

**INTELLIGENT CARBON DIOXIDE AND
LIGHTING SYSTEM FOR
ENVIRONMENTAL MONITORING**

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ABSTRACT

This project presents the carbon dioxide monitoring system to alert the user on the carbon dioxide reading via devices. This project integrates both hardware and software to detect the level of carbon dioxide for efficient healthier lifestyle through wireless technology. Current system is impractical because the system only produces an alarm when high concentration of carbon dioxide was detected. Also, the system does not provide the user the concentration value of carbon dioxide so that user knows the concentration of carbon dioxide in their surroundings. In this work, the system consists of two main components which are MQ135 module as the input and Wi-Fi module as the switch to turn ON and OFF the sensor. The functionality of the system was tested using LED, buzzer and LCD as the output when carbon dioxide was detected and to display the reading of carbon dioxide level respectively. The three different testing area for the system was selected – residential area, construction area and main road. This system also provides a controller to control the lighting system as it could reduce the electric consumption. Internet of Thing (IoT) was embedded to the system to provide notification to user and control the lighting system.

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CHAPTER ONE

INTRODUCTION

This chapter provides an overview of the study carried out in this project. Some works by the previous researchers were briefly discussed. Also, the research objectives, problem statement, background and significance of the study were included and explained in this chapter.

1.1 Research Background

Carbon dioxide is an example of the air pollution that can affect human body. Breathing of carbon dioxide can trigger headaches, dizziness, restlessness, difficult breathing, sweating, and tiredness and increase heart rate[1]. CO₂ is an important greenhouse gas that helps to trap heat in our atmosphere. Without it, our planet would be inhospitably cold. However, a gradual increase in CO₂ concentrations in Earth's atmosphere is helping to drive global warming, threatening to disrupt our planet's climate as average global temperatures gradually rise[2]. However, due to human activities, the amount of CO₂ released into the atmosphere has been rising extensively during the last 150 years[3]. As a result, it has exceeded the amount sequestered in biomass, the oceans, and other sinks. There has been increased in carbon dioxide concentrations in the atmosphere of about 280 ppm in 1850 to 364 ppm in 1998, mainly due to human activities during and after the industrial revolution, which began in 1850. Humans activities have been increasingly produced the amount of carbon dioxide in air by burning of fossil fuels, by producing cement and by carrying out land clearing and forest combustion[4]. About 22% of the current atmospheric CO₂ concentrations exist due to these human activities, considered that there is no change in natural amounts of carbon dioxide[5]. Carbon dioxide levels and potential health problems are indicated in Table 1.1. Several researches and systems have been improvised to prevent or at least minimizes the consequences.