

ABSTRACT

The increasing need for healthy air quality indoors, especially in office and industrial environments that have a high risk of indoor air pollution. Polluted air can cause various health problems such as eye, nose and throat irritation, headaches and respiratory problems. Therefore, it is necessary to have an air quality monitoring system that can help monitor and maintain healthy air quality indoors, the lack of adequate ventilation and the possibility of excessive gas leaks indoors in industrial area factories will endanger the health of workers and the surrounding environment, this is It also has a negative impact on the external environment, causing many workers to suffer from respiratory system disorders and even gas poisoning. The research was carried out by designing and building a prototype air quality monitoring system in the room. Then testing and validation was carried out by measuring air quality in several rooms with different conditions. The test results show that the air quality monitoring system in the developed room is able to provide accurate results in measuring air quality with parameters of carbon dioxide, carbon monoxide and ammonia gas. The results of testing the MQ-135 sensor in the room accuracy, namely carbon monoxide (CO) of 99.37%, and carbon dioxide (CO₂) of 98.66%. then the MQ-137 sensor for ammonia gas (NH₃) obtained an accuracy of 99.81%. The average delay in sending data from the microcontroller to Antares is 422.95 ms.

Keywords: Air Quality, Internet of Things, CO, CO₂, and NH₃.