ETH
Eidgenössische Technische Hochschule Zürich
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Distributed Computing

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Accurate Aircraft Positioning

While GPS is great for outdoor localization, 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 ground 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 the accuracy of localization system. Different effects of the transmission at the aircraft, such as delay of the transmission and the location of the antenna can have an effect on the localization accuracy. Effects of the transmission path can also influence the accuracy of the timestamps at the receivers. Also new ways to combine the messages from different receivers could be investigated.

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

Interested? Please contact us for more details!

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