FINAL YEAR PROJECT REPORT

DATA COMMUNICATION USING LASER

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Department of Electrical Engineering

School of Engineering

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DATA COMMUNICATION

USING LASER

Project Report submitted to the

Department of Electrical Engineering, University of Management and Technology

In partial fulfillment of the requirements for the degree of

Bachelor of Science

In

Electrical Engineering

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Advisor Approval

This report describes the final-year-project, “Data Communication using Laser”, advised by me. It is submitted to the Department of Electrical Engineering, UMT, Lahore, with my approval.

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Acknowledgement

Our first and foremost thanks are to ALLAH for his countless blessings in enabling us to complete this project. Thanks to our families for providing us the support we needed throughout this period. We would also like to thank the faculty, colleagues, and FYP (Final Year Project) committee members, lab assistants, our advisor Sir Khalid ASGHER, Our Co-Advisor Sir Asif Hussain, and especially Sir Rauf Ali for his great support through our the Project duration. We would like to thank our Final Year Project director Sir Asim Butt for providing us the great working environment and facilities in the Lab.

Abstract

Free-space optical communication systems can provide high-speed, improved capacity, cost effectiveness, and ease of deployment for wireless networks. This paper addresses the design and construction of a laser transceiver. This laser transceiver can be used for data communications between two computers via free space optical link.

In this project, the serial ports of the computers are used which are defined by JAVA. A laser pointer is used as the optical source for electrical to optical signal conversion at the transmitter section. Optoelectronic conversion is performed by a phototransistor at the receiver section. We use MAX 232 to convert RS 232 logic to TTL logic and then an optical transmitter circuit to transmit data via free space optical link. At the receiver we have an optical receiver circuit which receives data using a photo transistor and a MAX 232 again to convert TTL logic to RS 232 for the serial port at the receiving end computer. The desired baud rate can be set using the program.

For transmitting data the program is executed once and whatever is present at the serial port is sent to the other computer via the free space optical link. At the receiver, the program is executed to receive data on the serial port. The laser transceiver allows any two computers with serial (RS-232) communication capability to communicate using a laser beam.