

## **ABSTRACT**

*Carbon monoxide (CO) pollution poses a serious threat to quality and human health in urban areas. Solving this problem requires an effective measurement system that can provide more accurate information about carbon monoxide (CO) pollution levels in vulnerable areas, including campus areas where human activity can be classified as dense. Therefore, in this research we designed an IoT-based carbon monoxide air pollution assessment system in the Telkom Institute of Technology Purwokerto canteen. This assessment system uses an MQ – 7 sensor because it is able to detect and measure carbon monoxide concentrations accurately. The ESP8266 microcontroller acts as a control center to collect sensor data and send it to the Antares platform. The MQ – 7 sensors are placed in the campus canteen using 5 MQ – 7 sensors which are placed at 5 points in the campus canteen area. From the results of one point calibration, it can reduce the error on each sensor, on sensor 1 the average error obtained was 24.80%, decreasing to 7.39%, on sensor 2 the average error obtained was 46.32%, decreasing to 2.70%, on sensor 3 with an average error of 8.88% decreasing to 4.04%, on sensor 4 with an average error of 17.64% decreasing to 3.58%, and on sensor 5 the average error obtained was 5.83%, decreasing to 2.13%. After carrying out a direct measurement testing process in the canteen sector, it was concluded that the sensor was sensitive to smoke contamination. Smoke triggers an increase in the readings of sensors spread across the canteen so that one of the sensors closest to the smoke will have a higher value than the other sensors.*

**Keywords:** *Pollution, Carbon Monoxide, IoT, MQ – 7 sensors*