

EN 1: Engineering in the Kitchen

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Objectives

By the end of class today, you should be able to:

- Explain what MQTT is, and its terminology ("broker", "topic")

- Publish data using MQTT

MQTT

"Since 2013, MQTT does not stand for anything."

MQTT design principles

Simple updates and commands from one machine to another

Communication is "expensive"

Minimize the amount of fluff - keep it very simple

MQTT overview

Messages consist of a topic and a payload

`node345/sensors/temperature` 24.5

MQTT design principles, continued

Many talkers, many listeners

But we're usually asleep, so listening is hard

Security happens elsewhere

MQTT overview

A central "broker" manages all the messages

MQTT overview

A client can **publish** a message with a topic + payload

A client can **subscribe** to a topic

Or a group of topics, using the wildcard '#'

MQTT quality of service (QoS)

0: receiver will get the message **at most** once

1: receiver will get the message **at least** once

2: receiver will get the message **exactly** once

MQTT bonus: retain flag

If a publisher sets the retain flag to be 1,
then the broker keeps a copy around for any new subscribers

MQTT with ESP32

Install the umqttsimple library (see ESP32 page)

Run the code in the MQTT section of the textbook

The topic **IDENTIFIER/ip** will show up on the dashboard

Other topics will appear on the individual data pages

Project 4

Brainstorming exercise on Google Doc