CLAIMS

What is claimed is:

1. A medical device controller location and tracking system, the system comprising:

a first electronic data store comprising a plurality of first entries, wherein each first entry contains information that associates a medical device controller with a physical location;

a second electronic data store comprising a plurality of second entries, wherein each second entry contains information that associates a computer network device with a physical location;

a plurality of medical device controllers, wherein each medical device controller comprises a user interface configured to receive information, from a human user, identifying an entered physical location of the respective medical device controller, and wherein each user interface comprises a display screen configured to display operational data for a medical device communicatively coupled to the respective medical device controller;

a plurality of computer network devices;

a monitoring station configured to display physical locations associated with one or more of the plurality of medical device controllers; and

a server comprising a first machine learning module, a second machine learning module, and a third machine learning module, wherein the server is configured to:

receive messages, via a computer network, from the plurality of medical device controllers, wherein each message includes: (a) an identifier of the respective medical device controller, (b) an identifier of one of the plurality of computer network devices through which the respective message traveled en route to the server, and (c) an image of at least some of contents displayed on the display screen of the respective medical device controller;

for each of the received messages:

extract at least some of the operational data for the respective medical device from the respective image;

determine, by the second machine learning module in response to the received message, whether an entry in the first electronic data store associates the respective medical device controller with a physical location;

determine, by the third machine learning module in response to the received message, whether an entry in the first electronic data store associates a respective one of the plurality of computer network devices with a physical location;

if an entry in the first electronic data store is found that associates the respective medical device controller with a physical location, then store, with the first machine learning module, a new second entry in the second electronic data store, wherein the server determines that the new second entry associates the respective one of the plurality of computer network devices with the physical location associated with the respective medical device controller in the first electronic data store;

if (a) no entry in the first electronic data store is found that associates the respective medical device controller with a physical location then the server determines whether an entry in the second electronic data store is found that associates the respective one of the plurality of computer network devices with a physical location, then store, with the second machine learning module, a new first entry in the first electronic data store, wherein the new first entry associates the respective medical device controller with the physical location associated with the respective one of the plurality of computer network devices in the second electronic data store; and

if (a) an entry in the first electronic data store is found that associates the respective medical device controller with a physical location, (b) an entry in the second electronic data store is found that associates the respective one of the plurality of computer network devices with a physical location, then the server compares the physical location associated with the respective medical device controller in the first electronic store with the physical location associated with the respective medical device controller in the second electronic data store and (c) a comparison indicates that the physical location associated with the respective medical device controller in the first electronic data store differs from the physical location associated with the respective one of the plurality of computer network devices in the second electronic data store, then revise, with the third machine learning module, the entry in the first electronic data store to associate the

respective medical device controller with the physical location associated with the respective one of the plurality of computer network devices in the second electronic data store; and

provide, to the monitoring station, status information associated with one or more of the plurality of medical device controllers by the server.

2. A system according to claim 1, wherein, for each received message, the respective one of the plurality of computer network devices has communicated directly with the respective medical device controller.

3. A system according to claim 2, wherein, for each received message, the respective one of the plurality of computer network devices has communicated wirelessly with the respective medical device controller.

4. A system according to claim 3, wherein each one of the plurality of computer network devices is a wireless access point.

5. A system according to claim 3, wherein each one of the plurality of computer network devices is a cellular base station.

6. A system according to claim 1, wherein, for each received message, the identifier of the respective one of the plurality of computer network devices comprises an Internet protocol (IP) address.

7. A system according to claim 1, wherein after the revising of the entry in the first electronic data store to associate the respective medical device controller with the physical location associated with the respective one of the plurality of computer network devices in the second electronic data store, the server is further configured to automatically revise the entry in the first electronic data store to associate the respective medical device controller with a default value.

8. A system according to claim 1, wherein at least one of the plurality of first entries in the first electronic data store was created in response to a human user providing a physical location of one of the plurality of medical device controllers through the user interface of that medical device controller.

9. A system according to claim 1, wherein the plurality of medical devices communicatively coupled to the plurality of medical device controllers consist of heart pumps.

10. A system according to claim 9, wherein, for each received message, the respective image comprises a placement signal.

11. A system according to claim 1, wherein, for each received message, the identifier of the respective medical device controller comprises a serial number.

12. A system according to claim 11, wherein, for each received message, the identifier of the respective one of the plurality of computer network devices comprises an Internet protocol (IP) address, a media access control (MAC) addresses, or a service set identifier (SSID).

13. A method for locating and tracking medical device controllers, the method comprising:

providing a first electronic data store comprising a plurality of first entries, wherein each first entry contains information that associates a respective medical device controller with a respective physical location;

providing a second electronic data store comprising a plurality of second entries, wherein each second entry contains information that associates a respective computer network device with a respective physical location;

displaying, via a display screen of a medical device controller, operational data for a medical device communicatively coupled to the medical device controller;

receiving, at a server, via a computer network, a message from the medical device controller that includes: (a) an identifier of the medical device controller, (b) an identifier of a computer network device through which the message traveled en route to the server, and (c) an image of at least some of contents displayed on the display screen of the medical device controller

the server comprising a first machine learning module, a second machine learning module and a third machine learning module;

extracting, via the server, at least some of the operational data for the medical device from the image in the received message;

in response to receipt of the message, automatically determining, via the server by the second machine learning module in response to the received message, whether an entry in the first electronic data store associates the medical device with a physical location;

in response to receipt of the message, automatically determining, via the server by the third machine learning module in response to the received message, whether an entry in the first electronic data store associates the computer network device with a physical location;

if an entry in the first electronic data store is found that associates the medical device controller with a physical location, then storing, via a first machine learning module of the server, a new second entry in the second electronic data store, wherein the server determines that the new second entry associates the computer network device with the physical location associated with the medical device controller in the first electronic data store;

if (a) no entry in the first electronic data store is found that associates the medical device controller with a physical location then the server determines that an entry in the second electronic data store is found that associates the computer network device with a physical location, then storing, via a second machine learning module of the server, a new first entry in the first electronic data store, wherein the new first entry associates the medical device controller with the physical location associated with the computer network device in the second electronic data store;

if (a) an entry in the first electronic data store is found that associates the medical device controller with a physical location, (b) an entry in the second electronic data store is found that associates the computer network device with a physical location, then the server compares the physical location associated with the respective medical device controller in the first electronic store with the physical location associated with the respective medical device controller in the second electronic data store and (c) a comparison indicates that the physical location associated with the medical device controller in the first electronic data store differs from the physical location associated with the computer network device in the second electronic data store, then revising, via a third machine learning module of the server, the entry in the first electronic data store to associate

the medical device controller with the physical location associated with the computer network device in the second electronic data store; and

displaying, with a monitoring station, status information associated with one or more medical device controllers by the server.

14. A method according to claim 13, wherein the computer network device has communicated directly with the medical device controller.

15. A method according to claim 14, wherein the computer network device has communicated wirelessly with the medical device controller.

16. A method according to claim 15, wherein the computer network device is a wireless access point.

17. A method according to claim 15, wherein the computer network device is a cellular base station.

18. A method according to claim 13, wherein the identifier of the computer network device comprises an Internet protocol (IP) address.

19. A method according to claim 13, wherein revising the entry in the first electronic data store to associate the medical device controller with the physical location associated with the computer network device in the second electronic data store comprises:

temporarily revising the entry in the first electronic data store to associate the medical device controller with the physical location associated with the computer network device in the second electronic data store; and

subsequently automatically revising the entry in the first electronic data store to associate the medical device controller with a default value.

20. A method according to claim 13, wherein the medical device communicatively coupled to the medical device controller is a heart pump.

21. A method according to claim 20, wherein the at least some of the contents displayed on the display screen of the medical device controller comprise a placement signal.

22. A method according to claim 13, wherein the identifier of the medical device controller comprises a serial number.

23. A method according to claim 22, wherein the identifier of the computer network device comprises an Internet protocol (IP) address, a media access control (MAC) addresses, or a service set identifier (SSID).