IDG2001 - Cloud Technologies

NTNU i Gjøvik
25-03-2021

- Assignment is mandatory.
- Exercises/problems can be solved in predefined groups of 2-3 students.
- Deadline for project submission 21 of April 2021.

1) Development of IoT scenarios, Potential scenarios include smart home, smart transportation, smart city, smart boat, smart boat, smart industry (industry 4.0), smart health, smart agriculture, wearables(virtual glass, fitness bands, etc).
   1. Design the basic scenarios, present requirements, and plan system development (components, communications, etc)
   2. Selection of sensing device (what sensors, why select those sensor)

2) Design the MQTT communication protocol for your selected scenarios.

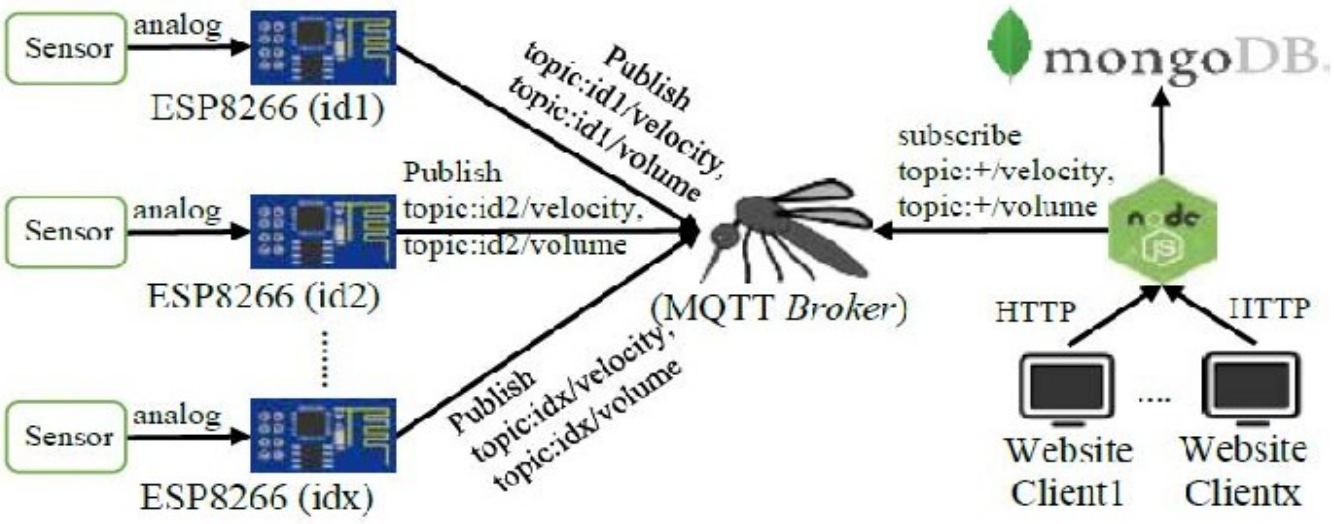

Figure 1: Sample example for MQTT protocol

source: Shofa, Naili, Andrian Rakhmatsyah and S. Karimah. “Infusion monitoring using WiFi (802.11) through MQTT protocol.” *2017 5th International Conference on Information and Communication Technology (ICoIC7)* (2017): 1-7.

Project submission:

• You have 28 days to complete the working project.

• Only one group member should upload the project.

• You should upload project source code with readMe file with important details of project.

• Project submission deadline: 21 April 2021. (PLEASE RESPECT DEADLINES)

• You need to present your work on 22 April 2021. One group member can present the work. (10 minutes presentation)

Marks

• IoT scenario– 5 points.

• Creativity of the an IoT scenario and MQTT protocol – 2 points.

• Connection between Broker and publisher, Connection between publisher and subscriber(more than one subscribers) – 5 points.

• Database connection and table structure– 2 points.

• Insert/select data to Database – 3 points.

• Deployment to Heroku server – 2 points.

• Implementation of SenML/JSON and SenML/XML as payload - 6 points.

• Final presentation of project(10 minutes) – 5 points.

• Additional point: Implementation of SenML/EXI as payload - 5 points

Reference links,

1. https://exificient.github.io
2. https://thingsmatic.com/2016/06/26/a-self-hosted-mqtt-environment-for-internet-of-things-part-3/