CLAIMS:

1. An article tracking system comprising:

a) a beacon associated with an article for emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) a plurality of relaying devices having known locations each for detecting the short-range radio signals, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each detected short-range radio signal to a relay signal, and transmitting each of the relay signals, the relay signals including a unique relaying device identifier and RSSI information;

c) timestamping means for attaching a time stamp to each relay signal; and

d) a tracking device for continually receiving the relay signals from each relaying device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device, wherein the characteristic of the received relaying signals from each relaying device includes a calculated RSSI, and wherein the tracking device determines to which of the plurality of relaying devices a beacon is closest based on a comparison of an average calculated RSSI for a plurality of relay signals associated with each relaying device.

2. The article tracking system of claim 1, wherein the beacon is associated with the article by attaching the beacon to the article.

3. The article tracking system of claim 1, wherein the beacon identifier includes a unique user identification number (UUID).

4. The article tracking system of claim 1, wherein the beacon identifier is associated with a baggage licence plate number (LPN).

5. The article tracking system of claim 1, wherein the beacon identifier is associated with a baggage licence plate number (LPN) by including the LPN in the beacon identifier.

6. The article tracking system of claim 1, wherein the timestamping means attaches a time stamp to a relay signal before the tracking device receives the relay signal.

7. The article tracking system of claim 1, wherein the timestamping means attaches a time stamp to a relay signal after the tracking device receives the relay signal.

8. An article tracking system comprising:

a) a beacon associated with an article for emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) a plurality of relaying devices having known locations each for detecting the short-range radio signals, calculating received signal strength indicator (RSSI) for each detected short-range radio signal, converting each detected short-range radio signal toa a relay signal, and transmitting each of the relay signals, the relay signals including a unique relaying device identifier and RSSI information;

c) timestamping means for attaching a time stamp to each relay signal, and

d) a tracking device for continually receiving the relay signals from each relaying device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device; wherein the characteristic of the received relaying signals from each relaying device includes a calculated RSSI and a beacon transmission power; and wherein the tracking device determines to which of the plurality of relaying devices the beacon is closest based on an average ratio of calculated RSSI to beacon transmission power for a plurality of relay signals associated with each relaying device.

9. An article tracking system comprising:

a) a beacon associated with an article for emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) a plurality of relaying devices having known locations each for detecting the short-range radio signals, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each detected short-range radio signal to a relay signal, and transmitting each of the relay signals, the relay signals including a unique relaying device identifier and RSSI information;

c) timestamping means for attaching a time stamp to each relay signal, and

d) a tracking device for continually receiving the relay signals from each relaying device, comparing a characteristic of the received relay signals from each relaying device to determine to

which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device, wherein the characteristic of the received relay signals from each relaying device includes a calculated average distance between the beacon and each relaying device, and wherein the calculated average distance between the beacon and each of the relaying devices is based on the calculated RSSI and an inverse square law for a plurality of relay signals associated with each relaying device.

10. An article tracking system comprising:

a) a beacon associated with an article for emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) a plurality of relaying devices having known locations each for detecting the short-range radio signals, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each detected short-range radio signal to a relay signal, and transmitting each of the relay signals, the relay signals including unique relaying device identifier and RSSI information;

c) timestamping means for attaching a time stamp to each relay signal; and

d) a tracking device for continually receiving the relay signals from each relaying device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device, wherein the calculated average distance between the beacon and each of the relaying devices is based on a known power function of the average ratio of calculated RSSI to beacon transmission power of the relay signals for a plurality of relay signals associated with each relaying device.

11. The article tracking system of claim 9, wherein the tracking device determines to which of the plurality of relaying devices the beacon is closest based on an average calculated distance between the beacon and each of the relaying devices.

12. An article tracking system comprising:

a) a beacon associated with an article for emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) a plurality of relaying devices having known locations each for detecting the short-range radio signals, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each detected short-range radio signal to a relay signal, and transmitting

each of the relay signals, the relay signals including a unique relaying device identifier and RSSI information;

c) timestamping means for attaching a time stamp to each relay signal; and

d) a tracking device for continually receiving the relay signals from each relaying device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device, wherein the tracking device sends a message including the stored time, beacon identifier and unique relaying device identifier to an external data processing system, and wherein the tracking device sends a message including passenger related information received from an external database to an external data processing system.

13. The article tracking system of claim 1, wherein a plurality of beacons are each associated with an article.

14. The article tracking system of claim 12, wherein the characteristic of the received relay signals from each relaying device includes a beacon identifier.

15. The article tracking system of claim 1, further comprising an aggregator for aggregating relaying device messages and streaming the aggregated messages to the tracking device.

16. The article tracking system of claim 1, further comprising the tracking device configured to determine a time of arrival for the article at a particular relaying device having a known location based on the time the article is located within an acceptable distance from the particular relaying device.

17. The article tracking system of claim 1, further comprising a mobile application for sending the beacon identifier and the article identifier to the tracking device.

18. The article tracking system of claim 1, further comprising a mobile application for displaying the journey of the article to a user.

19. The article tracking system of claim 1, further comprising a mobile application for notifying a passenger or user when the article arrives at a particular relaying device having a known location.

20. An article tracking method comprising the steps of:

a) associating a beacon with an article, the beacon emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) detecting the short-range radio signals at a plurality of relaying devices, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each short-range radio signal to a relay signal at a plurality of relaying devices having known locations, and transmitting each of the relay signals including a unique relaying device identifier and RSSI information;

c) attaching a time stamp to each relay signal;

d) receiving a plurality of relay signals from the relay devices at a tracking device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device; and

e) repeating step d thereby to determine multiple locations of the article over time, wherein comparing a characteristic of the received relay signals from each relaying device is based on a calculated RSSI, and wherein determining to which of the plurality of relaying devices a beacon is closest is based on a comparison of an average calculated RSSI for a plurality of relay signals associated with each relaying device.

21. The article tracking method of claim 20, wherein associating the beacon with the article comprises attaching the beacon to the article.

22. The article tracking method of claim 20, wherein attaching the time stamp to each relay signal occurs before receiving the relay signals at the tracking device.

23. The article tracking method of claim 20, wherein attaching the time stamp to each relay signal occurs after receiving the relay signals at the tracking device.

24. An article tracking method comprising the steps of:

a) associating a beacon with an article, the beacon emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) detecting the short-range radio signals at a plurality of relaying devices, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each short-range radio signal to a relay signal at a plurality of relaying devices having known locations, and transmitting each of the relay signals including a unique relaying device identifier and RSSI information;

c) attaching a time stamp to each relay signal;

d) receiving a plurality of relay signals from the relay devices at a tracking device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device; and

e) repeating step d thereby to determine multiple locations of the article over time, wherein comparing a characteristic of the received relaying signals from each relaying device is based on a calculated RSSI and a beacon transmission power, and wherein determining to which of the plurality of relaying devices a beacon is closest is based on a comparison of an average ration of calculated RSSI to beacon transmission power for a plurality of relay signals associated with each relaying device.

25. An article tracking method comprising the steps of:

a) associating a beacon with an article, the beacon emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) detecting the short-range radio signals at a plurality of relaying devices, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each short-range radio signal to a relay signal at a plurality of relaying devices having known locations, and transmitting each of the relay signals including a unique relaying device identifier and RSSI information;

c) attaching a time stamp to each relay signal;

d) receiving a plurality of relay signals from the relay devices at a tracking device, comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device; and

e) repeating step d thereby to determine multiple locations of the article over time, wherein comparing a characteristic of the received relaying signals from each relaying device is based on a calculated average distance between the beacon and each relaying device, and wherein calculating the average distance between the beacon and each of the relaying devices is based on the calculated RSSI and an inverse square law for a plurality of relay signals associated with each relaying

device.

26. An article tracking method comprising the steps of:

a) associating a beacon with an article, the beacon emitting a plurality of short-range radio signals, each short-range radio signal including a beacon identifier and a beacon transmission power;

b) detecting the short-range radio signals at a plurality of relaying devices, calculating a received signal strength indicator (RSSI) for each detected short-range radio signal, converting each short-range radio signal to a relay signal at a plurality of relaying devices having known locations, and transmitting each of the relay signals including a unique relaying device identifier and RSSI information;

c) attaching a time stamp to each relay signal;

d) receiving a plurality of relay signals from the relay devices at a tracking device; comparing a characteristic of the received relay signals from each relaying device to determine to which of the plurality of relaying devices the beacon is closest, and storing the time stamp, beacon identifier and unique relaying device identifier of the determined closest relaying device; and

e) repeating step d thereby to determine multiple locations of the article over time, wherein comparing a characteristic of the received relaying signals from each relaying device is based on a calculated average distance between the beacon and each relaying device, and, wherein calculating the average distance between the beacon and each of the relaying devices is based on a known power function of the average ratio of calculated RSSI to beacon transmission power of the relay signals for a plurality of relay signals associated with each relaying device.

27. The article tracking method of claim 25, wherein the tracking device determines to which of the plurality of relaying devices the beacon is closest based on an average calculated distance between the beacon and each of the relaying devices.

28. The article tracking method of claim 20, further comprising associating each of a plurality of beacons with an article.

29. The article tracking method of claim 28, wherein comparing the characteristic of the received relay signals from each relaying device includes comparing a beacon identifier.

30. The article tracking method of claim 20, further comprising sending a message including the stored time, beacon identifier and unique relaying device identifier to an external data processing

system.

31. The article tracking method of claim 30, further comprising receiving passenger related information from an external database and sending a message including the passenger related information to an external data processing system.

32. The article tracking method of claim 20, further comprising aggregating relaying device messages and streaming the aggregated messages to the tracking device.

33. The article tracking method of claim 20, further comprising determining a time of arrival for the article at a particular relaying device having a known location based on the time the article is located within an acceptable distance from the particular relaying device.

34. The article tracking method of claim 20, further comprising sending the beacon identifier and the article identifier to the tracking device with a mobile application.

35. The article tracking method of claim 20, further comprising displaying the journey of the article to a user with a mobile application.

36. The article tracking method of claim 20, further comprising notifying a passenger or user when an article arrives at a particular relaying device having a known location with a mobile application.