* (for example, when activated based on a positive classification of a threshold distance and/or velocity of a lower sensor group, both **Lindquist** and **Dietz** disclose powering on the GPS receiver circuit, and when it is detected that the distance and/or velocity drops below a second threshold, both **Lindquist** and **Dietz** disclose powering off the GPS receiver circuit).
Claim 11	
11. The mobile device of claim 1, wherein the mobile device is configured to activate the classification by the classifier assigned to the second sensor group when the result of the classification by the classifier assigned to the first sensor group is positive.	As discussed, **Lindquist** discloses claim 1**;** alternatively, claim 1 is obvious over **Lindquist** in view of **Dietz**. Further, **Lindquist**, alone or in further view of **Dietz**, discloses the additional limitation of claim 11. For example, as discussed regarding limitations 1(e)(i)-(ii), both **Lindquist** and **Dietz** disclose *activat[ing] the classification by the classifier assigned to the second sensor group when the result of the classification by the classifier assigned to the first sensor group is positive* (for example, the GPS receiver circuit is only activated to provide a classification about speed when the classification by the classifiers assigned to the lower sensor groups indicate a positive classification that the speed is above some threshold).
Claim 14	
[14.pre] A mobile device, comprising:	The preamble of claim 14 is identical to the preamble of claim 1. As discussed regarding limitation 1.pre, **Lindquist** discloses *a mobile device*. *See supra* 1(b).
[14(a)] a plurality of sensors and a plurality of sensor groups, wherein each of the sensor groups is assigned	Limitation 14(a) is identical to limitation 1(a). As discussed regarding limitation 1(a), Lindquist discloses *a plurality of sensors* (e.g., accelerometers and a tilt sensor and GPS receivers) *and a plurality of sensor groups* (e.g., an accelerometer circuit, a GPS receiver circuit, respectively), *wherein each of the sensor groups is assigned at least one of the sensors* (e.g., the accelerometer circuit 220 is assigned to one or more accelerometers, and the GPS receiver circuit 200 is assigned to at least one GPS receiver, respectively). *See supra*, 1(a).

Claims	Relevant Disclosures in the Prior Art[1]
at least one of the sensors, and	
[14(b)] wherein the sensor groups are arranged according to a hierarchy; and	Limitation 14(b) is identical to limitation 1(b). As discussed regarding limitation 1(b), **Lindquist** discloses that the *sensor groups are arranged according to a hierarchy*. *See supra*, 1(b).
[14(c)] a plurality of classifiers, wherein each classifier is assigned to a sensor group, and	Limitation 14(c) is identical to limitation 1(c). As discussed regarding 1(c), this limitation is disclosed by **Lindquist**; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**. *See supra*, 1(c).
[14(d)] wherein each classifier is configured to evaluate one or more contexts of the mobile device based on signals from one or more sensors assigned to the same sensor group as the classifier;	Limitation 14(d) is identical to limitation 1(d). As discussed regarding 1 (d), this limitation is disclosed by **Lindquist**; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**. *See supra*, 1(d).
[14(e)] wherein the mobile device is configured to:	Limitation 14(e) is identical to limitation 1(e). A discussed regarding 1(e) and the preambles, **Lindquist** discloses a mobile device. *See supra*, 1.pre, 1(e), and 14.pre.
[14(e)(i)] evaluate a first context of the mobile device by activating classification using at least two of the classifiers in sequence according to the hierarchy; and	Limitation 14(e)(1) recites language similar to the steps described in sequence above in limitations 1(e)(i) and 1(e)(ii), but specifies that the sequence is based on the hierarchy of the sensor groups. For the same reasons discussed regarding those limitations, **Lindquist** discloses limitation 14(e)(1); additionally or alternatively, limitation 14(e)(1) is obvious over **Lindquist** in view of **Dietz**. Specifically, as discussed regarding limitations 1(e) and 1(e)(ii), **Lindquist** discloses *evaluating a first context of a mobile device* (e.g., evaluating a user's activity such as distance traveled or whether the user is near or far from specific locations, such as home, work, or an isolated location where GPS reception is limited) *by activating classification using at least two of the classifiers* (e.g., activating a positive or negative classification relative to some threshold distance traveled using the position determination classifier of the accelerometer receiver circuit and the GPS receiver

Claims	Relevant Disclosures in the Prior Art[1]
	circuit, respectively) *in sequence according to the hierarchy* (e.g., the classifier assigned to the more accurate GPS receiver circuit, at the higher hierarchy, does not make a classification until **after** the a positive classification by the position determination circuit of the accelerometer measurement circuit, at the lower hierarchy). Additionally, or alternatively, as discussed regarding limitations 1(e)(i) and 1(e)(ii), the combination of **Lindquist** and **Dietz** discloses *evaluating a first context of a mobile device* (e.g., evaluating whether a user is in a moving vehicle) *by activating classification using at least two of the classifiers* (e.g., activating a positive or negative classification relative to some threshold velocity or speed using the velocity determination classifiers of the accelerometer receiver circuit and, when modified by **Dietz**, the GPS receiver circuit) *in sequence according to the hierarchy* (e.g., the classifier assigned to the more accurate GPS receiver circuit does not make a classification until after the velocity determination circuit of the accelerometer circuit makes a positive classification regarding the mobile device's velocity). ***E.g.*, Lindquist (position/distance)**: Significant reduction in power consumption by the mobile terminal may be achieved by selectively powering-off the GPS receiver circuit, and by ***determining when to power-on the GPS receiver circuit using the acceleration information from the acceleration circuit to determine how far the mobile terminal has moved***. *Lindquist* (Ex. 1005), [0007]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: ***determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; determining a present acceleration-based location of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and extending duration of the power-off cycle of the GPS receiver circuit until the distance between the present acceleration-based location and the GPS-based location of the mobile terminal exceeds a threshold distance***. *Id.*, [0010]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and an acceleration-based position determination circuit configured to determine a present acceleration-based location of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit. ***The GPS receiver circuit is configured to detect when the mobile terminal is GPS isolated in response to insufficient GPS signal strength to determine location of the mobile terminal during at least a threshold length of time. The controller circuit is configured to power-off the GPS receiver circuit in response to***

Claims	Relevant Disclosures in the Prior Art[1]
	detecting that the mobile terminal is GPS isolated, to extend duration of the power-off cycle of the GPS receiver circuit until a distance between the present acceleration-based location and a previous GPS-determine location of the mobile terminal exceeds a threshold distance, and to attempt to determine a present GPS-determined location of the mobile terminal upon powering-on the GPS receiver circuit*. *Id.*, [0020]. ***In contrast, referring to trigger event 304, when the mobile terminal 100 is determined to be at least the threshold distance away from the previously determined GPS position, the controller circuit 210 can respond by turning-on the GPS receiver circuit 200. When the GPS receiver circuit 200 is being repetitively cycled on and off, the controller 210 can increase the power-on to power-off duty cycle of the GPS receiver circuit 200 by decreasing the power-off time of the GPS receiver circuit 200 and/or increasing the power-on time. The threshold distance need not be static, as may be regulated by the controller 210 to vary in response to, for example, time, velocity of the mobile terminal 100, number and/or type of other communication networks that are detected by the mobile terminal (e.g., presence/absence of defined cellular system/ WLAN/Bluetooth network). ***The mobile terminal 100 can sense acceleration using an acceleration measurement circuit 220 that generates acceleration information responsive to acceleration. While the GPS receiver 200 is powered-off, the controller 210 uses the acceleration information to determine the distance between the mobile terminal 100 and a previous location that was determined by the GPS receiver circuit 200 from GPS signals***. For example, the controller 210 can double integrate the acceleration signal over time to determine the mobile terminal's location while the GPS receiver circuit 200 is powered-off. The acceleration measurement circuit 220 may include at least a two-axis accelerometer to sense acceleration in at least two directions that can be parallel to at least a two dimensional direction of travel of the mobile terminal 100. Because the mobile terminal 100 may be held at various angles relative to ground, it may include a three-axis accelerometer, or a two-axis accelerometer and a tilt sensor, which enable the controller 210 to determine the distance traveled along the ground irrespective of what angle the mobile terminal 100 is held relative to the ground. Significant reduction in power consumption by the mobile terminal 100 may be achieved by selectively powering-off the GPS receiver circuit 200, and ***by determining when to power-on the GPS receiver circuit 200 using the acceleration information from the acceleration measurement circuit 220 to determine how far the mobile terminal 100 has moved***. For example, the GPS receiver circuit 200 may consume at least 30 mW of power, while, in sharp contrast, the accelerometer circuit 220 may consume less than 3 mW of power. Consequently***, using the accelerometer circuit 220 to more continuously determine location and repetitively powering-on/off the GPS receiver circuit 200 to update the mobile terminal's location can significantly extend the operational life of the mobile terminal 100 while powered by a battery***. *Id.*, [0059]-[0062].

Claims	Relevant Disclosures in the Prior Art[1]
	Referring to trigger event 324, the controller 210 can identify when the mobile terminal 100 is presently at a location that was previously determined, and/or which has been defined, as a location where the mobile terminal 100 has or will remain stationary for at least a threshold time. For example, the controller 210 can learn when the mobile terminal 100 arrives at work and/or at home, it will remain substantially stationary at that location for a sufficiently long period of time that the controller 210 can achieve substantial power savings by powering-off the GPS receiver circuit 200. The controller 210 can then maintain the GPS receiver circuit 200 powered-off until it senses that it has moved at least a threshold distance from that location (e.g., via the acceleration information, sensing a new cellular base station ID, and/or detecting absence of RF signals from a previously identified WLAN and/or Bluetooth device). The controller 210 may decrease the power-on to power-off duty cycle of the GPS receiver circuit 200 to maintain the GPS receiver circuit 200 powered-off for longer periods of time between when it is powered-on to briefly attempt to detect its location using GPS signals. *Lindquist* (Ex. 1005), [0073]. The controller 210 may maintain the GPS receiver circuit 200 powered-off while the mobile terminal 100 is located within a defined distance of a known GPS isolation location, and, ***upon determining that it has moved a sufficient distance therefrom (e.g., via the acceleration information), may power-on the GPS receiver circuit 200 to determine its location***. *Id.*, [0080]. A method for determining location of a mobile terminal includes repetitively switching power-on and power-off to a GPS receiver circuit which determines location of the mobile terminal using GPS signals. ***The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location***. ***The power-on to power-off duty cycle can be regulated in response to identifying GPS isolation, in response to an acceleration-determined distance from previous GPS-determine location***, an acceleration-determined velocity of the mobile terminal, availability of position assistance information from a cellular system, presence/absence of signals from a WLAN/Bluetooth device, and/or detection of a new cellular base station ID. *Id.*, Abstract; *see also* claims 1-4, 6, 13-15. <u>***E.g.*, Lindquist (velocity)**</u>: ***Referring to trigger events 306 and 308, the controller 210 can regulate power to the GPS receiver circuit 200 in response to velocity of the mobile terminal 100. The controller 210 can determine velocity from the acceleration information (i.e., velocity can be determined from a single integration of acceleration information over time)***. When the velocity is less than a threshold

Claims	Relevant Disclosures in the Prior Art[1]
	velocity, the controller 210 can power-off the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, can decrease the power-on to power-off duty cycle of the GPS receiver circuit 200. ***When the velocity is greater than a threshold velocity, the controller 210 can power-on the GPS receiver circuit 200 and/or, when repetitively cycling the GPS receiver circuit 200 on and off, increase the power-on to power-off duty cycle***. Accordingly, the GPS receiver circuit 200 can be maintained powered-off when the mobile terminal 100 is substantially stationary, and can be repetitively cycled on and off when the mobile terminal 100 is moving. **The GPS receiver circuit 200 can be maintained powered-off for longer periods of time when the mobile terminal 100 is being carried by a person who is walking slowly, and it can maintained powered-on for longer periods *of time when the mobile terminal 100 is within a faster moving car***. *Lindquist*, [0063]. In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit includes: determining a GPS-based location of the mobile terminal using the GPS receiver circuit during the power-on cycle; ***determining velocity of the mobile terminal using acceleration information from an accelerometer circuit in the mobile terminal during the power-off cycle of the GPS receiver circuit; and regulating the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal.*** In some further embodiments, regulation of the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal includes: ***increasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity exceeding a threshold velocity; and decreasing the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined mobile terminal velocity being less than a threshold velocity***. *Id.*, [0011]-[0012]. In some further embodiments, the mobile terminal further includes: an accelerometer circuit that generates acceleration information which is indicative of acceleration of the mobile terminal; and ***a velocity determination circuit configured to determine velocity of the mobile terminal using the acceleration information from the accelerometer circuit during the power-off cycle of the GPS receiver circuit. The controller circuit is configured to increase the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal exceeding a threshold velocity***, and to decrease the power-on to power-off duty cycle of the GPS receiver circuit in response to the determined velocity of the mobile terminal being less than a threshold velocity. *Id.*, [0023] A method for determining location of a mobile terminal includes repetitively switching power-on and power-off to a GPS receiver circuit which determines

Claims	Relevant Disclosures in the Prior Art[1]
	location of the mobile terminal using GPS signals. The power-on to power-off duty cycle of the GPS receiver circuit is regulated in response to distance that the mobile terminal has moved from a previously determined location. ***The power-on to power-off duty cycle can be regulated in response to … acceleration-determined velocity of the mobile terminal*** …. *Id.*, Abstract; *see also* claims 7-8, 17. **<u>E.g., Dietz (velocity)</u>**: ***It is generally beneficial to know when a mobile communications device is in motion and at what speed***. For example, the knowledge of the speed of mobile devices has many uses in the wireless industry. Such knowledge may be used to better characterize the radio channel. Accurate channel characterization plays an important role in determining data rate selection in future wireless networks and can assist with optimization techniques if the radio channel. ***Additionally, a driver safety feature may be activated upon determining that a mobile device is moving in excess of a threshold speed, which may, if configured, disable some features of the device that are considered to be distracting to an operator of a motor vehicle, such as accepting input at an input device or generating output at an output device of the mobile device***. ***While satellite navigation systems such as GPS are becoming increasingly more common in mobile devices and provide accurate speed measurement***, when activated, they consume considerable power (one estimate is that a receiver may draw up to 40 mA), which is generally at a premium in mobile devices. If activated on a full-time basis, the standby time of a mobile device could be limited to a few hours, which is generally considered to be undesirable from a user point of view. *Dietz* (Ex. 1006), [0002]-[0004]. ***It is only when the indication is greater than the initial threshold 112, that the speed sensor, for example, the GPS satellite receiver 460 shown in FIG. 4, is activated 120***. ***In the discussion that follows, the GPS (or other navigation) satellite receiver 460 is considered to be the speed sensor***, although other components may also be suitable. Preferably, the GPS satellite receiver 460 is not activated at step 120 if it is already powered up through another mechanism (not discussed herein). Thereafter, the monitor 471 is disregarded for the time being and the speed of the mobile device 300 is accurately monitored, more or less continuously, by the GPS satellite receiver 460. The speed of the mobile device 300 is thereafter compared, either constantly or periodically, against the initial threshold 140. ***If the speed of the mobile device 300 as measured by the GPS satellite receiver 460 is less than or equal to the initial threshold 111, the GPS satellite receiver 460 is deactivated 145 so as to conserve battery power and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115***. Preferably, the GPS

Claims	Relevant Disclosures in the Prior Art[1]
	satellite receiver 460 is not deactivated at step 145 if it has already been powered down through another mechanism (not discussed herein). This scenario may arise in one of two ways. First, and the most likely scenario, is that the monitor 471 provided an indication of speed that inaccurately read higher than its actual speed. In this way, false positives are easily dealt with by the disclosed methodology, as they will be ignored. Second, it is possible that the indication of speed provided by the monitor 471 was accurate, but that in the time to energize the GPS satellite receiver 460, the speed of the mobile device 300 had dropped below the initial threshold. In any event, ***it is only where the GPS satellite receiver 460 determines that the mobile device 300 is greater than the initial threshold that any processing relying or conditioned on the motion of the mobile device 300 is initiated***. Such processing may include better characterizing the radio channel, including determining data rate selection and/or applying optimization techniques through an optimizer (not shown) and/or ***engaging a driver safety and/or other function controller such as, by way of non-limiting example, the driver safety feature*** disclosed in co-pending and commonly assigned U.S. patent application Ser. No. 12/043,495 described above, ***and may have additional controls disclosed therein or inferred therefrom that, for example, permit a user to selectively disengage the driver safety feature if the user is a passenger in a vehicle as opposed to being a driver.*** ***Such processing may also or in the alternative comprise engaging other user features, for example, automatic enablement of a mapping module (shown as 447 in FIG. 4) to take advantage of the engagement of the GPS satellite receiver 460, or of an output device, for example, a display view on the mobile communications device 300 or audio indicator, for example, to show the current speed, heading and/or salient points of interest to a driver, or indeed to obtain a position fix for the mobile device 300***. … ***Thereafter, the GPS satellite receiver 460 will continue to monitor the speed of the mobile device 300, whether continuously, as is likely to be the case where the speed sensor is the GPS satellite receiver 460***, or periodically and compared against a second threshold value 170. ***If the speed of the mobile device 300 should happen to fall below such second threshold value 171, the at-speed processing function controllers may be reversed or disengaged 175. Thereafter, the GPS satellite receiver 460 is powered down 145 so as to conserve battery power*** and a further indication of the speed of the mobile device 300 may be obtained 100 using the monitor 471, either instantaneously or after a brief wait interval 115. *Id.*, [0041]-[0051].
[14(e)(ii)] adapt a configuration of a classifier assigned to a lower level sensor group in the hierarchy based, at	Limitation 14(e)(ii) is nearly identical to limitation 1(e)(iii), except that it refers to "lower level" and "higher level" sensor groups instead of "first" and "second" sensor groups, respectively. However, as discussed regarding limitations 1(b) and 14(b), the first sensor group (the accelerometer measurement circuit) is at the lower level and the second identified sensor group (the GPS receiver circuit) was at a higher level. Thus, for the reasons discussed regarding limitation 1(e)(iii), **Lindquist** discloses this

Claims	Relevant Disclosures in the Prior Art[1]
least in part, on a result of a classification by a classifier assigned to a higher level sensor group in the hierarchy.	limitation; additionally or alternatively, this limitation is obvious over **Lindquist** in view of **Dietz**. *See supra*, 1(e)(iii), 1(b), 14(b).
Claim 15	
15. The mobile device of claim 14, wherein activating classification using at least two of the classifiers in sequence comprises activating a classification by the classifier assigned to the higher level sensor group after a positive classification by the classifier assigned to the lower level sensor group.	As discussed, **Lindquist** discloses claim 14**;** alternatively, claim 14 is obvious over **Lindquist** in view of **Dietz**. Claim 15 is similar to claim 11, although it specifies that the first sensor group is a "lower level" sensor group than the second sensor group in the hierarchy, which, as discussed regarding limitation 14(e)(ii), **Lindquist** and **Dietz** disclose. Thus, **Lindquist**, alone or in further view of **Dietz**, discloses the additional limitation of claim 15. For example, as discussed regarding limitations 1(e)(i)-(ii) and 14(e)(i), both **Lindquist** and **Dietz** disclose *activat[ing] the classification by the classifier assigned to the higher level sensor group when the result of the classification by the classifier assigned to the lower level sensor group is positive* (for example, the higher-level GPS receiver circuit is activated to provide a classification about speed when the classification by the classifiers assigned to the lower sensor groups indicate a positive classification that the speed is above some threshold, such as distance or speed).
Claim 18	
18. The mobile device of claim 14, wherein the mobile device is further configured to evaluate a second context of the mobile device by activating classification using at least two of the classifiers in sequence according to the hierarchy.	As discussed, **Lindquist** discloses claim 14**;** alternatively, claim 14 is obvious over **Lindquist** in view of **Dietz**. Further, as shown regarding claim 14, **Lindquist**, alone or in further view of **Dietz**, discloses that *the mobile device is further configured to evaluate a second context of the mobile device by activating classification using at least two of the classifiers in sequence according to the hierarchy* – for example, either of distance traveled (such as from an original position or a location like work, home, or an isolated area with GPS reception is low) or velocity/speed (such as to indicate that the user is in a moving vehicle) may be first and second contexts of the mobile device, or vice versa. *See supra*, 14(e)(i).

Claims	Relevant Disclosures in the Prior Art[1]
Claim 19	
19. The mobile device of claim 18, wherein the mobile device is configured to activate classification by a classifier assigned to the higher level sensor group upon a positive classification by a classifier assigned to the lower level sensor group for either the first context or the second context.	As discussed, **Lindquist** discloses claim 18**;** alternatively, claim 18 is obvious over **Lindquist** in view of **Dietz**. Further, as shown regarding claims 11, 14 and 15, **Lindquist**, alone or in further view of **Dietz**, discloses that *mobile device is configured to activate classification by a classifier assigned to the higher level sensor group upon a positive classification by a classifier assigned to the lower level sensor group for either the first context or the second context*– for example, the mobile device activates a classification by the classifier assigned to the GPS receiver circuit (the higher level sensor group) for either of distance traveled (such as from an original position or a location like work, home, or an isolated area with GPS reception is low) or velocity/speed (such as to indicate that the user is in a moving vehicle) *upon a positive classification* (e.g., that the device is above some threshold distance or velocity) *by a classifier assigned to the lower level sensor group* (e.g., position and velocity determination circuits assigned to the accelerometer receiver circuit) for either the first context or the second context (e.g., distance and/or speed, or vice versa).