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ABSTRACT:

The main aim of this project is to transmit the data through the VLC (Visible Light Communication). Li-Fi is the methodology of transmission of data using visible light by sending data through LED light by controlling the light intensity of LED at sender’s end and detecting the intensity of light at the receiver’s end using LDR. This system has regulated the speed with which human eyes cannot perceive. This system can be demonstrated as unidirectional VLC system, high speed communication similar to Wi-Fi. The main idea of our project is to create a software which will transmit textual data from one system to another, using Arduino software and Arduino hardware.

INTRODUCTION:

The prime objective of the project is to create an application that transmits data like text using Li-Fi technology. Li-Fi is used for better, efficient, secure and a faster connection. Its motive is to avoid radiation produced by Wi-Fi. To transfer data with faster speed which is not easy to achieve through Wi-Fi and see whether transmission is possible through various mediums or not. Li-Fi can be thoughts an alternative for Wi-Fi which uses light as a medium to transmit data. Li-Fi is the solution to this problem for radio frequency crisis. For better, secured and high speed communication. The Main Necessity to develop this System is to secure the Data transmission between the two systems.

OBJECTIVE:

The prime objective of the project is to create an application that transmits data like text using Li-Fi technology. Li-Fi is used for better, efficient, secure and a faster connection. Its motive is to avoid radiation produced by Wi-Fi.

METHODOLOGY:

Transmitter Section:-

At the Sender's end the data or the string to be transmitted is first converted to binary bits using C# Code and then this bits are sent to the arduino via serial ports and then the Arduino controls the light intensity of LED by using lowest intensity to send bit '0' and the highest intensity of LED to send bit '1'.

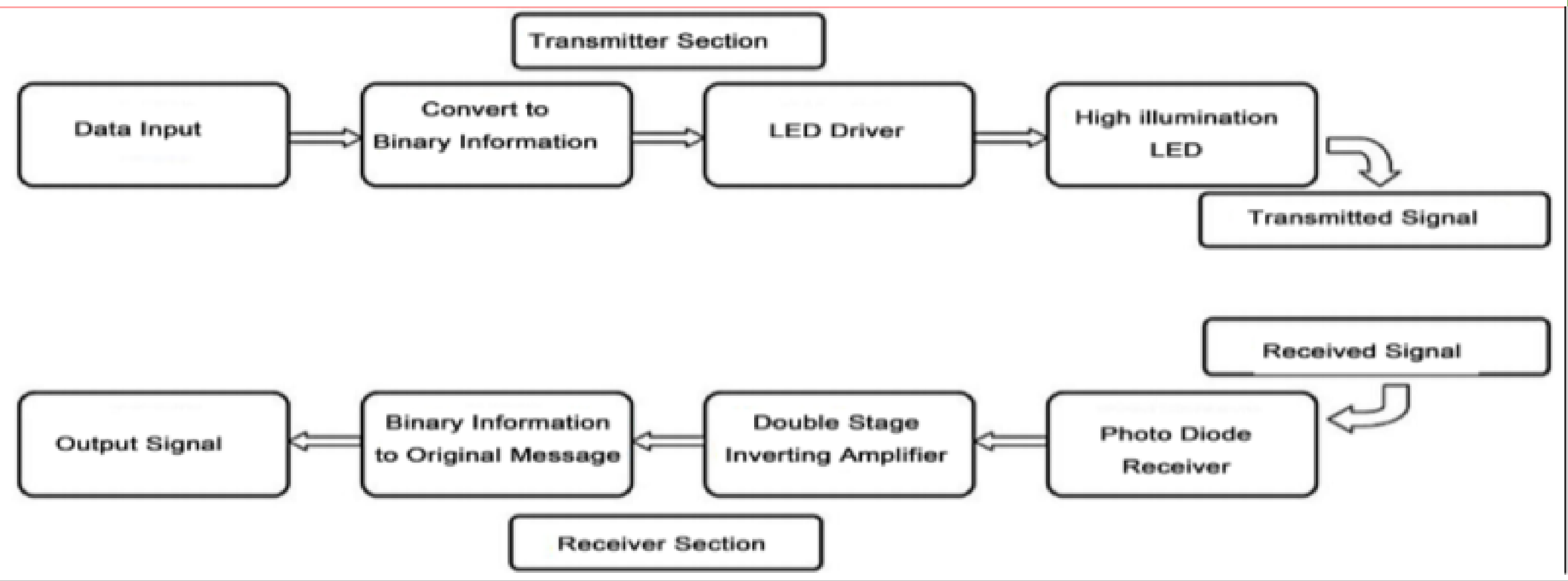
Receiver Section :-

At the receiver end the bits that are received by LDR which is connected to the arduino on the viewer's system is stored and passed to the user by Converting this data bits into as String .This bits are recorded by Arduino by detecting the blinking of light with the help of LDR.

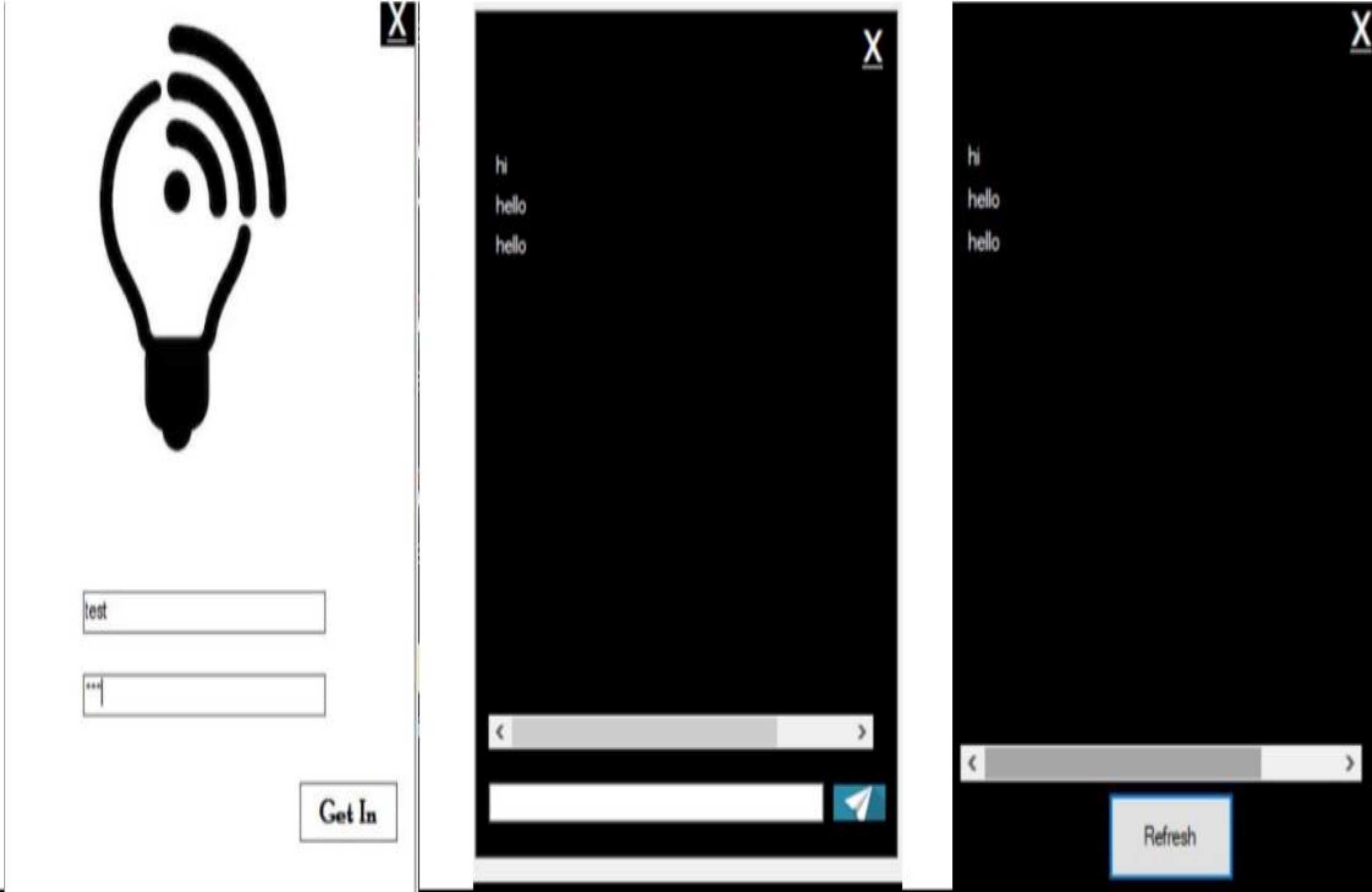
APPLICATION:

- Unidirectional Communication.
- Safety environments.
- High Bandwidth Data Transmission.
- Underwater communication..

BLOCK DIAGRAM:



GUI:



CONCLUSION:

The Project presents experiments performed in Li-Fi demonstrating some features, merits and limitations of the same. We have developed experimental set-up and carried out some tests that are found to be quite promising for one way data transmission for text using Li-Fi. The experimental set-up is of affordable cost, simple to carry out and record the results. Results like LDR sensing capability is better than photodiode and found to be acceptable.

Future scope:

This project can further be expanded by enabling two way transmission. We can also send images by converting the image in binary bit format using algorithm for converting image to binary bits and binary bits to image.

Reference:-

[1]Asif Jilani Sheikh, Vijayashree Kudupudi, Aseem Sayyed, Ashwini Deshmukh, and Uday Mithapelli,“Serial and Parallel Data Transmission Through Li-Fi”, Proceedings of 72nd IRF International Conference, Pune, India, 29th April, 2018, pp.35-39. [2] Shivaji Kulkarni, Amogh Darekar and Pavan Joshi, “A Survey on Li-Fi Technology”, IEEE WiSPNET 2016 conference, pp.1624-1625. [3] P. Kuppusamy, S. Muthuraj and S. Gopinath, “Survey and Challenges of Li-Fi with Comparison of Wi-Fi”, IEEE WiSPNET 2016 conference, pp.896-899