ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Distributed Computing Group

Prof. Roger Wattenhofer
http://www.dcg.ethz.ch

Lab/Semester-/Master Thesis

Wearable Sensor Networks with Mobile Phones

The ubiquity of mobile phones makes them very attractive as a mobile sensing platform. New generation mobile phones like the iPhone or Android-based phones already have some integrated sensors (GPS, accelerometer). Additional external sensors, e.g. for temperature, air pollution or heart rate, can sense a person's environment. Measurement data can then be sent to the mobile phone where it is further processed by an application or forwarded to a central server using the mobile phone's Internet connection.

In this project you should implement a prototype of a sensor network based on mobile phones. Many different application scenarios with and without additional external sensors could be imagined. You could for example use an Arduino LilyPad microcontroller (see Figure 1), which can be sewed on fabric, to acquire data from different sensors placed in your proximity (e.g. on your clothing, backpack or bicycle). Using an additional Bluetooth module, the data is then periodically sent to a mobile phone where the current timestamp and GPS location is added. We are open for every cool idea that comes into your mind!

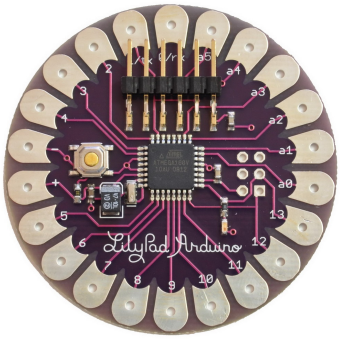

Figure 1: LilyPad Arduino

Required Skills

Good knowledge of C and JAVA programming language is required. Furthermore, you should be interested in building your own hardware prototype setup.

Are you interested? Please contact us for more details.

Contact

Philipp Sommer, ETZ G64.1, `sommer@tik.ee.ethz.ch`, 044 632 7838
Michael Kuhn, ETZ G61.4, `kuhnmi@tik.ee.ethz.ch`, 044 632 7730
Roger Wattenhofer, ETZ G63, `wattenhofer@tik.ee.ethz.ch`, 044 632 6312