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**LI-FI TECHNOLOGY: TRANSFORMING DATA TRANSFORMING DATA  
TRANSMISSION WITH LIGHT**

The project investigates the creative use of Light Fidelity (Li-Fi) technology for visible light data transfer, with a particular emphasis on text message transmission using a flashlight. The project presents a revolutionary way to wireless communication by utilizing the principles of Morse code, where each letter is represented by a unique combination of dots and dashes. In order to turn a regular flashlight into a Li-Fi transmitter, the main goal of this project was to design a mobile application utilizing an open-source platform. Using this program, text messages were converted to Morse code and sent through the flashlight.

Light Dependent Resistor (LDR) sensors were used to detect the incoming light signals at the receiving end. The light pulses were translated back into textual data by these sensors using an algorithm for decoding. The experiment demonstrates Li-Fi's viability as an adjunct to conventional wireless communication techniques. This project effectively transmits text messages using light, demonstrating the use of open-source platforms in creative communication solutions as well as the possibility for fast and safe data transfer.

The use of Unicode characters in the implementation of Morse code further demonstrates how adaptable conventional coding techniques are in contemporary technology environments. This study shows that it is possible to convey text messages using Li-Fi technology and a smartphone flashlight by encoding the messages in Morse code. The flashlight is controlled by an open-source application to blink in patterns, and another program decodes these signals back into text using the camera. The promise of Li-Fi for low-bandwidth, secure communication in a range of applications is demonstrated by this study.

**Keywords:** Light Fidelity (Li-Fi), Light Dependent Resistor (LDR sensor), Visible Light Communication (VLC), mobile flash light, morse code.

**Signature of the supervisor**

**Signature of the coordinator**