CLAIMS

What is claimed is:

1. A system for locating an object attached to a location tag comprising:

   a first user device having a display;

   a first location tag, paired with the first user device, generating a location signal;

   the first user device programmed to:

   receive the location signal

   generate a direction vector based on the location signal

   generate and display a direction element, on the display, based on the location signal, indicative of the location of the location tag; and,

   generate and display identification information related to the object, on the display, upon receipt of the location signal;

   wherein the direction element is an animated arrow pointing toward the location tag.

2. The system of claim 1 wherein the direction element is displayed superimposed on an augmented reality display.

3. The system of claim 1 wherein the location tag further comprises at least one of a beacon tag, an RFID tag, or a GPS tag.

4. The system of claim 1 wherein the location tag includes visible printed material indicative of ownership of the object.

5. The system of claim 1 wherein the identification information includes one or more of the owner name, an owner picture, a picture related to the object, or flight information.

6. A system for locating an object attached to a location tag comprising:

   a first user device having a display;

   a first location tag, paired with the first user device, generating a location signal;

   the first user device programmed to:

   receive the location signal

   generate a direction vector based on the location signal

   generate and display a direction element, on the display, based on the location signal, indicative of the location of the location tag; and,

generate and display identification information related to the object, on the display, upon receipt of the location signal;

wherein the direction element is based on an image recognition algorithm.

7. A system for locating an object attached to a location tag comprising:

a server, having a processor, connected to a database;

a first user device, in communication with the server;

a location tag, paired with the first user device;

a second user device, in communication with the server and the location tag;

the second user device programmed to:

receive first data from the location tag, indicative of the identity of the location tag;

identify second data, indicative of a location of the second user device;

send the first data and the second data to the server;

the first user device programmed to:

identify third data, indicative of a location of the first user device;

send a location request message to the server;

the server programmed to:

receive the first data, the second data and the location request message;

identify the pairing of the first user device with the location tag based on the first data;

send an object location alert to the first user device, including the second data;

the first user device further programmed to:

compare the second data to the third data; and,

generate a display, based on the comparison, having a first visual director to the location of the second user device as a proxy for the location of the location tag.

8. The system of claim 7, wherein the first user device is in communication with the location tag and wherein the first user device is further programmed to:

receive the first data from a beacon signal;

determine an intensity of the beacon signal;

construct a plurality of probability circles based on the intensity of the beacon signal;

derive a set of overlap coordinates from the plurality of probability circles;

calculate a centroid based on the overlap coordinates;

identify fourth data, indicative of a location of the first user device;

calculate a direction vector between the location of the first user device and the centroid; and,

generate a display, based on the direction vector, having a second visual director to the centroid.

9. The system of claim 8, wherein the first user device is further programmed to construct the plurality of probability circles by the steps of:

receiving a sensor position data indicative of movement of the first user device;

retrieving three probability circles of the plurality of probability circles; and,

deriving the centroid from the three probability circles.

10. The system of claim 8, wherein the first user device is further programmed to:

consult a table of signal strength and estimated distance to construct each probability circle of the plurality of probability circles.

11. The system of claim 8, wherein the first user device is further programmed to calculate the centroid based on the equations:

$$C x = \int x S y (x) dx A \quad C y = \int y S x (y) dx A$$

wherein $S_y(x)$ is a first distance to a point in the set of overlap coordinates;

$S_x(y)$ is a second distance to a point in the set of overlap coordinates; and,

A is an area defined by the overlap coordinates.

12. A system for locating an object attached to a location tag comprising:

a server, having a processor, connected to a database;

a plurality of user devices in communication with the server;

a plurality of location tags, each location tag of the plurality of location tags paired with a unique user device of the plurality of user devices;

a long-range tag location system, in communication with the plurality of user devices, the plurality of location tags and the server, for locating the plurality of location tags at long distances;

a short-range tag location system, in communication with the plurality of user devices, the plurality of location tags and the server for locating the plurality of location tags at short distances; and,

an ultra-short-range tag location system, in communication with the plurality of user devices, the plurality of location tags and the server, for locating the plurality of location tags at ultra-short distances;

wherein the ultra-short-range system further comprises a short-range beacon system and an image recognition system.

13. The system of claim 12, wherein the long-range tag location system further comprises one of the group of a long-range beacon system, GPS system, and an RFID system.

14. The system of claim 12, wherein the short-range system further comprises one of the group of an RFID system, a short-range beacon system, and an image recognition system.

15. The system of claim 12, wherein a first location tag of the plurality of location tags comprises one or more of the group of a beacon tag, an RFID tag, a GPS tag, and printed media.

16. The system of claim 12, further comprising a first user device of the plurality of user devices, the first user device programmed to:

receive a tag identification signal;

make a selection between a long-range mode, a short-range mode and an ultra-short-range mode based on the tag identification signal;

wherein the long-range mode invokes the long-range tag location system;

wherein the short-range mode invokes the short-range tag location system; and,

wherein the ultra-short-range mode invokes the ultra-short-range tag location system.

17. The system of claim 16, wherein the first user device is further programmed to:

provide an augmented reality display based on a direction vector provided by one of the group of the long-range tag location system, the short-range tag location system, and the ultra-short-range tag location system.

18. The system of claim 17, wherein the first user device is further programmed to:

provide an image of the object and an information dataset related to the object in the augmented reality display.