THINK INDIA JOURNAL

ISSN:0971-1260

Vol-22-Issue-41-December-2019

Light Fedality Data Transmission Form PC to PC

V. Meenakshi[1] and Shaik Mohammed Rafi[2]

M.Tech Scholar[1] and Assistant Professor[2], Department of Electronics and Communication Engineering
Sreyas Institute of Engineering & Technology, Beside Indu Aranya, GSI, Bandlaguda, Nagole, Hyderabad, Telangana

ABSTRACT

As many users and their committed devices get to wireless web, clogged airwaves are going to make that increasingly complex to latch in to a reliable signal. In any case, radio waves are only one piece of the range that can convey the information. Imagine a scenario in which we could utilize some other sort of wave to surf the web. One German physicist, DR. Harald Haas, has thought of the arrangement is called "Information Through Illumination" - sending information through a LED light bulb that intensity is faster than the human eye can follow. It's a similar thought behind infrared remote controls, however considerably more powerful. Haas says his development, which he calls D-Light, can deliver information rates quicker than 10 megabits/sec, which is quicker than your normal broadband association. He pays special mind to a future where information for workstations, cell phones, and tablets is transmitted through the light in a room. Also, security would be snitch-if you can't see the light, you can't access the data. This paper summarizes that transmission of data with the help of light. Which can be used in almost all fields like hospitals, submarines, military applications, etc.

1. INTRODUCTION

Depending upon the proportion develops to supplant the conventional lighting with LED lighting, the Visible Light Communication (VLC) innovation that exploit the LED light on the remote correspondence. LiFi based information sharing office is a blast to the present inventive world. Unmistakable Light Communication innovation is quickest, exact and imaginative. It is the substitution of Classical remote Frequency Modulated Communications. By utilizing this VLC we can do any imaginative applications all the more effectively. The obvious light correspondence (VLC) innovation dependent on light emanating diode (LED) has been institutionalized as IEEE 802.15.7.

In this standard, an information bundle can be transmitted through the glint of an obvious light that human can't perceive. Meanwhile, the Professional Lighting and Sound Association (PLASA) has institutionalized the ANSI E1.45 for transmission of VLC information parcels over the lighting control organize dependent on Digital Multiplexer 512-A (DMX512-A). The ANSI E1.45 standard, as otherwise called DMX802, characterizes a unidirectional transport of IEEE 802.15.7 VLC information parcels over the DMX512-A lighting control organize. For VLC information transmission, the VLC server may partition an IEEE 802.15.7 information bundle into at least one pieces, and transmit each section to the lighting gadgets by means of the DMX512-A system. It is noticed that the ANSI E1.45 standard does not give a mistake recuperation or retransmission system, as done in the DMX512-Aand the RDM (Remote Device Management) convention. In DMX512-A and RDM, the bundle misfortune may not be huge worry, since the information transmission unit is extremely little (e. g. 1-byte data for lighting gadget control). Notwithstanding, in the ANSI E1.45 standard, the information misfortune will in general make an extremely enormous issue. This is on the grounds that the ANSI E1.45 information parcel as a rule contains a lot of VLC information payload dependent on the IEEE 802.15.7. In the event that an information section is lost amid transmission, an entire VLC information bundle can't be conveyed from a lighting gadget (with a VLC transmitter) to the VLC clients (with a VLC collector). In like manner, in the VLC information transmission utilizing the ANSI E1.45, the unwavering quality control utilizing mistake discovery and recuperation turns into a significant issue to be tackled. To defeat this restriction, a clock based VLC information transmission plans have been examined by applying the retransmission strategies of Internet. In any case, these plans have another impediment that they can't recoup the lost VLC information right away. Subsequently, in this paper,

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

we propose the solid VLC information transmission conspires over the lighting control arrange, in order to improve the presentation of VLC information transmission.

To recognize an information misfortune, the proposed plans will utilize the RDM standard, on the grounds that the RDM convention empowers the unidirectional correspondence between a lighting controller and a lighting gadget as a surveying framework dependent on ace slave design, uniquely in contrast to the ANSI E1.45. For mistake control, in this paper, we will characterize some new messages for checking an information misfortune at a lighting gadget by utilizing the RDM convention. In light of the discovery of an information misfortune, we propose the two retransmission plans for mistake recuperation. The proposed plans are ordered into the bundle based and part based plans (FRVSs). The proposed retransmission plans can be utilized to give dependable VLC information transmission in the lighting control arrange, uniquely in contrast to the current ANSI E1.45 scheme.

II.LITERTURE SURVEY

S no	Author name	Year	Methdology	Remarks
1	Aswin Pk . *et.al*	2018	Manchester encoding microcontroller	Data rate is limited by the photo detector used in the receiver
2	C.W Chow. *et.al*	2013	Manchester encoding NRZ coding	Limited to 500kHz
3	H.Elgala. *et.al*	2015	Modulation techniques	Limited for indoor applications, no duplex transmission
4	Dilpreet Singh Akhil Sood. *et.al*	2017	Arduino Microcontroller	Loss of data while transmitting
5	Garim. *et.al*	2015	Raspberry pi UART Bluetooth	Only same size data is transmitted
6	Victor Monzon Baeza. *et.al*	2015	FPGA	Receiver data rate is less
7	Kay Smarsly. *et.al*	2014	Wireless multi sensors	Continuous monitoring is not possible without gaps

In the year 2018, the authors Ashwin Pk *et al.*[1] described about Indoor localization by visible light communication and image processing. The fundamental point of the paper is indoor confinement utilizing short range remote correspondence methods. This paper reports the usage of a multi-transmitter obvious light correspondence based indoor restriction framework that offers a moderate information rate upto 20 kbps and transmitter beneficiary partition of 1.6 m and indoor situating with sub-meter exactness. The information rate of the model was constrained by the photograph indicator at the collector. With better photograph locators, higher information rates can be accomplished. Blunder control coding can be incorporated to improve nature of the information transmission.

In the year 2013,the authors C.W.Chow *et al.*[2] explained about moderation of optical foundation commotion in light-discharging diode (LED) optical remote message frameworks. This paper manages the test looked by the in-home light-discharging diode (LED) optical remote correspondence is the optical foundation clamors. Here we show utilsizing Manchester coding for the LED to moderate the optical clamor. The hypothetical and numerical investigation of Manchester deciphering procedure to moderate the optical foundation clamor is given. Our test result demonstrates that Manchester coding can altogether dispose of commotion. Is it constrained to optical clamor created by the AC-LED worked at <; 500 kHz and bright light.

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

In the year the authors H. Elgala *et al.*[3] proposed potential and state of art of indoor optical wireless communication. This article goes for investigating and condensing late headways in OW correspondence, with the primary spotlight on indoor organization situations. Related issues shrouded in this article are duplex transmission, numerous entrance, MAC conventions, and connection limit upgrades. By utilizing regulation procedures, macintosh layer execution, various access systems and optical MIMO this technique is actualized and examined. The plan moves that still should be defeated before having the option to understand a whole OW framework that can be industrially sent.

In the year [2017] the authors Dilpreet Singh *et al.*[4] described about design of wireless communication system for toll collection using LIFI. .As the populace is expanding step by step which results in high rush hour grid-lock clog on streets. The enormous general population think that it's hard to be in line at toll gate.This paper gives data about Automatic Toll Tax frameworks which has diminished the substantial blockage caused at toll accumulation in the metropolitan urban areas. Its principle segments are LED, photodiode, enhancer and microcontroller. The vehicle number send from the vehicle is effectively gotten at toll side. In future, more work on information transmission rate and charging framework should be possible.

In the year [2015] the authors Garima *et al.*[5] proposed a module of daughter board for raspberry pi to bluetooth communication using UART. In this paper, Bluetooth sequential correspondence is executed by means of. Sequential correspondence utilizing Raspberry Pi's UART. A remote correspondence, for example, – Bluetooth, WI-Fi, ZigBee and so forth gives adaptable and modest answer for remote applications. The proposed framework design comprises of two Raspberry Pi and two Bluetooth modules which are associated through UART .The fundamental disadvantage is Bluetooth module is equipped for transmitting documents of same size no one but this can be additionally expanded.

In the year [2015] the authors Monzón Baeza *et al.*[6] described about a testbed for LiFi module integrated in streetlights. In this , LiFi progressing testbed actualized on FPGAs is presented. Due to the wide use of Light Emitting Diode (LEDs) in streetlights and how these contraptions are the key segment of optical systems, the structure of headways commonly playing out the two limits - lighting and granting is made possible. Current work bases on structure and execution on Field Programmable Gate Array (FPGAs) of the modulator and Simulations of the channel among streetlight and phone. The effect of the incorporating light has been viewed. Future works are based on improving the practiced rates using progressively refined alteration plan, for instance, OFDM.

In the year [2014] the authors Kay Smarsly *et al.*[7] described about continuous monitoring of landslides with the help of internet-enabled wireless multi-sensor System. In this exploration the structure and test usage of an independent avalanche observing framework is examined. So to screen land-slides the three principle modules are web endowed multi sensor framework, a web claim and a work area application. The remote sensor organize, made out of various remote sensor hubs, is intended to gather neighborhood field material from the watched reliant on independent programming programs inserted into the sensor hubs. As an unmistakable favorable position contrasted with customary checking approaches, the field information is broke down legitimately on the sensor hubs in a completely decentralized manner. The work area application stores the information acquired from the remote sensor unite in a database framework, gives symptomatic capacities, and imagines the recorded informational indexes. The web application, at last, coordinates outer geospatial and climate data important to evaluating the danger of avalanches, and it gives remote access to the field information. Future work may likewise incorporate the mix of model-based recreations of the slant condition so as to more readily comprehend the avalanche elements.

III. OBJECTIVES OF THE PROPOSED SYSTEM

To adequately utilize light as a mechanism for remote correspondence.

To remotely control gadgets utilizing light as conveying medium.

To develop a correspondence framework continuously which is protected from radiation risks not at all like Wi-Fi (which utilizes radio correspondence.

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

IV.PROPOSED SYSTEM BLOCK AND DESCRIPTION

In existing system we all know the communication such as Bluetooth, ZigBee and Radio Frequency (RF). All these communications are falling into certain limitations such as range and speed. GSM is an option to tolerate the range, but it cannot be used in deep sea. Slower Communications between transmitter and receiver end. Performance is low, because of its time taken procedures and Cost is high. Below Fig1 shows Block Diagram for transmission of data from one end pc to another end pc as same block diagram in reversible order for another end at the time of unidirectional data transmission from. Here we design a software application for the transmission of data and for receiving the data using the pc application for the designing we used the c# language for the designing to fetch the input from the pc peripheral and then application used to transfer the data from pc to the hardware port. The application ask for the com port setting and proceeding the application is interacting with pc and the hardware of lifi modules ad open the flash window for entering the input to the editor window here we can enter the text data and the clicking on transmitter button the application will procced the text data to the lifi module through the usb to serial connecter here the connector is used to connect the pc port to lifi communication port then after the modulator in the lifi transmission module will convert the text data format into signal form and the send the signal to led driver her the driver will control the operation voltage by the input from the modulator the led will toggled then the data is transferring .The photo diode working principal is absorption of light and the it transfer the analog to driver ic and then next to demodulator here it will convert the analog form to the signal and then from signal to text format then it transmitted to the pc by the usb to serial module. In this max will acts as logic level convertor and voltage conversion the data is transferred from usb to serial to lifi communication module through rs232 mode. Then after the transmission and receiving had done the data is successfully transfer to the another pc we can easily identified by toggling of led.

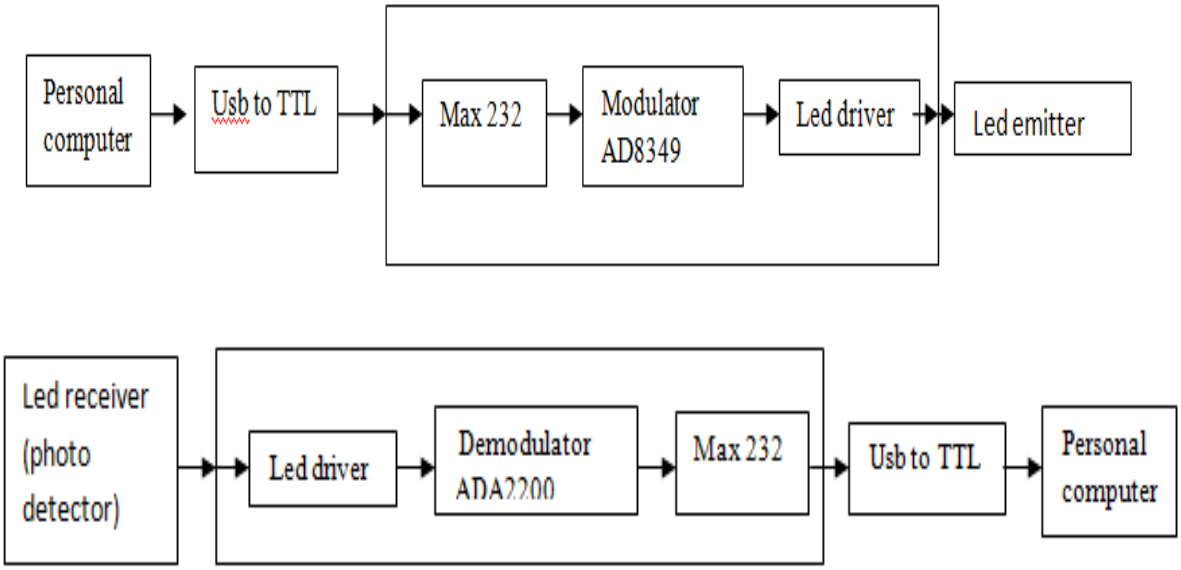

Fig 1: Block Diagram of Proposed LIFI communication

V. RESULTS

Fig 2 shows the flash page which appears after coding is successfully compiled and comport setting is done. Fig 3 shows the flash page here we need to enter the data which has to transfer. Then we need to click transmit data then we get a popup as shown in fig 4 indicating data transmitted sucessfully .

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

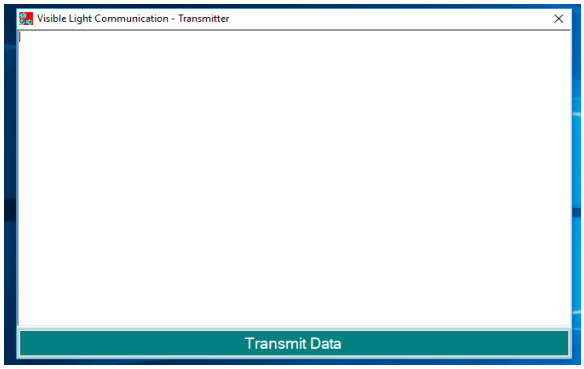

Fig 2: Lifi application transmission side window page

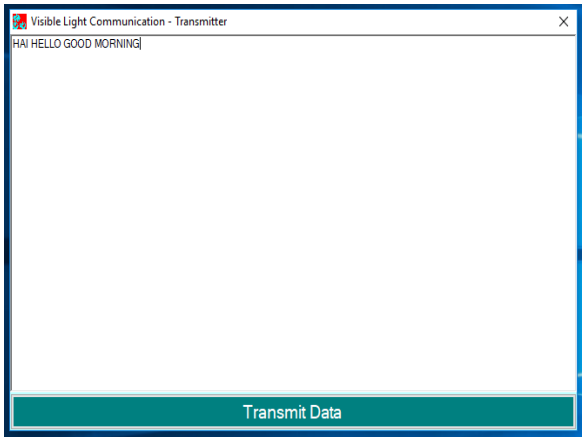

Fig 3: Fetching the data through pc peripheral and showing the in editor window

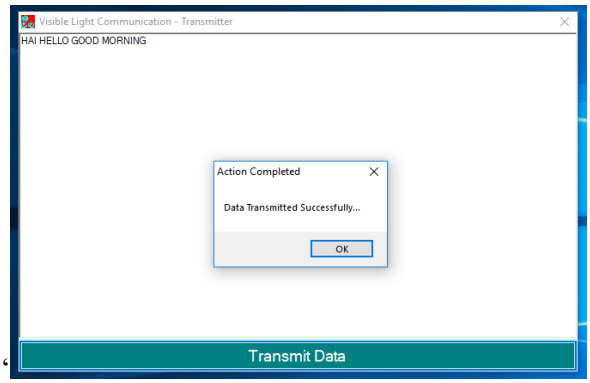

Fig 4: Text entered and transmit button if we click then it being processed for the lifi module and led will be toggled that means data transmitting is done

Fig5:Lifi application at receiving end

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

Fig 6: Lifi application receiving side window page

Receiving Fig 5 shows the window page of receiver software after software compiled and if photo diode is receiving the data through light then it sends to lifi receiver module and then convert into text and display on receiver software page. Fig 6 shows the final output of transmitted data.

VI:PARAMETERS

S.no	Parameter	LiFi
1	Speed for data transfer	Faster speed >1Gbps
2	Medium data transfer	Light as carrier
3	Optical range	380nm to 780nm
4	Cost	Cheaper than wifi
5	Network topology	Point to point
6	Operating frequency	100's of Tera Hzs

CONCLUSION

In this paper we had designed the hardware for data transmitting from one place to another place with light media (LiFi), and it can transmit the data very fast and generic without loss of data.

We can transmit the file and media file etc. through the application in expanded mode and flash mode to no of devices at a single click at a time .This project had been implemented without micro controller's implementations and is less expensive.The transmission of data through light fidelity is much more secure and faster than the existing system.

REFERENCES

[1] IEEE 802.15.7: 'Standard for local and metropolitan area networks – part 15.7: short-range wireless optical communication using visible light', 2011

[2] Rajagopal, S., Roberts, R.D., Lim, S.K.: 'IEEE 802.15.7 visible light communication: modulation schemes and dimming support', IEEE Commun. Mag., 2012, 50, (3), pp. 72–82

[3] Mehdi, R., Riad, A.B., Mohammad, E.C-.B.: 'A new modified MPPM for high-speed wireless optical communication systems', ETRI J., 2013, 35, (2), pp. 188–192

[4] Rashed, A.N.Z.: 'High efficiency wireless optical links in high transmission speed wireless optical communication networks', Int. J. Commun. Syst., 2014, 27, (11), pp. 3416–3429

[5] Elgala, H., Mesleh, R., Haas, H.: 'Indoor optical wireless communication: potential and state-of-the-art', Commun. Mag., 2011, 49, (9), pp. 56–62

[6] Chow, C.W., Yeh, C.H., Liu, and Y.F., et al.: 'Mitigation of optical background noise in light-emitting diode (LED) optical wireless communication systems', IEEE Photonics J., 2013, 5, (1), pp. 1–7

[7] Lim, S.K., Karl, R., Kim, I.S., et al.: 'Entertainment lighting control network standardization to support VLC services', IEEE Commun. Mag., 2013, 51, (12), pp. 42–48

[8] 'Professional Lighting and Sound Association'. Available at http://plasa.org/, accessed 01 September 2016

Copyright © 2019Authors

ISSN:0971-1260

Vol-22-Issue-41-December-2019

[9] ANSI E1.45: 'Unidirectional transport of IEEE 802 data frames over ANSI E1.11 (DMX512-A)', 2013

[10] ANSI E1.11: 'Asynchronous serial digital data transmission standard (DMX512-A) for controlling lighting equipment and accessories', 2008

[11] ANSI E1.20: 'Remote device management (RDM) over DMX512 networks', 2006

[12] ANSI E1.17: 'Architecture for control networks (ACN)', 2011

[13] ANSI E1.31: 'Lightweight streaming protocol for transport of DMX512 using ACN', 2009

[14] 'MATHWORK'. Available at http://www.mathworks.co.kr/, accessed 03 September 2016

Copyright © 2019Authors