

Abstract

Pollution is one of the main problems in big cities like Jakarta and Bandung. Rapid urban growth led to increased pollution in a city. Air pollution and noise pollution is pollution that clear in the city. The rapid development of the city followed by the increasing number of vehicles and factories. Vehicle and a second factory to produce the rest of incomplete combustion is carbon monoxide which is a cause of polluted air. The sound of the engine that lights contribute noise into noise pollution. Because of these problems needed me-systems capable of monitoring environmental conditions. The monitoring system should be able to work automatically, continuous, real-time, accurate, and can be used by anyone.

To implement a monitoring system proposed urban prototype sensor node for urban purposes openhardware based sensing and monitoring integrated with MQTT protocol. Urban sensing is sensing in an urban area using environmental sensors. The sensor used in the prototype is a temperature sensor, humidity, co, and sound. Results were swept sensors will be sent using the internet to the MQTT broker. On the side of the end user can immediately see the sensor data in real time by downloading the application MQTT client on a smartphone or tablet based on Android. For experimental testing of the system will be placed in the cafeteria Universitas Telkom and gate motors Universitas Telkom.

The purpose of this thesis was to monitoring the state of the environment. Overall a sensor capable of sensing the environment shortly. Sensor data received can be directly seen through MQTT client applications in realtime. CO sensors are calibrated and validation able to capture fumes from motor vehicles. DHT11 sensor has a large difference of 0.5 degrees at low temperature, medium temperature and 0.7 at 0.7 at high temperatures with sensors thus still within the tolerance limits of accuracy in the datasheet by 2 degrees. While the moisture to produce a difference of 0.6% RH which means it is still within tolerance. Tolerance to humidity of 5%. Sound sensor has a difference of 1.9 dB which means it is still within tolerance. Thus the three sensors can provide data on the state of the environment.

Keywords : Pollution, MQTT, urban sensing, monitoring, MQTT client, MQTT broker