

INTISARI

ANALISIS PERFORMA PROTOKOL *MESSAGE QUEUING TELEMETRY TRANSPORT* (MQTT) PADA PURWARUPA METERAN AIR BERBASIS *INTERNET OF THINGS*

Air merupakan kebutuhan dasar manusia untuk bertahan hidup serta perlu dipantau penggunaannya. Konsep *Internet of Things* (IoT) dapat diimplementasikan sehingga penggunaan air dapat dipantau dari mana saja dan kapan saja selama ada koneksi internet. Protokol MQTT merupakan salah satu jenis protokol yang diterapkan. Namun, belum ditemukan penelitian yang berfokus mengamati tentang performa sistem yang menerapkan protokol MQTT pada meteran air berbasis *internet of things*. Tujuan dari penelitian ini adalah membuat sistem meteran air yang mengimplementasikan IoT dan MQTT dalam bentuk purwarupa. Sistem yang dibuat terdiri dari tiga *node* (titik sensor). Pengujian sistem dan pengukuran *delay*, *throughput*, *packet loss*, *RSSI* (*Received Signal Strength Indicator*) juga dilakukan setelah sistem dibuat. Hasil pengujian sistem adalah protokol MQTT dapat diterapkan pada sistem meteran air berbasis IoT, serta hasil pengukuran rata-rata *delay* sebesar 316 ms, rata-rata *throughput* sebesar 2418,33 bps, rata-rata *packet loss* sebesar 0%, dan rata-rata *RSSI* sebesar -53 dBm.

Kata kunci : *MQTT*, *Delay*, *Throughput*, *Packet Loss*, *RSSI*, Meter Air

ABSTRACT

PERFORMANCE ANALYSIS OF MESSAGE QUEUING TELEMETRY TRANSPORT

(MQTT) PROTOCOL ON INTERNET OF THINGS BASED WATER METER

PROTOTYPE

Water is one of basic needs of human for survive and the usage of water is need to be monitored. The concept of Internet of Things (IoT) can be implemented so the usage of water can be monitored from anywhere and anytime when the internet connection is available. MQTT protocol is one of type of protocol which can be implemented. However, no research has been found that focused on observing the performance of system that implement the MQTT protocol on internet of things-based water meter. The goals of this research is making prototype of water meter system which implement IoT and MQTT. The system consist of three node of sensors. The system testing and measure delay, throughput, packet loss, and RSSI also done after the system is created. The results of system testing is MQTT protocol can be implemented on internet of things based water meter, also the result of measurement of average delay is 316 ms, average throughput is 2418,33 Mbps, average packet loss is 0%, and average RSSI is -53 dBm.

Keywords: MQTT, Delay, Throughput, Packet Loss, RSSI, Water Meter