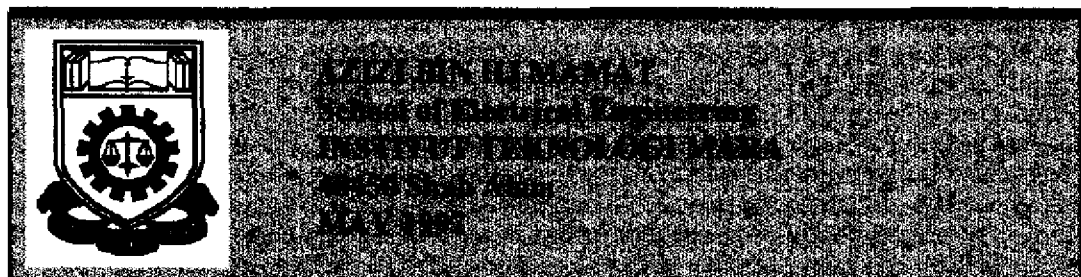


OPTICAL FIBRE MEASURING INSTRUMENT

**This is presented in partial fulfillment for the award of the
Bachelor in Engineering (Honours) (Electrical)
INSTITUT TEKNOLOGI MARA**



ABSTRACT

The main objective of this project is to improve the design of a low cost solid-state Optical Fibre measuring instrument. This instrument employs opto-electronic devices such as light emitting diodes (LEDs) as a light source and semiconductor photodiode (PD) as a photodetector. A fibre optic cable is used as a media or transmission link to link between light source sensor and photodetector. The improvement involved the construction of Power Supply and circuitry modification. The instrument will be interfaced to a personal computer (PC). The output signal from the measuring instrument will be interfaced through a parallel analogue to digital card before entering the PC. The PC will process and display this signal. A Turbo C++ programming is used to manipulate the input data continuously and transform the signal to an on-line instrument.

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Shah Alam

Selangor

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1. INTRODUCTION

One of the most interesting developments in recent years in the field of telecommunication and data transmission systems is the use of optical fibres. Optical fibres system can carry information in a very similar way to that radiowaves and microwaves system.

This portable instrument employs opto-electronic devices such as light emitting diode (LED) as a light source and semiconductor photodiode (PD) as a photodetector. A fibre optic cable is used as a media or transmission line to link between light sources, sensor and photodetector.

Technological advances have been achieved in the past decade to prove that light wave transmission over optical fibres is far superior in performance than that which can be obtained over wires and microwave links. Economically, the increasing cost and demand for high data rate or large bandwidth per transmission channel and the lack of available space in congested conduits in every metropolitan area for telephone, and data transmission provide an atmosphere to favour a new and less costly system[6]. The optical fibre system fulfils both demands.

This project will cover three different areas. The first will be on the optical fibre link and sensor design, the second area will cover power supply design, and the