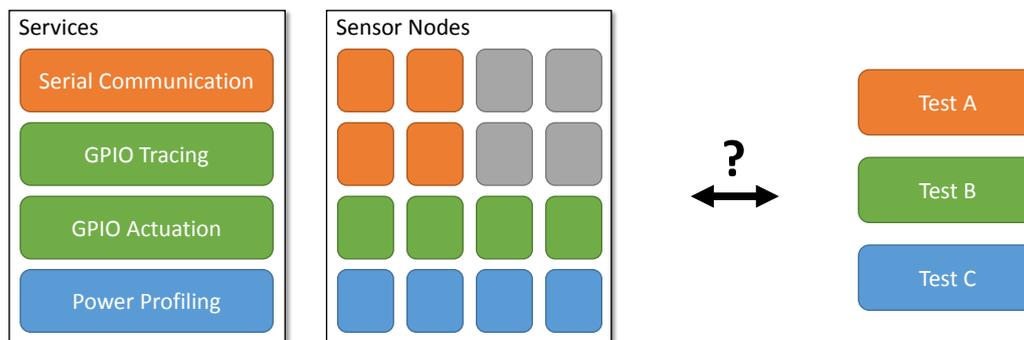


Semester / Bachelor / Master Thesis:

# Advanced Testbed Resource Allocation

## Motivation and Informal Description:

A wireless sensor network (WSN) is a distributed system consisting of tiny devices (sensor nodes) that communicate using a wireless radio. Inherent constraints of the employed devices in terms of energy, radio bandwidth, memory, and processing power present significant challenges to the realization of WSN applications. To support the application development process, over the past three years our group has thus been setting up a cutting-edge WSN testbed, called FlockLab. Using FlockLab, developers can test-drive their applications and protocols on real hardware and, for example, debug the resulting behavior through detailed power measurements and event traces, recorded with high precision at all devices.



FlockLab is publicly accessible and has become more and more popular over the past few years. While it is great to provide testbed services to many people, more users also leads to more contention.

This thesis aims at making better use of the available testbed resources. Currently, a single test on FlockLab blocks the entire testbed for other users, even if not all sensor nodes are used by the test. Up to four nodes are attached to a single *observer* platform that controls and observes a test. Certain node types and services on an observer can be used in parallel, theoretically allowing to use more than one sensor node on the same observer at the same time. Resources not used by a test could be provided to other users, therefore making better use of available resources, leading to less contention.

**Requirements:** For this thesis, familiarity with Python, PHP and HTML is beneficial.

**Project web page:** <http://www.flocklab.ethz.ch/>

## Contacts

- Roman Lim: [roman.lim@tik.ee.ethz.ch](mailto:roman.lim@tik.ee.ethz.ch), ETZ G82