

LAB N°10

IoT System based Platform

Broker MQTT - Node Red

I. THEORY: (max 01 pages)

a) Node-Red:

Introduce the basics of Node-RED, including its visual programming interface, how to use nodes to read and process data from IoT sensors, and how to display that data in real-time using a dashboard and compare it to other IoT platforms and examples: **with Openhab for instance.**

b) MQTT

A theoretical study on the MQTT protocol and its equivalents.

II. ACTIVITY: (max 04 pages)

In this activity details and clarity are required: do it as a tutorial and integrate all the programs and comments.

Given an Arduino-based system that uses GPIO to capture data from at least two sensors, such as Force and Light (LDR) sensors.

- a)** Use an Arduino-based **client MQTT** and a cloud **Mosquito server** to submit and retrieve data.
- b)** Use a **broker** such as **Mosquito** installed on Raspberry Pi.
- c)** Install and use **Node-RED** on Raspberry to display the values (accessible via PC/Mobile or Raspberry Pi).
- d)** Discuss other configurations if there are.

III. CONCLUSION