Universiteit Antwerpen

Lab report week 4

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1 Progress

1.1 CubeMX import script

- Generate project in MXCube (toolchain select SW4STM32)
- Generate project in Eclipse
- Copy files from MXCube to eclipse project with python script
- `C:\Python27>python C:\STM32Toolchain\CubeMXImporter-master \cubemximporter.py C:\STM32Toolchain\projects\STMUART C:\STM32Toolchain\cubemxgenerated\STM32UARTtest\STM32UART`

1.2 DASH7

1.2.1 Setup

Follow instructions at`https://github.com/MOSAIC-LoPoW/pyd7a`
To run the WEBUI to configure the DASH7 node, run in pyd7a folder:
`PYTHONPATH=. python modem-webgui/modem-webgui.py -d /dev/ttyACM0`

1.2.2 Exercise: Display RSSI and ID of received packet

Add code to received command callback in modem_example.py:

```
def received_command_callback(cmd):
  print cmd
  print["Link budget: ", cmd.interface_status.operand.interface_status.
  print["ID: ", cmd.interface_status.operand.interface_status.addressee
```

1.2.3 Exercise: Send temperature data over MQTT

New script based on modem_example.py, readNode.py.
Get sensordata and publish to MQTT broker. Add the code to the received command callback.

```
def received_command_callback(cmd):
  dataSensor = cmd.actions[0].operand.data # get sensor data
  temperatureLeft = format(dataSensor[1], '#010b') # get second byte of
  temperatureRight = format(dataSensor[0], '08b') # get first byte of d
  temperature = temperatureLeft + temperatureRight #switch second byte
  temperature = int(temperature, 2) # bit to int
  temperature = float(temperature)/10
  print "Temperature: " + str(temperature) + " degrees" #print temperat

  command = "mosquitto_pub -d -t sensors/tempD7 -m " + str(temperature)
  os.system(command)
```

1.3 OpenHAB Tweaks

- add line in sensors.items to add Dash7 data
- add d7 data to existing graphs in openhab
- TODO cleanup this part

2 Planning

- Calibrating and testing MEMS sensor
- Add MEMS sensor data to openHAB (ok? uitbreiding?)
- Get OpenCV working with camera (busy)
- Backup SD card on blanco SD

3 Extra info

- Raspberry Pi address: 143.129.37.79