UNIVERSITI TEKNOLOGI MARA

CARBON MONOXIDE MONITORING SYSTEM BASED ON INTERNET-OF-THING (IOT)

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ABSTRACT

Carbon monoxide (CO) is poisonous, odorless, tasteless and colorless gas that is almost impossible to detect if there are no proper devices of sensor. CO is harmful when breathed because it displaces oxygen in the blood and deprives the heart, brain, and other vital organs of oxygen. Large amounts of CO can overcome you in minutes without warning causing you to lose consciousness and suffocate. Thus, this paper proposed a system to monitor the current condition of CO in house or vehicle. The objective of this project is to design, develop and implement this smart system that help people to keep monitoring the current condition of carbon monoxide level in their area especially for those who live on urban area. The system is embedded using NodeMCU to receive data from the sensor and then later transmit it to application in website using Wi-Fi module communication. The stages that have been through are the sensor development, integrating the sensor, and lastly to make it smart device, connecting sensor to the smartphone. As a result, a complete design and developed system has been verified with the handheld industrial standard carbon monoxide sensor for calibrating the sensor sensitivity and measurement. Furthermore, the system has been tested in detection of carbon monoxide in the hardware and software. As a conclusion, the CO monitoring system is the best approach to monitor users on the CO concentration in urban areas to them since it can sends data to their smartphone smartly, easily and accurately.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Due to outdoor air pollution and indoor air pollution caused by burning of solid fuels, every year more than 2 million premature deaths occur. More than half of this disease burden is borne by the populations of developing countries [1]. CO is one of the most common and widely distributed air pollutants. Dubbed the "silent killer," CO kills five hundred folks and sends 20,000 additional to the hospital annually.

From the latest statistic given in figure 1.1 below, for the Air Quality Index (AQI) of Malaysia, about ten states in Malaysia have worst air pollution. AQI was calculated from the five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also referred to as particulate matter), carbon monoxide, sulphur dioxide, and nitrogen dioxide. One in all the foremost conducive factors for pollution is transportation with akin to the increasing numbers of vehicles in major cities in Malaysia from year to year [2].