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FINAL REPORT:

GAS DETECTOR EMERGENCY WARNING

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ABSTRACT

Gas Detector Emergency Warning is a simple engineering project that provides the user a warning when there are gas leakage in the certain area such as kitchen in the house, storage gas room and etc. In this project we focus on the small area place to detect the gas leakage. The MQ5 Gas Detector has been selected to detect the Liquefied Petroleum Gas and from the gas detector it sends the small voltage between 0 – 5 V in analog form to the PIC16F877A that has been used in this project. The PIC will read the analog voltage value and display the result in Analog Digital Conversion value and Parts Per Million value as a reference for the user to take the precaution step before the catastrophe happen. The PIC also sends the digital signal to the buzzer, LED RED and LED GREEN as the warning and notify the user that has the gas leakage in that particular area.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Liquefied Petroleum Gas is a vital source of energy for millions of people around the world. LPG consists mainly of propane and butane, which are gases at atmospheric temperature and pressure. When subjected to modest pressure or refrigeration, these gases liquefy making it possible to transport and store LPG as a liquid, yet use it as a gas. This requires pressurized cylinders and containers, which must be safely and carefully handled.

LPG is a clean and portable fuel. It provides heat and power in remote areas as well as in densely populated urban areas. Because of its portability, it is not dependent on transmission lines or pipeline grids. Its most popular use is for cooking and heating in the residential and commercial segments. The agriculture market uses LPG for crop and animal production, and powering farm equipment such as irrigation pump engines.

Industry relies on LPG for heating, drying, and powering industrial trucks etc. In response to growing concerns of urban air pollution and greenhouse gas formation, the use of LPG as an automotive fuel (Auto Gas) is becoming increasingly popular. LPG is prepared by refining petroleum or "wet" natural gas, and is almost entirely derived from fossil fuel sources, being manufactured during the refining of petroleum (crude oil), or extracted from petroleum or natural gas streams as they emerge from the ground. It was first produced in 1910 by Dr. Walter Snelling, and the first commercial products appeared in 1912. It currently provides about 3% of all energy consumed, and burns relatively cleanly with no soot and very few sulphur emissions.

As it is a gas, it does not pose ground or water pollution hazards, but it can cause air pollution. LPG has a typical specific calorific value of 46.1 MJ/kg compared with 42.5 MJ/kg for fuel oil and 43.5 MJ/kg for premium grade petrol (gasoline). However, its energy density per volume unit of 26 MJ/L is lower than either that of petrol or fuel oil, as its relative density is lower (about 0.5–0.58 kg/L, compared to 0.71–0.77 kg/L for gasoline).