



USAGE OF THE SIGNALS FROM COMMUNICATING OBJECTS

Observation beacon and transmission process of the associated observation data

Technological advantages

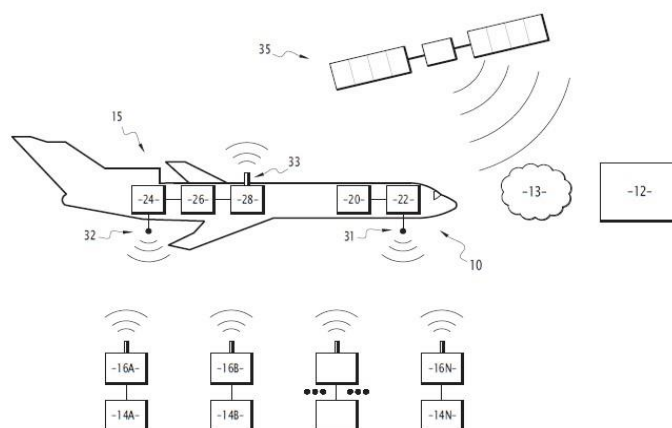
The invention enables detection of the exact time a message is transmitted by the beacon. However, several use cases exist:

- If all of an airline's airplanes are equipped with a data collection device, then we can perfectly determine the date of emission thanks simply to the airline's identifier contained in the ADS-B message.

- If only some of an airline's airplanes are equipped with the device or if several airlines equip some of their airplanes, then:

- It is possible to systematically emit when the airline or airlines' identifier(s) is/are detected. However, a part of the messages sent out will go unused;

- It is also possible to create on the computer terminals a table containing all the airplanes that are equipped with the device to perfectly direct the messages. However, it will be necessary to update the table as and when the fleet changes.



Summary of the invention

The invention is an innovative observation beacon capable of:

- generating local observation data
- storing them temporarily if needed
- continuously listening to the ADS-B signals transmitted by aircraft or other any mobile platform near by
- sending stored data when and only when one of these carriers enters the beacon's range

If the mobile carriers are equipped with appropriate receiving systems, it then becomes possible to collect those beacons' information without compromising on their battery life (they will no longer emit blindly, they will only emit when an appropriate receiver is detected nearby).

Potential Applications

Reading of in-situ observations and measurements over extended networks far from any communication infrastructure for applications to do with the internet of things.

Examples

Any applications concerning data collection or the Internet of Things outside of the areas covered by the land-based networks.

Commercial benefits

Energy efficiency

-Better energy efficiency than autonomous beacons as they will only start transmissions when there is a good probability that there is a nearby aircraft capable of receiving.

Cheaper hardware

-Reduced maintenance costs thanks to a simplification of the beacons. The only kind of maintenance needed for these beacons, due to their low cost, is replacing the battery.

It is also worth noting that the utilization of an ADS-B signal by a terminal connected to the Internet of Things working on the ISM band is relatively simple to put in place because the frequency bands are very near. The same antenna can therefore be used for both bands.

TRL : 7-8

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