

ABSTRACT

Clean water is an important need for human life. Humans cannot be separated from the existence of clean water. In daily life for drinking, cooking, cleaning oneself and clothes, clean water is very close to all human activities. Therefore, the existence of clean water is absolutely necessary for the benefit of living creatures, especially humans. In Indonesia, the community's clean water needs are managed by the Regional Drinking Water Company (PDAM). PDAM customers are charged based on the amount of water used. The tool used by PDAM to see its customers' water usage is a water meter. Collecting customer water usage data is still done by visiting and recording water usage on the water meter manually.

Therefore, in this research a system was created to make it easier to monitor water meters with the IoT (Internet of Things) concept. This system runs by placing an ESP32-CAM microcontroller, which can record and take pictures of the water meter in real-time, then process the image into data from the water flow displayed on the water meter and also process it into the bill amount that the customer must pay. Then the resulting data can be opened by PDAM officers via the Android application.

In this research, a testing process was carried out in the form of data collection 2 times. The first test result was measuring the accuracy of the ESP32 sensor with a water meter which obtained a result of 91.14%. The second test result was measuring the accuracy of the ESP32 sensor with an Android application which obtained a result of 100%. Apart from that, QoS (Quality of Service) testing was carried out in the form of delay and throughput, each of which obtained data of 154ms (millisecond) and 4.11 KBps (Kilo Bytes per Second), where these results can be categorized as good according to ITU-T G.1010 .

Keywords : *Internet of Things*, ESP32-CAM, MQTT, Android Application, Water Meter.