10595640: Francesco Puoti 10638165: Daniele Casciani

1. **STARTING THE WORKFLOW**

   - *read_csv* : it is the node opening the file from the specified path in the system (in our case /data/iot-feeds.csv)

   - *csv_parser* : it receives a single utf8-string produced by the reader node and, for each line of the file, it produces a message having as payload all the fields of the current csv row

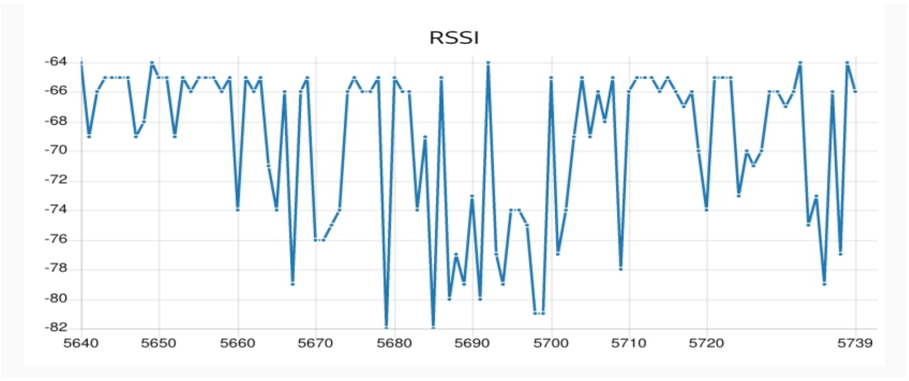
   - *data_filter* : it is used to select the 100 messages of our interest. In our case, the first one has code = 5640, and the last one has code 5739.

2. **CHART GENERATION**

   - *Join* : it batches all the 100 messages in a single array of messages (useful for the following pre-processing)

   - *preparing_chart_msg* : it receives the array of messages and it prepares a dictionary of all the data to be displayed complying with the convention of the chart node

   - *RSSI* : it is the node displaying the chart in the dashboard



3. **MQTT MESSAGE PUBLISH**

   - *preparing_mqtt_messages* : for each message of the data filter it creates and mqtt-compliant message. That is:
     topic = "channels/1711368/publish"
     payload = "field1="+field1+"&field2="+field2+"&field5="+field5
     The values of the fields are extracted from the incoming messages.
     The topic specifies the action (publish in this case) and the channel on which the action will be performed; in the payload are specified the values to be sent to the mqtt broker.

   - *delay_2xmin* : it is the node used to comply with the time constraint of the assignment. As explained by the name, it sends to the mqtt node 1 message every 30 seconds. Obviously, all the messages received are queued, none is discarded.

   - *mqtt* : it is the node connecting the mqtt broker “mqtt3.thingspeak.com” and publishing the messages. The QoS of the node is the default one, that is 0. In fact, according to the user guide, the thingspeak mqtt broker only supports QoS = 0 (https://www.mathworks.com/help/supportpkg/raspberrypi/ref/publish-and-subscribe-to-mqtt-messages.html)