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**SOFTWARE DEVELOPMENT FOR LOW VOLTAGE MAIN  
SWITCHBOARD (LVMSB) DESIGN LAYOUT USING MICROSOFT  
VISUAL BASIC**

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## **ABSTRACT**

Designing an electrical layout is part of electrical wiring installation. As power electrical engineers, they must know how to design an electrical layout in power utility distribution system. An electrical layout also assists the electrical engineers as the reference and guideline of wiring installation system. Therefore, to designs a good electrical layout needs experts in the electrical field. But for beginners, they are new in the electrical power distribution field and they require a long period of time to gain an expertise in design of electrical layout. Using such electrical layout builder/software is an alternative way for the beginners to assists them in development of electrical layout. This software is an application using Graphical User Interface (GUI) and it will be developed typical for electrical engineers that just want input load demand of electrical loads and any other parameters initially and finally they would like to know what expected electrical layout to be shown visually to them. The diagram outputs that may illustrate on the layout are the size of cables, the rating of protection device such Residual Current Device (RCD) or Earth Leakage Relay (ELR), the size of Circuit Protective Conductor (CPC) and also the rating of circuit breaker such Miniature Circuit Breaker (MCB) or Molded Case Circuit Breaker (MCCB). They are determined by using complicated calculation where ones will have to refer the Malaysian Standard MS IEC 60364:2003. Therefore, this software is recommended for Malaysian engineers or electricians because it is helping them to perform in designing Main Switchboard (MSB) layout for Malaysian buildings and it was also practicing the standardization and accreditation from Malaysian Energy Council.

Keywords - Low voltage, main switchboard, MSB, LV layout, LVMSB layout, electrical layout, Microsoft Visual Studio, Visual Basic, MS IEC 60364 wiring regulations.

# TABLE OF CONTENTS

CHAPTER	CONTENTS	PAGE
	DECLARATION	
	ACKNOWLEDGEMENT	ii
	ABSTRACT	iii
	TABLE OF CONTENTS	iv
	LIST OF FIGURES	vi
	LIST OF SYMBOLS AND ABBREVIATIONS	viii
1.	INTRODUCTION	1
1.1	Background	1
1.2	Problem statement	2
1.3	Objectives	3
1.4	Scopes of project	3
2.	LITERATURE REVIEW	5
2.1	Microsoft Visual Studio	6
2.2	Cable characteristics	7
2.2.1	Cable insulation materials	8
2.2.1.1	PVC	8
2.2.1.2	Thermosetting (XLPE)	8
2.2.2	Conductor materials	8
2.3	Residual current device, <i>RCD</i> characteristics	10
2.4	Earth leakage relay, <i>ELR</i> characteristics	11
2.5	Molded case circuit breaker, <i>MCCB</i> characteristics	12
2.6	Miniature circuit breaker, <i>MCB</i> characteristics	13
2.7	Procedures and formulas for designing an electrical layout	14
2.7.1	Determination of maximum demand, <i>MD</i>	14
2.7.2	Determination of current demand, $I_B$	15
2.7.3	Determination of rated current, $I_N$	15
2.7.4	Selection of type of protection devices	15
2.7.5	Selection of relevant correction factors incorporate current-carrying capacity	16
2.7.6	Determination of current-carrying capacity, $I_Z$	17

# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

Nowadays, the success of Information Technology (IT) tools help a lot to electrical engineering field [1]. With success and widely used of computer technologies which has shown beneficial features in electrical engineering and enhanced the skill of electrical engineer in creativity, invention and innovation [1]. As engineers, they are still in the part of learning process even they in working area because technologies always change and it is critically adapted inside application of life. So engineers have to follow the trend of technologies for solving any problems to successful in their tasks or developments. The world where learning process is accessible through technologies [2] at any places ease for engineers practicing their ability to higher level and they want the comprehensive standard to meet requirement of electrical power industries. Since the world is going into rapid development of modern science, science and technology, the engineering problems become more complicated and they need to verify a fast and reliable method to solve problems and ensuring the results are practical and acceptable. Instead of using traditional or conventional method to identify and solve problems they prefer to use IT tools as problem solver that is fast, reliable, friendly and interactively [1].