

## ABSTRAK

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**Judul** : Rancang Bangun *Monitoring* Kualitas Udara Di Dalam  
Moda Transportasi Minibus Berbasis *Internet of Things*  
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Kualitas udara di dalam transportasi minibus perlu diperhatikan, sebab kualitas udara yang bersih sangat berpengaruh terhadap kesehatan. Pada tugas akhir ini dirancang suatu alat *monitoring* kualitas udara di dalam moda transportasi minibus secara *real time* dengan menggunakan *platform thingspeak*. Implementasi sistem ini dibuat mampu memantau kualitas udara menggunakan 4 sensor yang berbeda, yaitu sensor MQ-135 untuk mengukur kualitas udara, sensor MQ-7 untuk mengukur kadar gas *carbon monoxide*, sensor DHT22 untuk mengukur suhu dan kelembapan dan sensor *dust* GP2Y1010AU0F untuk mengukur *particulate matter* (PM10). Pengukuran tersebut di bagi kedalam dua jenis pengukuran, pengukuran dengan kondisi tertutup dan pengukuran dengan kondisi terbuka. Hasil pengukuran kualitas udara dalam kondisi tertutup sebesar 35,79 ppm dan dalam kondisi terbuka sebesar 48,52 ppm dengan persentase *error* sebesar  $\pm 0,952\%$ . Hasil pengukuran kadar *carbon monoxide* dalam kondisi tertutup sebesar  $550,73 \mu\text{g}/\text{m}^3$  dan dalam kondisi terbuka sebesar  $3472,86 \mu\text{g}/\text{m}^3$  dengan persentase *error* sebesar  $\pm 0,849\%$ . Hasil pengukuran kadar *particulate matter* (PM10) dalam kondisi tertutup sebesar  $33,20 \mu\text{g}/\text{m}^3$  dan dalam kondisi terbuka sebesar  $41 \mu\text{g}/\text{m}^3$  dengan persentase *error* sebesar  $\pm 1,133\%$ . Hasil Pengukuran tersebut dapat dikategorikan bahwa kualitas udara di dalam transportasi tersebut dalam kondisi baik.

**Kata Kunci:** Kualitas Udara, Sensor MQ-135, Sensor MQ-7, Sensor GP2Y1010AU0F.

## ABSTRACT

*You need to pay attention to the air quality in minibus transportation, because clean air quality has a big impact on health. In this final project, an air quality monitoring tool is designed in real time minibus transportation using the thingspeak platform. The implementation of this system is made capable of monitoring air quality using 4 different sensors, namely the MQ-135 sensor to measure air quality, the MQ-7 sensor to measure carbon monoxide gas levels, the DHT22 sensor to measure temperature and humidity and the GP2Y1010AU0F dust sensor to measure particulate matter. (PM10). These measurements are divided into two types of measurements, measurements with closed conditions and measurements with open conditions. The results of air quality measurements in closed conditions were 35.79 ppm and 48.52 ppm in open conditions with an error percentage of  $\pm 0.952\%$ . The measurement results for carbon monoxide levels in closed conditions were  $550.73 \mu\text{g}/\text{m}^3$  and in open conditions  $3472.86 \mu\text{g}/\text{m}^3$  with an error percentage of  $\pm 0.849\%$ . The measurement results for particulate matter (PM10) levels in closed conditions were  $33.20 \mu\text{g}/\text{m}^3$  and  $41 \mu\text{g}/\text{m}^3$  in open conditions with an error percentage of  $\pm 1.133\%$ . The results of these measurements can be categorized as saying that the air quality in the transportation is in good condition.*

**Keywords:** Air Quality, MQ-135 Sensor, MQ-7 Sensor, GP2Y1010AU0F Sensor.