INSERT test\_result,team=team2,task=NeoPixelHttp score=15EESTech Challenge 2019 - Tasks 7-8

## Task 7.1 - TwoDevices

**Goal: Have a 2nd device that also connects to MQTT and reports status, but no sensor data.**

**Score: 5**

The status has to be reported in text and json formats on HTTP and JSON on MQTT. The formats are defined in tasks 2.3 and 2.4.

The two devices need to be operating in parallel for a while (so that you have 2 active devices sending status).

**Evaluation:**

No need to do anything, this task will be evaluated automatically.

## Task 7.2 - Potentiometer

**Goal: Report the state of the potentiometer when it changes.**

**Score: 20**

On the 2nd board connect a potentiometer to the analog input and send its state at the beginning and when it changes (significantly).

If the potentiometer is not being touched, no messages should be sent.

Topic: /teams/teamX/devices/<chipId>/events/potmeter

Payload: "0"-"1024", the position of the potentiometer

**Evaluation:**

No need to do anything, this task will be evaluated at some point in time or together with a future task.

## Hardware - Matrix keypad

See <https://sites.google.com/view/eestech-2019-zurich/study-material#h.p_ADY_9Lm-pWcZ>

## Task 7.3 - Keypad

**Goal: Report keypresses from the keypad to MQTT.**

**Score: 30**

Connect the keypad to the 2nd board and send MQTT events when a key is pressed.

Topic: /teams/teamX/devices/<chipId>/events/keypad

Payload: "0"-"9", "#" or "\*"

**Evaluation:**

No need to do anything, this task will be evaluated at some point in time or together with a future task.

## Task 8.1 - KeypadControl

**Goal: Control the LED ring with the keypad.**

**Score: 40**

When you press a key on the keypad (2nd board), display a specific pattern on the LED ring.

Use Node-RED to receive messages from the keypad and publish corresponding messages to set the LED ring state.

**Evaluation:**

When you're ready, call for one of the organizers to visually inspect.

## Task 8.2 - PotentiometerControl

**Goal: Change the LED ring brightness using the potentiometer.**

**Score: 30**

When you turn the potentiometer (2nd board), adjust the brightness of the LED ring (1st board) but keep the pattern and colors.

Note: Check the API, you don't have to implement brightness.

**Evaluation:**

When you're ready, call for one of the organizers to visually inspect.

## Task 8.3 - Ambient1554589542

**Goal: Make the LED ring also react to ambient light.**

**Score: 30**

It's not nice to have a very bright light in the evening or at night, but a bright light is needed in sunlight. So adjust the LED ring's brightness according to the ambient light level detected by the photoresistor. Keep the same pattern and colors, only change the brightness.

Still keep the possibility to adjust the brightness using the potentiometer, but limit the maximum brightness depending on the ambient light. E.g. if the ambient light is such that you'd only use the half brightness, the potentiometer will scale the brightness from 0% to 50% when moved from one end to the other. If in this case the potentiometer is set to the center position, the resulting brightness will be 25%.

**Evaluation:**

When you're ready, call for one of the organizers to visually inspect.