

CHALLENGE 2

Federico Romeo - 10566536
Simone Sarti - 10580595

NODE-RED

Our node-red flow contains the following nodes:

- **Inject:** start the flow
- **import file:** Import a csv file saved in the VM desktop folder
- **read CSV:** Produces a message containing as payload an array of objects, each representing one line of the csv file
- **keep useful data:** javascript function that modifies the message payload to keep only the 100 needed lines (from code 6536 up to 6635) and their 3 relevant fields
- **Split:** split the single message into 100, one for each element in the array
- **rate limiter:** limits the forwarding rate to 2 packets per minute
- **Set MQTT parameters:** javascript function to set the message topic and payload to be fed to the mqtt node
- **MQTT to Thingspeak:** publishes the messages with the values of fields 1,2,5 to the respective fields in the thingspeak channel
- **Keep field 5:** javascript function to keep only the values of field 5 from the payload of each message
- **RSSI chart:** creates a line chart using the values returned from the previous function

The structure of our node-red solution is contained in the JSON file included in the delivery .zip, together with a screenshot of the node-red RSSI chart

Importing the flow, node-red may reset the security settings of the MQTT node, fill the two fields with the credentials found in the delivery folder if needed.

THINGSPEAK

We created a channel with the 3 fields as for specification and added the 3 lamps in such a way that they follow the activation requirements.

The results of our node-red publishes can be seen on our (public) channel at this link: <https://thingspeak.com/channels/1710551>

Using a python script, contained in the zip file as *scriptino.py*, we:

- made an api call to the url <https://api.thingspeak.com/channels/1710551/fields/1&2&5.json> to extract the values published on the 3 fields of the channel
- extracted from the returned json formatted file the values published on the 3 fields
- for each field, we formatted the values into a comma separated list. These are the values that we wrote in the form.