A STUDY OF OPTICAL FIBER AND COMPARISON WITH METALLIC CABLE IN TELECOMMUNICATION

A project report presented in partial fullfillment of the requirements for the award of Advanced Diploma in Electrical Engineering (communications) of MARA INSTITUTE OF TECHNOLOGY.

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ABSTRACT

This project is to study about Fiber Optic Communication Systen and make a comparison with the conventional system using metallic cable.

In Fiber Optic system, the electric signal at the transmitter will convert to light signal by the Source and it will transmit through a fiber cable, and at the receiver side this light signal will detect by a light detector and it will convert back to electrical signal.

In the conventional system, the electric signal will transmit either via a metallic cable or microwave.

1.0. HISTORICAL DEVELOPMENT.

The use of light for sending message information goes back into time. One thinks of Indian smoke signals, or the use of mirrors reflecting the sun to attract attention. Also signaling lamps served for secure communications between ships. What is probably not widely known is that the use of light for audio communication was seriously proposed and explored by Alexander Graham Bell. He is credited with the invention of the telephone in 1876, and in 1880 he filed patents for the photophone. However, all these optical communication systems were face by a number of problems.

The discovery of the telegraph by Samuel F.B. Morse in 1838 ushered in a new epoch in communications-the era of electrical communications. The first commercial telegraph service using wire cables was implemented in 1844 and further installation increased steadily throughout the world in the following years. The use of wire cables for information transmission expanded with the installation of the first telephone exchange in New Haven, Connecticut, in 1878. Wire cable was the only medium for electrical communication until