

Lab Report 3

Team members and email

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1. Briefly describe MQTT. Include concepts such as a broker, publisher, and subscriber. (2)

MQTT stands for Message Queuing Telemetry Transport. It is a lightweight messaging protocol. It's designed for low-bandwidth, high-latency, or unreliable networks, making it good for remote communication with devices like sensors and actuators.

A central concept in MQTT to dispatch messages is topics.

The broker manages the transmission of messages between the devices.

A topic is a simple string. Sensors send data to the broker and the broker subsequently notifies the subscribers. A publisher is any device or client that sends messages to the broker on a specific topic. Subscriber is a device that receives messages from the broker. Subscribers subscribe to certain topics and receive messages on those topics from the broker.

2. In a few sentences, describe the benefits of MQTT when working with IoT. Discuss its benefits both for large-scale operations and for smaller projects, such as this lab. (2)

The MQTT protocol is a lightweight protocol that can run on a variety of devices and networks because it requires only a small amount of network bandwidth and computing resources. This makes MQTT ideal for use on low bandwidth and high latency networks. This allows MQTT to connect a large number of IoT devices without placing too much of a burden on the network. And for small projects, MQTT is simple to understand and enables quick communication between devices.

MQTT is compatible with security protocols such as SSL/TLS. This allows data transmission in large-scale device networks to be encrypted and protected against data interception or tampering. For small projects, MQTT supports the use of usernames and passwords, which provides a basic authentication layer for devices without the need for an in-depth understanding of complex security protocols.

3. Which values did you display on your app? (attach a screenshot) (1)

We displayed values of Proximity and Lux value and RGB value and change the background color as the RGB changes.



