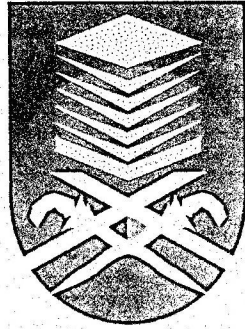# MARA UNIVERSITY OF TECHNOLOGY SHAH ALAM
(FINAL YEAR REPORT)

FACULTHY OF MECHANICAL ENGINEERING
(KM11)

PLC : LITERATURE SURVEY AND POSTER PRESENTATION

SITI NORATNA BT RASHID
DIPLOMA IN MECHANICAL ENGINEERING
(MANUFACTURING)

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ABSTRACT

Automatic control has become an important consideration in most industrial processes where certain repetitive operations are performed. This applies to situation such as the automatic assembly of modules and products where cycles of event are conducted in a consistent and uniform manner. An application generally includes a combination of feeding, handling, drilling, cutting, assembling, discharging, inspecting, packaging and transporting by conveyer. Prior to the introduction of computer based control systems the automaton of such event was achieved by using either electrical relay logic circuits or pneumatic logic circuit. Although these are conceptionally simple and easy to maintain they are somewhat bulky and can be expensive. More important is the fact that the resulting control circuits are inflexible and do not lend them to easy system control alteration .In late 1960s saw the introduction of the **programmable logic controllers (PLC)** as a direct replacement for the relay sequence controllers. In essence the PLC replace the hardwired relay or pneumatic logic with a more flexible programmable logic. It offers a simple, flexible and low cost means of implementing a sequence control strategy where outputs for switching devices on and off are set according to input conditions as read from digital sensor state. It should be noted that particular in the USA, the PLC is often referred to as a "programmable Controllers" with the abbreviation of PC. It should not be confused with the personal computers "PC" or IBM PC. I prefer PLC as the topic of my final project. I think that as a mechanical student in manufacturing I should know about PLC because it is a popular devices or controllers. PLC poster presentation is a part of my project.

ARKNOWLEDGEMENT

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From:
SITI NORATNA BT RASHID
KM11- DIPLOMA IN MECHANICAL ENGINEERING (MANUFACTURING)
97327473

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PLC

PROGRAMMABLE LOGIC CONTROLLERS

(1.0) INTRODUCTION

The PLC is composing of the same ingredients as a microcomputer such as a microprocessor, memory and input/output facilities. The processor executes the instruction held in memory by operating inputs derived from the controlled process and providing outputs in accordance with the logic sequence defined in the control program. Its basic principle of operation during the execution of the program is that the program is scanned very fast, typically 1 to 20□s per step, to record all input states. The outputs are then set according to the logic specified in the program. The sequence is continually repeated for each scan period of the controller. Small PLC dedicated to sequential control have typically 12 inputs and 8 outputs with the possibility of expansion p to 128 I/O lines. They come complete with an input interface to accommodate a range of input signals from the controlled process which are then converted to an appropriate form for the processor. Similarly, provision is made at the output of the PLC to interface with a variety of process hardware such as lamp, motors, relays and solenoids. The typical handling voltages are 24V DC and 110V AC. Program instruction can be input into the battery backup RAM of a PLC by means of either a hand-held programming keypad or a connected PC with an appropriate software development package. Some LCD programming consoles incorporate a limited graphical display, which illustrates the program in ladder logic format as the programmer builds it up using symbolic key. This is also the principle of the PC-based development system where additionally the programmer has access to a larger visual display and the PC's disk operating system for data storage and retrieval. Once the program has been debugged and the control strategy verified by simulation, the codes can be loaded into an erasable ad programmable Read Only Memory chip (EPROM) which can then be installed in the PLC.