Universiteit Antwerpen

# Lab report week 2


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April 26, 2017

## 1 Progress

### 1.1 MEMS sensor

With a short guide at `https://github.com/larsch/rpi-mems-sensor`, we were able to read data from the MEMS sensor on the Raspberry Pi. The C-code can be reused on the STM Nucleo board.
In order to test the code, go to `~/ambient/rpi-mems-sensor`, then build and run `test.c` by following these commands:

- `sudo gcc -o readMemsSensor test.c libmemssensor.a -l bcm2835`
- `sudo ./readMemsSensor`

### 1.2 MQTT

On the Raspberry Pi, we installed Mosquitto, an MQTT broker. We followed this tutorial as a guideline.
Afterwards we downloaded an MQTT Client on our Android smartphones and tested the connection by publishing and subscribing on a topic. The temperature of the raspberry pi is read in with a C script, and published with system commands as follows:

```
char buffer[50];
snprintf(buffer,sizeof(buffer),"mosquitto_pub -d -t sensors/temp -m
%f\n",getTemp());
system(buffer);
```

### 1.3 STM32 & Eclipse

The smaller STM32 board, STM32L152 is not supported natively by the eclipse plugin. When creating a new project, only the larger board STM32F429 can be chosen among others. To create a project for the STM32L152, STM32Cube has to be used.
The generated code has to be added to an empty eclipse project with the script found at `https://github.com/cnoviello/CubeMXImporter`.
Example code for a blinking led is found at `https://github.com/cnoviello/mastering-stm32/tree/master/nucleo-l152RE`.

## 2 Planning

## 3 Extra info

- Raspberry Pi address: 143.129.37.79