Advanced Embedded Systems

Plant Health monitoring system.

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ASM Nurussafa

Motivation

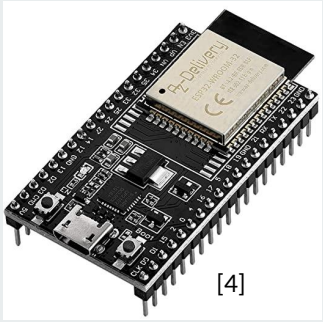
Concept

Hardware components used in the project.

Broker

[1]

Client 01



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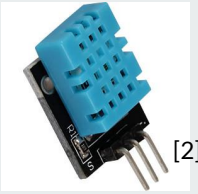

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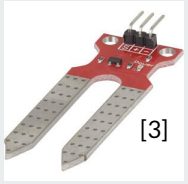


[3]

Client 03

[7]

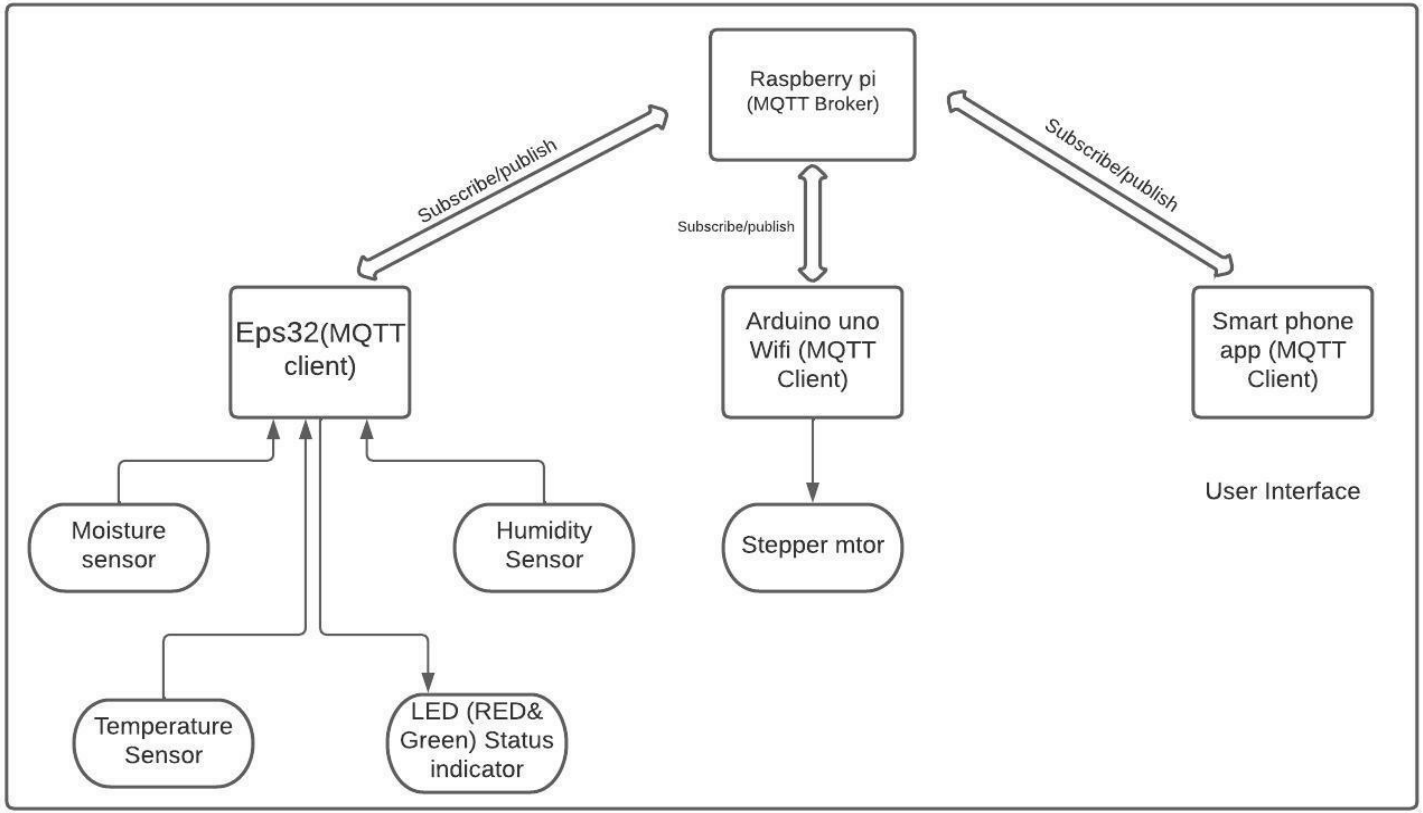
Client 02

[5]

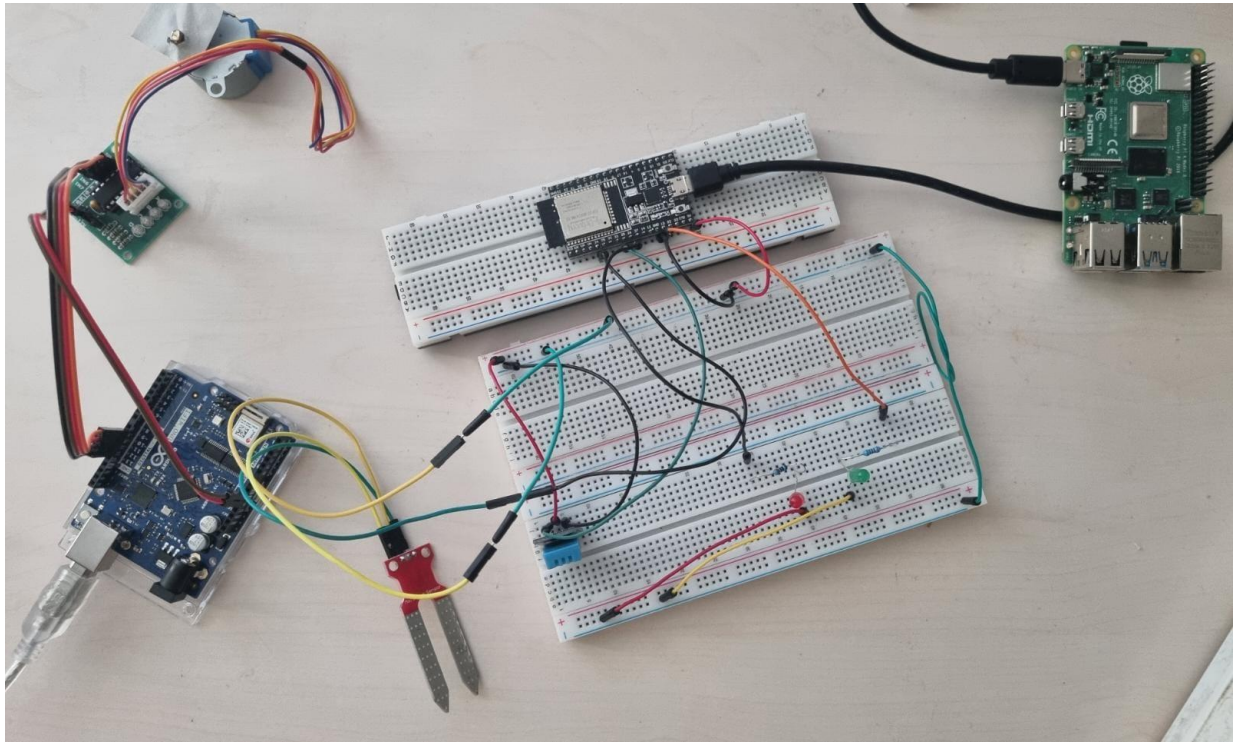
[6]

MQTT

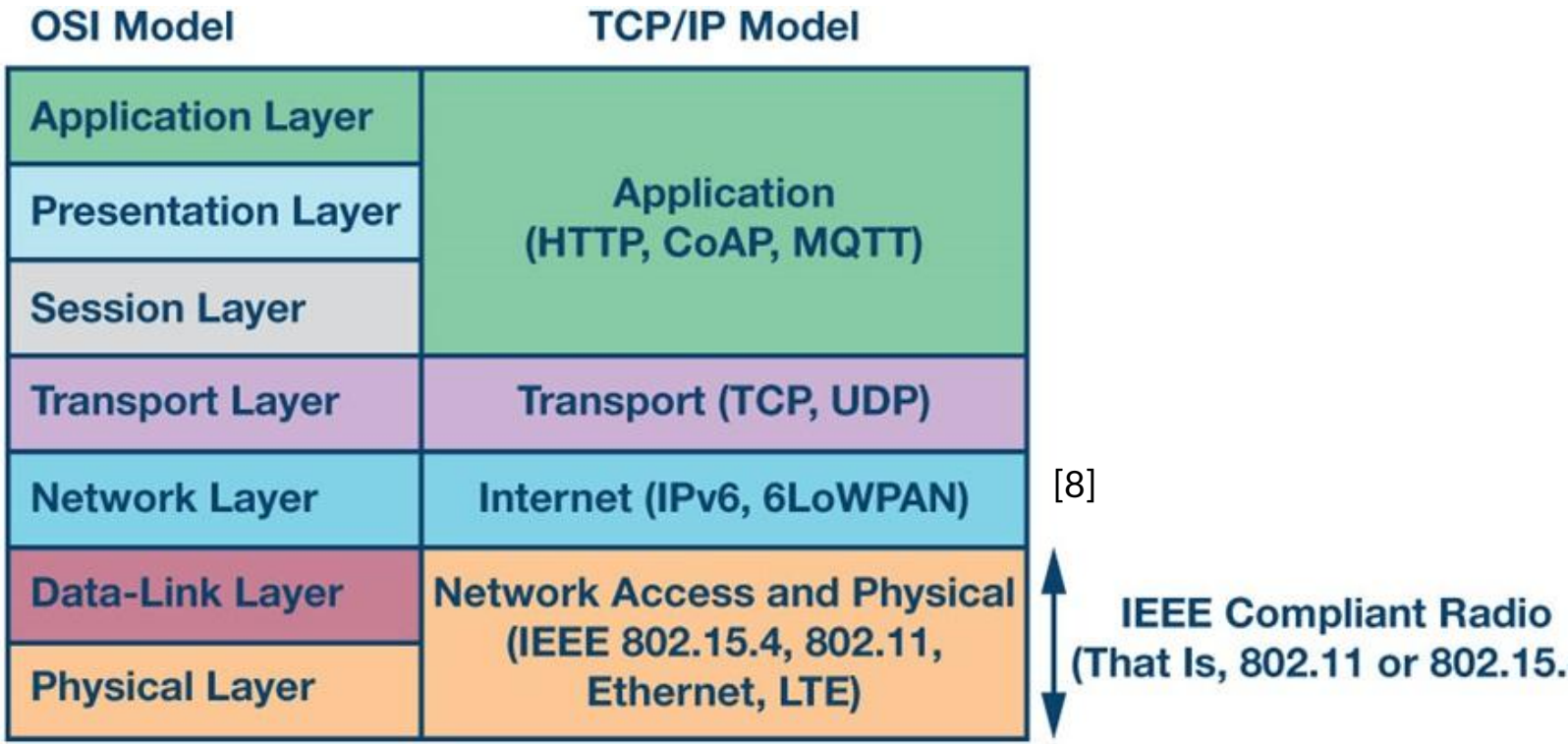
(Message Queuing Telemetry Transport



Static structure



MQTT protocol is **an Application layer protocol**.



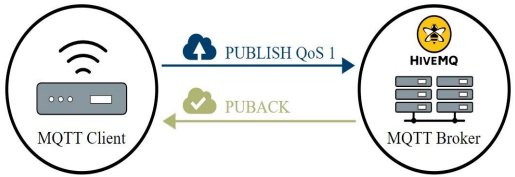
[8]

QOS Levels

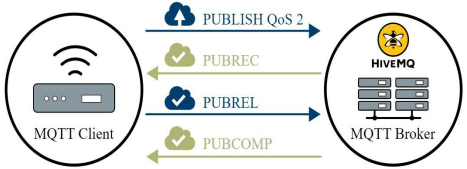
There are 3 QoS levels in MQTT: (Quality of Service)

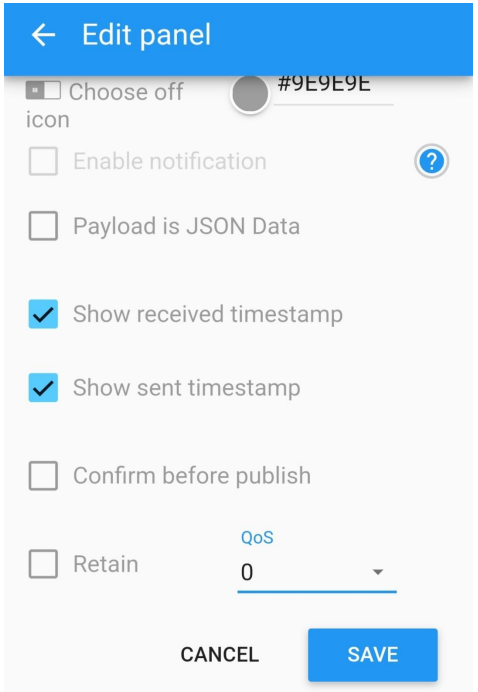
- *At most once* (0)

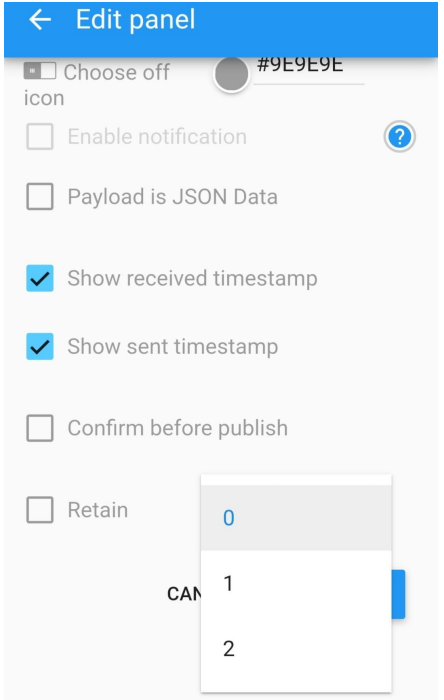
- *At least once* (1)



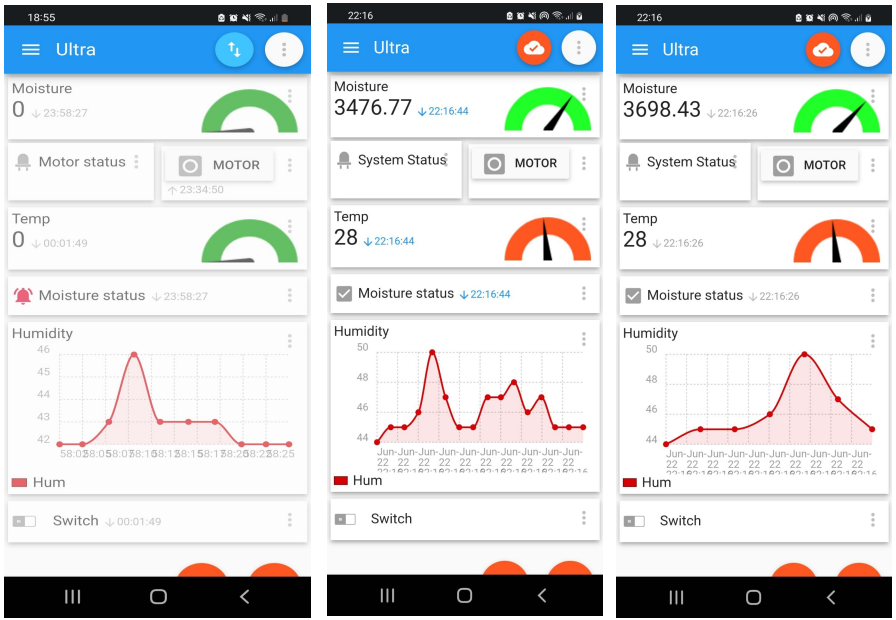
- *Exactly once* (2).







User Interface



Automating the whole process of watering the plant

A simple python script is implemented to monitor the changes in the moisture level of the soil.

Applications / Use cases

- Offices
- Holiday

Video Demonstration


Raspberry pi

References

[1]. https://www.distrelec.de/de/raspberry-pi-modell-gb-ram-raspberry-pi-raspberry-pi-model/p/30085264

[2].https://www.reichelt.de/entwicklerboards-temp-feuchte-dht-11-debo-bo-dht-11-p239086.html?PROVID=2788&gclid=CjwKCAjwtcCVBhA0EiwAT1fY7y57Nj8I8es0CEmqigvr6Wq0yGRKT4GLmyhwdNRq4uctxCmUWw0o7hoCi3sQAvD_BwE

[3].https://www.reichelt.de/arduino-feuchtesensor-fuer-bodenfeuchte-ard-sen-wet1-p282511.html?PROVID=2788&gclid=CjwKCAjwtcCVBhA0EiwAT1fY79TXnUVht3-BB0SvqBkxO_Metz4OtC305AhsqlU8XDhH7D93AqykkhoCj_0QAvD_BwE

[4] https://www.amazon.de/ESP-32-Dev-Kit-V4-Parent/dp/B07Z83MF5W?th=1

[5]https://www.reichelt.de/arduino-uno-wifi-rev2-atmega-4809-arduino-uno-rev2-p248661.html?PROVID=2788&gclid=CjwKCAjwtcCVBhA0EiwAT1fY72fjJJK2zmu35t0cO3TaVqIX53rqmufEVOivmeAEYSIqXZ9DDc4wwRoCFugQAvD_BwE

[6]https://www.reichelt.de/entwicklerboards-schrittmotor-inkl-steuerung-uln2003-debo-moto1-p192146.html?PROVID=2788&gclid=CjwKCAjwtcCVBhA0EiwAT1fY72AfZkL5vcBqoo4m-7V_FgP7vVCvEDnr6O2wXquNZuJG9z2Nv_P_wBoC5iMQAvD_BwE

[7] https://lovepik.com/image-610825885/life-series-hand-drawn-cartoon-mobile-phone-iphone.html

[8]https://www.analog.com/ru/technical-articles/intelligence-at-the-edge-part-3-edge-node-communication.html

Link to Github repository

https://github.com/Asm-Nurussafa/Advanced-Embedded-System--Team-Exemplary

Thank you very much for your Attention !!