

**Department of Electronics and Communication Engineering**

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| **TITLE OF THE PROJECT:** | | **DATA TRANSMISSION USING LED AND LDR OVER ON CUSTOM COMMUNICATION PROTOCOL** | |
| **S.No** | **Students Name** | **Register Number** | **Year/Sem/Sec** |
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| **ABSTRACT** | | | |
| The goal of the proposed work is to design a cost-effective, low-power, and portable optical communication system using an Arduino microcontroller to transmit data via visible light. The system employs an LED as the transmitter and an LDR (Light Dependent Resistor) as the receiver, facilitating data transfer over a custom-defined communication protocol. The transmitter encodes binary data into modulated light signals, which are then interpreted by the LDR-based receiver circuit. An Arduino microcontroller processes the received analog signals, converts them into digital values, and reconstructs the original data. This method ensures secure, short-range communication that avoids RF interference, making it suitable for specific use cases in embedded systems and educational projects. Additional features such as adjustable baud rates and basic error detection mechanisms can be implemented to improve reliability and efficiency. This system is compact, easy to build, and serves as a foundational demonstration of Visible Light Communication (VLC) using basic components, suitable for learning and experimental setups. | | | |
| **APPLICATIONS** | | | |
| * Short-range communication (e.g., hospitals, airplanes) * Educational tool for embedded systems and networking * Simple data transfer in IoT systems * Underwater Communication | | | |

**PROJECT 2025**