

**Universiti Teknologi MARA**

**Microcontroller Gas Detection System**

**Mohammad Afiq Bin Mustakim**

**2011687908**

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## **ABSTRACT**

Natural gas has been playing a vital role in all aspects of development including power generation, transportation, industry and agriculture. When burned, it is one of the cleanest and most powerful forms of energy available. However, due to its volatile nature, it can also be dangerous, especially in cases of leakage. Gas leak detection system is important in order to avoid any unwanted cases from happening since gas leakage is one of the main causes of fire accidents and explosions. To solve this problem, a gas leak detection system is developed to detect the presence of gas along the pipeline. This project focuses on detecting gas leaks by using Microcontroller Based Gas Leakage Detection and Notification System. This gas detection system not only detects gas leaks, but also provides notification features such as alarm and voice synthesizer in order to alert users if there are any mishaps. Other elements included in this project are GSM auto SMS and monitoring system.

## **Chapter 1**

### **INTRODUCTION**

#### **1.0 Introduction**

Chapter 1 will discuss the overall view of the research that focuses on problems faced by the technician and dentistry students in their faculty's labs. Later in this chapter, the problem statement, objectives and scopes of project will also be discussed.

#### **1.1 Background of Study**

For hundreds of years, natural gas has been known as a very useful substance. In the early days of the natural gas industry, the gas was mainly used to light streetlamps, and occasionally, houses. However, with much improved distribution channels and technological advancements, natural gas is being used in ways never thought possible. Natural gas is a vital component in the world's supplies of energy. It allows us to cook, use electricity and perform daily tasks conveniently. The gas that we use in our house to cook is called Liquefied Petroleum Gas (LPG).

The project takes place at Faculty of Dentistry's laboratories. Dentist students use LPG gas in their labs to manipulate and melt dental waxes for making dentures, retainers for orthodontic treatment, crown, bridges for prosthodontics treatment and many more. All the labs in the Faculty of Dentistry are managed by a technician. According to the technician, the current gas system does not have a mechanism that can help maintain the gas pipes. He has to perform the preventive maintenance (using bubble soap) manually every 6 months. This is very dangerous as the current gas system does not have a proper gas detection system in place.