

ABSTRACT

Indoor air quality is an important aspect in maintaining the health and comfort of occupants of a poorly ventilated room, which can cause decreased oxygen levels and affect health and comfort. Therefore, the development of an air quality monitoring system is an urgent need. This system uses Wemos D1 Mini as a microcontroller connected to Wi-Fi for data collection and transmission. The use of MQ-7 sensors to detect CO and MQ-135 sensors to detect CO₂, this study offers additional protection through Exhaust Fans to improve ventilation. The Antares platform helps in centralized data storage and facilitates data management and analysis to improve understanding of garage environmental conditions. The one-point calibration method used for the MQ-7 sensor and MQ-135 sensor aims to minimize systematic errors or high errors in the sensor. The overall data results carried out for 3 days, obtained the lowest average percentage error value and the highest average percentage accuracy value on the third day. The results of carbon monoxide gas levels obtained an average percentage error of 4.60% and an accuracy percentage of 95.39%. The results of the carbon dioxide gas levels data obtained an average error percentage of 2.48% and an accuracy percentage of 97.51%. This is because there is an Exhaust Fan as an indoor Air controller that functions properly.

Keywords: CO, CO₂, indoor air quality, MQ-7 sensor, MQ-135 sensor.