Homework 3

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1 Code

To perform the needed operations I made use of both the Timer and the Leds component. Every 1s the Timer is triggered and one step of the base3 conversion is performed. First a led is toggled according to the remainder of the division, than the value is updated. As the function Leds.get() was experiencing some bugs, the current status of each led is tracked with a boolean variable. At each the new status of the leds is printed separated by a comma. When the conversion is finished Timer.stop() is called.

2 Cooja

After performing *make telosb* is the directory of the two files, the executable file created is loaded in Cooja. A couple of settings are necessary:

- Socket Server
- Show led on mote
- Speed limit set to 100%

3 NodeRed

The aim of the Node-RED flow is to process the printed output to be sent to ThingSpeak The nodes used where:

1. tcp in: receives the stdout of Cooja sent by socket connection
2. Create MQTT Packets: executes the following code in order to properly format the MQTT messages.

```
var values = msg.payload.split(",");
var l0 = values[0];
var l1 = values[1];
var l2 = values[2];
msg.topic = "channels/1727103/publish";
msg.payload = "field1="+l0+"&field2="+l1+"&field3="+l2+"&status=MQTTPUBLISH";
return msg;
```

3. mqtt Out: sends the created MQTT packets
4. Sent Messages: watches the sent messages for debug purposes.

4 ThinkSpeak

The ThingSpeak channel where the data has been sent to is available at *https://thingspeak.com/channels/1727103*