Low-power devices for the Internet of Things (IoT) have very little energy and computation power available. Still, they should provide a lot of functionality to enable “smart” applications. For instance, one would always like to know where such a device is located. We try to tackle this problem using GPS, but with an approach very different from current receivers.

At our group, we developed an algorithm for a low-power GPS receiver. The receiver only samples the signal and then sends the samples to a server, which then does the expensive processing to get the position. Of course, we now have a heavy computational load on the server.

The goal of this project is to reduce the computation power at the server. We do have many ideas how this can be achieved. For example by keeping track of the receiver state over time, thus having to update the position only incrementally at each measurement point. You will implement these improvements in our existing implementation, which uses newest generation GPUs to process the recorded signals.

Requirements: Creative thinking and advanced programming skills are advantageous to successfully work on this topic. Experience with GPU programming is a plus. The student(s) should be able to work independently!

Interested? Please contact us for more details!

Contact

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