ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Distributed Computing

Prof. R. Wattenhofer

BA/MA/SA/Group/Lab:

Low-Power GPS Tracking Hardware

Although GPS receivers are used in cameras, fitness devices, phones and animal tracking devices, the range of applications for GPS receivers is still limited. This is mostly because long term tracking is quite energy consuming. You may have observed that the GPS receiver in your phone draws a lot of power if you want to track your location with high resolution for a whole day. And this is not even the worst case application scenario!

GPS receivers are notoriously bad at obtaining a location fix quickly. The introduction of A-GPS in recent years helped to reduce the time required to obtain a location fix. However, these receivers still need to run a few seconds for each new fix and require communication with a server that provides A-GPS information. This consumes so much energy that tracking devices obtaining a location fix every few hours still consume a lot of energy.

We have been working on a drastically different GPS receiver design with superior energy efficiency. The goal of this thesis is to build a low-power GPS receiver by updating and extending the existing hardware design and test it in real life scenarios such as fitness or animal tracking.

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

Interested? Please contact us for more details!

Contacts

- Pascal Bissig: pascal.bissig@tik.ee.ethz.ch, ETZ G95
- Manuel Eichelberger: manuel.eichelberger@tik.ee.ethz.ch, ETZ G97