

**A PROPOSAL OF LOW COST CENTRAL MONITORING ALARM SYSTEM
AT IBU PEJABAT MARDI SERDANG, SELANGOR DARULEHSAN**

**This is presented to fulfil the requirement of Electrical Engineering
of Advanced Diploma in Electrical Engineering of MARA Institute of Technology**

MUHAMAD BIN ZAINON

MAY, 1993

**Department of Electrical Engineering
School of Engineering
MARA Institute of Technology
40450 Shah Alam
Selangor
MALAYSIA**

CONTENTS

ABSTRACTS	
ACKNOWLEDGEMENTS	ii
CHAPTER 1	
1.0 INTRODUCTION	1
1.1 Fire Alarm Control Panel	1
1.2 The Inadequacies of Present System	2
CHAPTER 2	
2.0 DESIGNS PROCEDURES	3
2.1 DESIGN CONSIDERATION	3
2.1.1 Accuracy	3
2.1.2 Simplicity of The System	3
2.1.3 Expandability	4
2.1.4 Cheaper	4
2.1.5 Reliability	4
2.1.6 Flexibility	5
CHAPTER 3	
3.0 CIRCUIT DESCRIPTION	6
3.1 Circuit Operation	6
3.2 Expansion of Circuit Operation	11
CHAPTER 4	
4.0 DATA TRANSMISSION.....	15

ACKNOWLEDGMENTS

My sincerest expression must be extended to my project supervisor En. Ahmad Maliki bin Omar for guiding me to complete this project. Most of the idea, comment, correction suggestion and his skilled help is gratefully appreciated. Particular thanks is owed to Chief Engineer MARDI Ir. Mohamed bin Mohd.Nuruddin for giving the assistance and important information in designing this project. I also want to thank Mr. Abdul Rahman bin Abdullah Hashim from Survey Department, ITM, Shah Alam for his effort and guidance in making the double-sided PCB.

ABSTRACTS

The purpose of this project is to design a central monitoring alarm system for fire fighting alarm system and cold room alarm system. There are more than 36 numbers of automatic local fire alarm system which are controlled separately at each building and generally comprises of fire detection alarm system, smoke detector alarm, halon gas detector alarm, breakglass alarm, fire fighting diesel pump alarm, and battery fail alarm. All these will operate if a sensor or detector of any zone detects a hazard, that particular zone's Alarm will flash and bell rings. Alarm light will keep on flashing and bell continue ringing if the hazard and the halon panel is not attended to.

In this design all the alarms are to be centralised and monitored at MARDI Training Center which is 500 meters away from MARDI Head Quarters. Multiplexer / Demultiplexer and others related circuits are used in this design for a long distance data transmission.

1.0 INTRODUCTION

The existing fire alarm system at MARDI Head Quarters Serdang has been installed by the authorised contractor, testing and approved by Consultant Engineer and BOMBA. There are 36 numbers of automatic alarm system which are controlled separately at each building and it is also called as local system. This system are generally comprises of ;

- Fire detection alarm system or heat detector
- Smoke detector alarm
- Break glass alarm
- Fire fighting diesel pump alarm
- Halon gas detector alarm and
- Battery fail alarm

All these will operate if a sensor or detector of any zone detects a hazard, that particular zone's Alarm will flash and bell rings. Alarm light will keep on flashing and bell continue ringing if the hazard and the halon panel is not attended to.

1.1 FIRE ALARM CONTROL PANEL

The Fire Alarm is multizone (the number of one zone consists of 8 numbers of smoke detector or heat detectors and the numbers of zone depend to the size of building) and fully transistorised automatic fire detection system. It is housed in a signal red coloured mild steel panel. The alarm indication is both audible (bell ringing) and visible (alarm indicator light flashing), fault halons are also audible (buzzer sounds) and visible (indicator light ON)