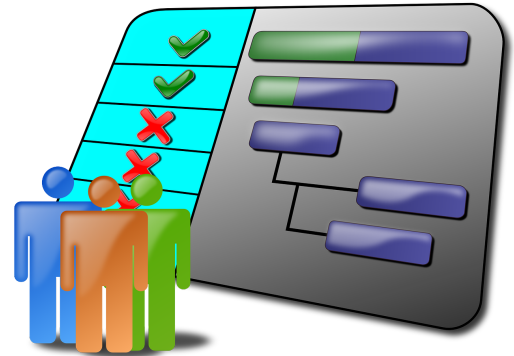# Project 2 - IoT Scheduling and Planning

Intro:

The SMV group is currently creating an automated plant growing system connected to the Internet of Things (IoT). The system consists of single-board computers (Raspberry Pi), various sensors (light, distance, temperature, humidity) and actuators (water pumps).

Currently various different software libraries are necessary to interact with these peripheral devices locally, while remote access to the sensor readings is not possible.

Goal:

The goal of this project is to create a scheduling and planning API for the IoT system. This will be implemented by introducing an API locally on the Raspberry Pi that allows users to define a schedule for sensor readings and actuator actions. The controller should then follow the plan and perform the actions as specified. The definition of the plan should be possible both programmatically via a REST API (e.g. using JSON/XML/...) or with a web user interface. This user interface should provide an appealing and easily comprehensible means to view and edit the current execution plan. This can be implemented by using one of the many already existing JavaScript libraries. The final outcome will be a monitoring and scheduling controller that is versatile and can be accessed platform independently.

Technologies:

Students are expected to show a general interest in the Internet of Things. The project will lean onto the following technologies and domains:

- Linux (Raspbian)
- Python-3 (Flask)
- web technologies: HTML, CSS, JavaScript, REST
- Information visualisation

Existing knowledge in any of these is beneficial but not a strict requirement. Note that the specific technologies and libraries can be adapted based on the student's needs, interest and knowledge.

The project is intended for one individual student.

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