ABSTRACT

With human needs increasing over time, of course there will be an increase in the construction of new factories to meet increasing needs. However, with the increase in factories that emit various types of pollution, the air quality in factories and the surrounding environment will become worse. The purpose of this final project is to provide an air quality monitoring tool that can be accessed and obtained easily by the public, and the data obtained from this tool can be accessed on the internet in real time. This system is designed using the ESP32 which is an Arduino-based microcontroller with the ability to connect to a Wi-Fi network, as well as MQ135, BME280, and MQ6 sensors, with readings stored via the Thingspeak database. From designing, assembling, and reading data through the tool, the tool can read the content of CO_2 and butane particles, as well as the temperature, pressure, and humidity of the air where the tool is taken, at a fairly affordable price. As for the measurement for the Quality of Services parameter for this tool, the throughput is obtained with a value of 221 bits/s in the indoor scenario and 132 bits/s for the outdoor scenario, and for the delay the average transmission delay parameter is used, with an average of 579ms for indoor scenarios and 189ms for outdoor scenarios. If the TIPHON standard is used, for the first scenario, indoors, category 1 (Bad) indexes are obtained for delay and category 4 (Very Good) for throughput, while for the second scenario, which is outside the room, category 3 (Good) indexes are obtained for delay and category 4 (Very Good) for throughput.

KEY WORDS: Arduino, ESP32, Air quality, MQ135, MQ6, Thingspeak.