CLAIMS

1. A proximity alert apparatus comprising: a processor comprising non-volatile and volatile memory; a user input device; means for auditory output and visual output to a user; an accelerometer; a replaceable, integral power source; at least one radio transceiver comprising a frequency synthesizer; and primary memory that stores program instructions to be executed by the processor, the program instructions comprising instructions that, when executed:

A) load a configuration value from the non-volatile memory and set a transmission power level for the at least one radio transceiver, based on a loaded first configuration value, to a configuration power level from among a plurality of known power levels;

B) provide a persistent and continuous radio frequency communication relationship utilizing Bluetooth Low Energy (“BLE”) pairing and bonding between the proximity alert apparatus and a protected device comprising a corresponding radio transceiver;

C) provide visual output and auditory output confirmation of successful pairing to the protected device;

D) receive notice of disconnect of link connectivity between the proximity alert apparatus or system and the protected device from an Open Systems Interconnection (OSI) Bluetooth Low Energy (BLE) link layer;

E) perform a state machine cycle depending upon input and output for at least six proximity alert apparatus operational states comprising: i) the proximity alert apparatus is near the protected device, ii) the proximity alert apparatus is separated from the protected device, iii) the proximity alert apparatus is connected to the protected device, iv) the proximity alert apparatus is still, v) the proximity alert apparatus is laid down, and vi) the proximity alert apparatus is picked up;

F) adjust the proximity alert apparatus transmission power level a predetermined increment up or down from the plurality of known standard power levels based upon the proximity alert apparatus operational state;

G) adjust the transmission power level of the proximity alert apparatus at least one radio transceiver up or down by the predetermined increment;

H) save the proximity alert apparatus adjusted transmission power level to either the non-volatile memory or volatile memory dependent on operational state;

I) trigger a selectable auditory proximity alert apparatus alarm output in response to the protected device being more than a selected distance from the proximity alert apparatus;

J) trigger an auditory proximity alert apparatus alarm output in response to the protected device being less than a selected distance from the proximity alert apparatus;

K) trigger a selectable auditory proximity alert apparatus alarm output in response to a protracted period without link connectivity and historical lack of movement, and then movement; and

L) during runtime execution of the proximity alert apparatus running an application comprising configuration values during operational states of user inputs in response to one or more proximity alert apparatus operational states relating to proximity, time, and motion alert inputs and outputs; for individual captured sequences, determining the proximity alert apparatus integral power savings for each captured sequence regarding one or more operational states; applying an automated response to the captured sequence based on an optimum proximity alert apparatus integral power savings outcome; storing the captured sequence and the optimum proximity alert integral power savings outcome in a runtime memory within the proximity alert apparatus processor; identifying one or more captured sequences based on the proximity alert apparatus processor controlled integral power savings real time status associated with the optimum proximity alert integral power savings outcome event confronting the proximity alert apparatus processor controlled operational state; selecting a captured sequence from the one or more captured sequences, and the control method associated with each individual sequence; and executing the selected captured sequence for the controlled

operational state integral power savings method in response to the operational state confronting the proximity alert apparatus.

2. The proximity alert apparatus of claim 1, wherein the program instructions further comprise instructions which load a second configuration value from the non-volatile memory based upon user input from the user input device and set the transmission power level, based on the loaded second configuration value, to a second power level that differs from the first power level.

3. The proximity alert apparatus of claim 1, wherein the program instructions further comprise instructions based upon an alarm or alert mitigation method.

4. The proximity alert apparatus of claim 1, wherein the proximity alert apparatus adapts to a user's environment and determines the most robust and stable frequencies for connecting the proximity alert apparatus with the protected device.

5. The proximity alert apparatus of claim 1, wherein the program instructions further comprise instructions which, upon pairing with the protected device, remotely control a protected device camera application with the proximity alert apparatus user input device and without disabling the protected device's keyboard.

6. The proximity alert apparatus of claim 1, wherein the user interface input device comprises a single button to: power on the proximity alert apparatus; control a paired protected device camera application shutter control; adjust an alert distance between the proximity alert apparatus and the protected device; adjust a preferred proximity device audible alert tune; set a proximity alert apparatus nap interval; and set a proximity alert apparatus home or travel mode.

7. The proximity alert apparatus of claim 1, wherein the means for visual output to a user comprises two light emitting diodes (LEDs), and wherein means for auditory output to a user comprises beeps and a selection from at least five audio alert tunes.

8. The proximity alert apparatus of claim 1, wherein the selected distance between the protected device and the proximity alert apparatus is adjustably scalable from 10 feet to 150 feet for triggering a selectable auditory alarm.

9. A system for proximity alert comprising a proximity alert apparatus comprising circuitry supporting at least one radio transceiver and one or more processors,

wherein at least one processor stores program instructions to be executed by the processor, the program instructions comprising:

A) loading a configuration value from a non-volatile memory processor and setting a transmission power level for the at least one radio transceiver, based on a loaded first configuration value, to a configuration power level from among a plurality of known power levels;

B) providing a persistent and continuous radio frequency communication relationship utilizing Bluetooth Low Energy (“BLE”) pairing and bonding between the proximity alert apparatus and a protected device comprising a corresponding radio transceiver;

C) providing visual output and auditory output confirmation of successful pairing to a protected device;

D) receiving notice of disconnect of link connectivity between the proximity alert apparatus or system and the protected device from an Open Systems Interconnection (OSI) Bluetooth Low Energy (BLE) link layer;

E) performing a state machine cycle depending upon input and output for at least six proximity alert apparatus operational states comprising: i) the system for proximity alert is near the protected device, ii) the system for proximity alert is separated from the protected device, iii) the system for proximity alert is connected to the protected device, iv) the system for proximity alert is still, v) the system for proximity alert is laid down, and vi) the system for proximity alert is picked up;

F) adjusting the system for proximity alert transmission power level a predetermined increment up or down from the plurality of known standard power levels based upon the system for proximity alert operational state;

G) adjusting the transmission power level of the system for proximity alert at least one radio transceiver up or down by the predetermined increment;

H) saving the system for proximity alert adjusted transmission power level to either a non-volatile memory or a volatile memory dependent on operational state;

I) triggering a selectable auditory system for proximity alert alarm output in response to the protected device being more than a selected distance from the system for proximity alert;

J) triggering an auditory system for proximity alert alarm output in response to the protected device being less than a selected distance from the system for proximity alert;

K) triggering a selectable auditory proximity alert system alarm output in response to a protracted period without link connectivity and historical lack of movement, and then movement; and

L) during runtime execution of the system for proximity alert running an application comprising configuration values during operational states of user inputs in response to one or more system for proximity alert operational states relating to proximity, time, and motion alert inputs and outputs; for individual captured sequences, determining the system for proximity alert integral power savings for each captured sequence regarding one or more operational states; applying an automated response to the captured sequence based on an optimum system for proximity alert integral power savings outcome; storing the captured sequence and the optimum proximity alert integral power savings outcome in a runtime memory within the system alert processor; identifying one or more captured sequences based on the system for proximity alert processor controlled integral power savings real time status associated with the optimum proximity alert integral power savings outcome event confronting the system for proximity alert processor controlled operational state; selecting a captured sequence from the one or more captured sequences, and the control method associated with each individual sequence; and executing the selected captured sequence for the controlled operational state integral power savings method in response to the operational state confronting the proximity alert system.

10. The system for proximity alert of claim 9, wherein the system for proximity alert further comprises a processor comprising non-volatile and volatile memory; a user input device; means for auditory output and visual output to a user; an accelerometer; and a replaceable, integral power source.

11. The system for proximity alert of claim 9, further comprising an alarm or alert mitigation method.

12. The system for proximity alert of claim 9, wherein the program instructions further comprise instructions which load a second configuration value from the non-volatile memory based upon user input from the user input device and set the transmission power level, based on the loaded second configuration value, to a second power level that differs from the first power level.

13. The system for proximity alert of claim 9, wherein the system for proximity alert adapts to a user's environment and determines the most robust and stable frequencies for connecting with the protected device.

14. The system for proximity alert of claim 9, wherein the program instructions further comprise instructions which, upon pairing with the protected device, remotely control a protected device camera application with the proximity alert user input device and without disabling the protected device's keyboard.

15. The system for proximity alert of claim 9, wherein the user interface input device comprises a single button to: power on the system for proximity alert; control a paired protected device camera application shutter control; adjust an alert distance between the system for proximity alert and the protected device; adjust a preferred system for proximity alert audible alert tune; set a system for proximity alert proximity device nap interval; and set a system for proximity alert home or travel mode.

16. The system for proximity alert of claim 9, wherein the means for visual output to a user comprises two light emitting diodes (LEDs), and wherein means for auditory output to a user comprises a piezo transducer comprising audio beeps and a selection from at least five audio alert tunes.

17. The system for proximity alert of claim 9, wherein the selected distance is adjustably scalable from 10 feet to 150 feet.

18. A non-transitory computer readable memory medium storing program instructions executable by processing circuitry of a proximity alert apparatus or system, the program instructions comprising the steps:

A) loading a configuration value from a non-volatile memory processor and setting a transmission power level for at least one radio transceiver, based on a loaded first configuration value, to a configuration power level from among a plurality of known power levels;

B) providing a persistent and continuous radio frequency communication relationship utilizing Bluetooth Low Energy (“BLE”) pairing and bonding between the proximity alert apparatus and a protected device comprising a corresponding radio transceiver;

C) providing visual output and auditory output confirmation of successful pairing to the protected device;

D) receiving notice of disconnect of link connectivity between the proximity alert apparatus or system and the protected device from an Open Systems Interconnection (OSI) Bluetooth Low Energy (BLE) link layer;

E) performing a state machine cycle depending upon input and output for at least six proximity alert apparatus operational states comprising: i) the proximity alert apparatus or system is near the protected device, ii) the proximity alert apparatus or system is separated from the protected device, iii) the proximity alert apparatus or system is connected to the protected device, iv) the proximity alert apparatus or system is still, v) the proximity alert apparatus or system is laid down, and vi) the proximity alert apparatus or system is picked up;

F) adjusting the proximity alert apparatus or system transmission power level, a predetermined increment up or down from the plurality of known standard power levels based upon the proximity alert apparatus or system operational state;

G) adjusting the transmission power level of the proximity alert apparatus or system at least one radio transceiver up or down by the predetermined increment;

H) saving the proximity alert apparatus or system adjusted transmission power level to either a non-volatile memory or a volatile memory dependent on operational state;

I) triggering a selectable auditory proximity alert apparatus or system alarm output in response to the protected device being more than a selected distance from the proximity alert apparatus or system;

J) triggering an auditory proximity alert apparatus or system alarm output in response to the protected device being less than a selected distance from the proximity alert apparatus or system;

K) triggering a selectable auditory proximity alert apparatus or system alarm output in response to a protracted period without link connectivity and historical lack of movement, and then movement; and

L) during runtime execution of the proximity alert apparatus or system running an application comprising configuration values during operational states of user inputs in response to one or more proximity alert apparatus or system operational states relating to proximity, time, and motion alert inputs and outputs; for individual captured sequences, determining the proximity alert apparatus or system integral power savings for each captured sequence regarding one or more operational states; applying an automated response to the captured sequence based on an optimum proximity alert integral power savings outcome; storing the captured sequence and the optimum proximity alert integral power savings outcome in a runtime memory within the proximity alert apparatus or system processor; identifying one or more captured sequences based on the proximity alert apparatus or system processor controlled integral power savings real time status associated with the optimum proximity alert integral power savings outcome event confronting the proximity alert apparatus or system processor controlled operational state; selecting a captured sequence from the one or more captured sequences, and the control method associated with each individual sequence; and executing the selected captured sequence for the controlled operational state integral power savings method in response to the operational state confronting the proximity alert apparatus or system.

19. The non-transitory computer readable memory medium of claim 18, further comprising an alarm or alert mitigation method.

20. The non-transitory computer readable memory medium of claim 18, wherein a separated distance of the proximate alert apparatus or system from the protected device is adjustably scalable from 10 feet to 150 feet.

21. The non-transitory computer readable memory medium of claim 18, wherein the proximity alert apparatus or system adapts to a user's environment and determines the most robust and stable frequencies for connecting with the protected device.