

CLAIMS

1. A system comprising:
 - a plurality of antennas deployed in a location, wherein each antenna of the plurality of antennas is configured to receive a signal indicative of a tag proximate to the antenna;
 - a memory;
 - a processor configured to:
 - process tag detection signals that are based on the received signals,
 - wherein the processing comprises:
 - selectively storing tag detection signals in the memory; and
 - identifying an event related to presence of a tag at the location based on a plurality of tag detection signals, the plurality of tag detection signals comprising at least one stored tag detection signal, wherein the event is representative of a combination of at least a portion of the plurality of tag detection signals, wherein the portion comprises tag detection signals associated with different antennas of the plurality of antennas; and
 - a transmitter configured to transmit a message indicating the event over a wide area network to a server.
2. The system of claim 1, wherein identifying an event comprises identifying that a tag detection signal of the plurality of tag detection signals includes tag identification information that matches tag identification information of the at least one stored tag detection signal.
3. The system of claim 2, wherein the tag detection signal of the plurality of tag detection signals is based on signals received by a first antenna of the plurality of antennas and the at least one stored tag detection signal is based on signals received by a second antenna of the plurality of antennas.
4. The system of claim 1, wherein:

the processor is further configured to store time information associated with the at least one stored tag detection signal, and

identifying an event comprises comparing the time information associated with the at least one stored tag detection signal to time information associated with at least one other tag detection signal of the plurality of tag detection signals.

5. The system of claim 4, wherein an event is identified by comparing a difference between the time information associated with the at least one other tag detection signal and the time information associated with the at least one stored tag detection signal to a time interval.

6. The system of claim 4, wherein an event is identified when a difference between the time information associated with the tag detection signal of the plurality of tag detection signals and the time information associated with the at least one stored tag detection signal is greater than a time interval, and the tag detection signal of the plurality of tag detection signals includes tag identification information that is distinct from the tag identification information of the at least one stored tag detection signal.

7. The system of claim 4, wherein an event is identified by an absence of at least one tag detection signal corresponding to the tag for an amount of time exceeding a time interval.

8. The system of claim 1, wherein the at least one stored tag detection signal is modified to reflect the identified event.

9. The system of claim 1, wherein the at least one stored tag detection signal is deleted from the memory when a difference between time information associated with the at least one stored tag detection signal and a current time is greater than a predetermined time interval.

10. The system of claim 1, wherein the transmitter is configured to transmit the message via at least one data buffer, and the at least one data buffer is configured to store at least a portion of the message when the transmitter is unable to transmit the message.

11. The system of claim 1, wherein the transmitter is configured to transmit at least a portion of the message over the wide area network when the system is in communication with the server and the at least one data buffer is configured to store at least a portion of the message when transmission of the message is interrupted.

12. A system comprising:

a wide area network receiver configured to receive, from a sensor unit having a plurality of antennas, a message reporting at least one event identified by the sensor unit processing signals received from a tag proximate to an antenna of the plurality of antennas and at least one feature of the signals including signal strength;

a processor configured to:

process the message, wherein the processing comprises:

analyzing the at least one event and signal strength of the signals to evaluate adjustment of a power setting used to operate the at least one antenna of the plurality of antennas; and

updating the power setting when analysis of the at least one event and the signal strength indicates adjusting the power setting; and

a wide area network transmitter configured to transmit the updated power setting to the sensor unit.

13. The system of claim 12, wherein processing the message further comprises analyzing the at least one event to identify a portion of the at least one event that consolidates a number of occurrences for an event type.

14. The system of claim 12, wherein processing the message further comprises analyzing the at least one event and the at least one feature to identify information indicative of a status of the sensor unit, and the processor is further configured to present a status message indicating the status to a user.

15. The system of claim 12, wherein the updated power setting is used to operate the at least one antenna in response to the sensor unit receiving the updated power setting.

16. The system of claim 12, wherein processing the message further comprises presenting information related to the message to a user, wherein the information presented to the user indicates a status of the sensor unit.

17. At least one non-transitory computer-readable medium storing computer-executable instructions that, when executed, perform a method comprising:

receiving, from a plurality of antennas deployed in a location and configured to detect different event types, signals indicating a tag proximate to an antenna of the plurality of antennas;

processing, by a reader unit in communication with the plurality of antennas, tag detection signals that are based on the received signals, wherein the processing comprises:

selectively storing tag detection signals; and

identifying events related to presence of a tag at the location based on a plurality of tag detection signals and information identifying an event type associated with at least one antenna of the plurality of antennas corresponding to the plurality of tag detection signals, the plurality of tag detection signals comprising at least one stored tag detection signal, and wherein the events include a plurality of event types and each of the events represent a combination of multiple tag detection signals of the plurality of tag detection signals; and transmitting a message indicating the events from the reader unit over a wide area network to a server.

18. The at least one non-transitory computer-readable medium of claim 17, wherein the received signals indicate at least one configuration parameter of the antenna, and identifying events is based on the at least one configuration parameter.

19. The at least one non-transitory computer-readable medium of claim 17, wherein the plurality of event types includes an event type corresponding to arrival of the tag to a region proximate to an antenna of the plurality of antennas at the location.

20. The at least one non-transitory computer-readable medium of claim 17, wherein the plurality of event types includes an event type corresponding to departure of the tag from a region proximate to an antenna of the plurality of antennas at the location.

21. The at least one non-transitory computer-readable medium of claim 17, wherein the plurality of event types includes an event type corresponding to movement of a user associated with the tag from a first region proximate to a first antenna at the location to a second region proximate to a second antenna at the location.