# Smart Illumination and Communication for Power-lines System using LIFI

S. Siva Mohan[1], Neha Ramasubramanian[2], R.Sangeetha[3]
Assistant Processor (O.G)[1], B. Tech Student[2, 3]
Department of IT
SRM Institute of Science and Technology, Chennai, India

**Abstract:**

The Visible Light Communication (VLC) is one of the basic components used in this paper it one of most efficient and used technologies in this generation in terms of wireless communication. In this power-lines are used as source for communication [1]. The usage of personal structure in spite of the presence power-lines can change the wired medium of connectivity. The combination of Visible light commination and power-lines is an effective way of enhancing the use of personal chain. This is one of the more effective and cost efficient too.

## I. INTRODUCTION

LIFI is an emerging technology for fixed range wireless communication to give unexpected connectivity. [1].In the times due to extreme usage if LED in luminaire, the LED market has aroused heights. LED is illuminated than a 60Watt bulb but it takes current that of a 4D size batteries. LED is the only choice for VLC transmitter. There is also a high-track competition within a wireless service providers. Even though, over the past the PLC emerged as an alternative for Ethernet. The advantage of CAT 5/6 over cabling is evident that no additional cables are required. In this we use the concept of wireless data transfer is applied to the power-lines to transfer audio and picture files. In this process the VLC is combined with power-lines in order to use LIFI as a plug and play technique. The idea of mixing of these two system was derived by "Komine et al" which is based on "signal carrier modulation" to improve the previous method and the "multi-career modulation" is used for power-lines and VLC using 16-QAM channels with those noises and the results are shown. LIFI might lead to the internet of things in which everything is electronically connected. [1]

## II. CIRCUIT SYSTEM

The circuit system is made up of filters, rectifiers and then voltage regulators. It begins with AC voltage and then a steady DC voltage is brought in by making a change in the AC voltage, after that it filtered to DC level, and then it is finally regulated to attain the expected DC voltage. The regulation of DC voltage is attained from and IC Voltage regulator unit.[3]
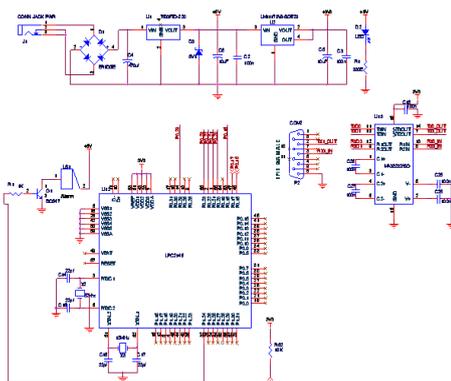


**Figure.1. Circuit System**

## III. POWER SYSTEM

AC voltage is 220v and is connected to a transformer; it steps down to the DC voltage. The attained DC voltage has some ripples which are Ac voltage changes [3]. A regulator circuit cuts off the ripples and will have a similar value of DC voltage though the input of the DC voltage changes.[3]
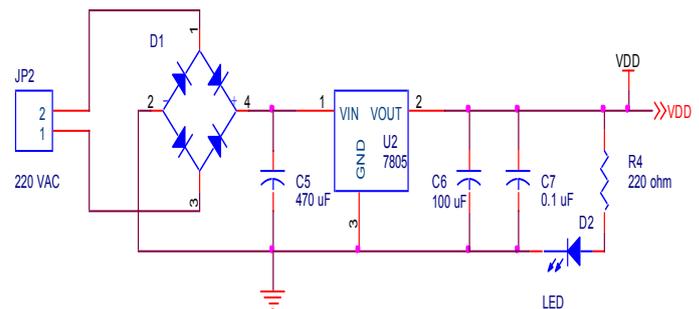


**Figure.2. Power supply circuit**

## IV. WORKING

In this the data is sent from system to system using a technology called LIFI where the using Arduino as a microcontroller it helps in transmitting data and it is done using parity bits and it means . In this the parity bits are attached at the ends of the file for security purpose.

**Parity bit: It has five types**
- **Even Parity:** The last bit of data sent will be a 1 even if the data transmitted has an even amount of 0 bits
- **Odd Parity:** The data sent will be a 1 even if the data sent has odd amount of 0 bits.
- **Mark Parity:** The data sent bit will always be a 0
- **Space parity:** The sent data bit will always be a 0.
- **No parity:** There is no parity bit transmitted.

**There are mainly two sections.**
**A) Transmitter part:** In this the data is transmitted from a device to device using LIFI in this section primary the voice and picture file is transmitted using led array. The files will get converted into digital signals i.e 0 and 1 in the modulation unit. It gives a sequence which converts electronically and transmits data. [2]

**Figure.3. Senders side**

B) Receiver part: The aim of this portion is to obtain the image or audio file that is sent in the sending part prosperously. [3]
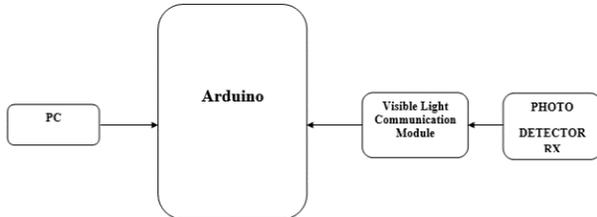


**Figure.4. Receivers side**

## V. CONCLUSION

The LI-FIa technology and is still research progress and will surely will become stereotype in interacting system. It assures greater speed for data transferring .In this project the image and audio is sent using LI-FI from device to device. The use of LI-FI was entirely greater [2]. The aim of this project is to provide secured data transmission, low cost, easy data sending using LI-FI. It is made use in many industries such as medical etc. LI-FI is on its starting period of development but its development made quickly, very soon LI-FI will be domestic friendly [2].

## VI. REFERENCES

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