Internet of Things

Challenge 03.

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***Required Software**: TinyOS, Cooja, Node-RED, ThingSpeak*

IoT device implementation with TinyOS

The IoT device is composed by 3 leds that are implemented by using the *Leds* interface provided by TinyOS. Each minute, the device does a step in the ternary conversion of my ID.
If the result of the conversion is 0 it toggles the first led, instead if the result is 1 it toggles the second one, and so on.
In the code I used also three variables to maintain the status of the leds because the *Leds.get()* function didn't work for me.
In this way, at each iteration of the timer, the mote prints the status of the leds which are represented as a string composed by 3 numbers (e.g., 100). Each number can be 0 if the led is off or 1 if the led is on.
When the conversion is over, the timer is stopped, and no more information are sent.

Backend with Node-RED

The IoT device is simulated in Cooja, and thanks a localhost Serial Socket, the status of the leds is directly sent to Node-RED.
After it receives a message, Node-RED constructs the correct message to send to the ThingSpeak's MQTT device and it publish it thanks to the MQTT node.
The ThingSpeak cannel is composed by three fields that show the progress of the status of the three leds.

Thingspeak and GitHub links

Link: https://thingspeak.com/channels/1726898 Channel ID: 1726898
GitHub link: https://github.com/MarcoBendinelli/IoT_Polimi