



Group/Lab:

Aircraft Signal Receiver Hardware

While GPS is great for outdoor localisation, it does not work well indoors because the received signal strength is extremely low. In fact, the GPS signals are 1000 times weaker than the thermal noise! Current indoor alternatives such as WiFi based methods have limited range and thus are only available in neighborhoods with a sufficient number of base stations.

An alternative indoor localization method has been developed in our group. It leverages signals sent by aircraft to localize a user.

As aircraft signals can be received hundreds of kilometers away from an aircraft and due to the dense air traffic in more and more countries, this system can be considered to be available in most populated areas. Compared to GPS, the received aircraft signals are much stronger and therefore can be received indoors.

The goal of this project is to improve our current prototype hardware and deploy a network of weatherproof base stations, which continuously collect aircraft data. One part of this project would be to build your own antennas, because there do not seem to exist any commercially available low cost antennas designed specifically for aircraft signals.



Requirements: Creativity and programming skills are advantageous. The student(s) should be able to work independently on this topic!

Interested? Please contact us for more details!

Contacts

- Manuel Eichelberger: manuel.eichelberger@tik.ee.ethz.ch, ETZ G97
- Simon Tanner: simon.tanner@tik.ee.ethz.ch, ETZ G97