

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF INDUSTRIAL
AIR POLLUTION MONITORING SYSTEM
FOR SAFETY AND HEALTH ENHANCEMENT
AND SUSTAINABLE WORK ENVIRONMENT
IN SMALL AND MEDIUM INDUSTRIES (SMI's)**

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Thesis submitted in fulfillment of a requirement
For the degree of
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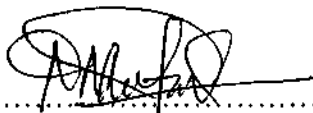
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ABSTRACT

The study is focused on the development of Industrial Air Pollution Monitoring System (IAPMOS) for small and medium industries application. The objectives of the study are to develop a system with special configuration on wireless data communications with the ability to analyze hazard and risk especially in welding process. The Quality Function Deployment (QFD) was used as a tool in the design of the system. Questionnaires were distributed to the relevant personnel in the related manufacturing industries. Case studies were carried out in two manufacturing companies located in Shah Alam, Selangor. Another case study on wireless data communication was conducted in the Walk-in Stability Chamber (WiSC) at Universiti Tun Hussein Onn Malaysia (UTHM). The system analyzed the data after save file and it is used as the Hazard Risk Index (HRI) approach. The results on risk level were used for Risk Classification Matrix (RCM) approach. The system features have warning signs (by colour) and buzzer to ensure the safety and health personnel paid attention to the outcome toxic gas data collected. The system can reach 150m length for accurate wireless data transfer. The IAPMOS can be used by the industries to create safe, healthy and sustainable work environment and reduce occupational diseases.

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TABLE OF CONTENTS

	Page
TITLE PAGE	i
CANDIDATE'S DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF TABLES	x
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xv
CHAPTER 1 : INTRODUCTION	
1.1 Introduction	1
1.2 Background of the Problem	1
1.2.1 Safety and Health Awareness in Workplace	4
1.2.2 Industrial Accidents Occurrence	6
1.2.3 Unconducive Work Environment	6
1.3 The Problem Statement	9
1.4 Research Question	10
1.5 Research Objectives and Goals	10
1.6 Significance of the Study	11
1.6.1 Industry (Employer and employee)	11
1.6.2 Government	12
1.6.3 Education Sector	12
1.7 Limitations	13
1.8 Organization of the Thesis	14
1.9 Summary	17