**Praktik Pembuatan Akses Wokwi dan Github**

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**Abstract**

This experiment aims to analyze the implementation of the MQTT protocol in a smart home IoT system. The system consists of temperature sensors and actuators controlled via an ESP8266 microcontroller. The results show that MQTT-based communication is more efficient in terms of latency and power consumption compared to HTTP-based communication. This practice typically involves learning how to use Wokwi (an online IoT and electronics simulator) and GitHub (a platform for version control and collaboration) for IoT projects. Below is an example structure for such a topic:

**1. Introduction**

* 1. **Background of the IoT Experiment**

Wokwi is an online platform for simulating IoT and electronics projects, while GitHub is a widely used platform for version control and collaborative coding. Combining these tools allows developers to design, simulate, and share IoT projects efficiently.

* 1. **Objective of the Experiment**

The goal of this practice is to learn how to create and simulate IoT projects using Wokwi and manage the project code using GitHub.

**2. Methodology (Metodologi)**

**2.1 Tools & Materials**

* Microcontrollers: ESP8266,
* Arduino, Raspberry Pi, etc.
* Sensors: DHT11, PIR, etc.
* Software: Arduino IDE, MQTT Broker, etc.

**2.2 Implementation Steps**

2.1 Tools & Materials

* Wokwi (https://wokwi.com)
* GitHub (https://github.com)
* ESP8266 or other microcontrollers (simulated in Wokwi)
* Sensors and actuators (simulated in Wokwi)

**2.2 Implementation Steps**

**1. Creating a Wokwi Project :**

* Open Wokwi and select a microcontroller (e.g., ESP8266).
* Add components (e.g., sensors, LEDs) and write the code for the project. Simulate the project to ensure it works as expected.

1. **Uploading to GitHub :**

* Create a new repository on GitHub.
* Export the Wokwi project code and upload it to the GitHub repository.
* Add a README file to document the project.

1. **Collaboration and Version Control :**

* Use GitHub to collaborate with others, track changes, and manage versions of the project.

**3. Results and Discussion**

**3.1 Experimental Results**

The results obtained from the experiment are presented in the form of tables, graphs, and screenshots. The data highlights the differences in latency and power consumption between MQTT and HTTP-based communication.

1. Successful simulation of an IoT project in Wokwi.
2. Proper management of the project code on GitHub.

**3.2 Discussion**

1. Benefits of using Wokwi for simulation and prototyping.
2. Advantages of using GitHub for version control and collaboration.

**4. Appendix (Lampiran, jika diperlukan)**

1. Screenshots of the Wokwi simulation.
2. Link to the GitHub repository.
3. Example code used in the project.