



Navigation System Using LIFI For Shopping Mall

Assistnat Prof. Sandeep Yadav¹, Rushikesh Bachal², Soniya Yadav³ Khusbu Saroj⁴, Prithviraj Ingole⁵

Assistant professor, Computer Dept., TAE, Pune, India¹

Student, Computer Dept., TAE, Pune, India²⁻⁵

Abstract: This paper shows an approach for remote information correspondence between two frameworks through unmistakable light. This approach makes a way which can make information transmission quicker than current remote correspondence innovation. Utilization of noticeable light for remote correspondence can fathom issue of absence of radio wave range space that will build the information transmission rate. The proposed framework exhibits transmission and gathering of information by turning LED on and off at high force which is too quick to possibly be seen by human eye. We can encode different information by fluctuating the rate at which LEDs flash also, transmit it. This paper depicts the plan, manufacture, and abilities of unmistakable light based information correspondence, and in addition the improvement of the LED and photograph sensor based optical remote correspondence framework. The information is to be send from one PC to another PC utilizing COM serial correspondence.

Keywords : Wi-Fi, Radio Spectrum, Li-Fi, Visible Spectrum

I. INTRODUCTION

In this day and age correspondence between the gadgets are much normal. Radio wave range is little piece of range accessible for correspondence. However, with increment in propelled innovation and number of client the system ends up plainly over-burden which brings about inability to give high information rate. Noticeable light goes about as opponent to the present remote radio recurrence correspondence by accomplishing bigger transmission capacity and high information rate. Since with bigger recurrence range it is conceivable to give a bigger bit of the transmission capacity to every client to exchange data.

Li-Fi can be considered as a light-primarily based Wi-Fi. That is, it makes use of light rather than radio waves to transmit records and instead of Wi-Fi modems, Li-Fi could utilize handset –fitted led lighting that can light a room and in addition transmit and get data.

Li-fi offers critical capacity to determine this issue analyzed with wi-fi. It transmits information by turning LEDs on and off quickly by changing light power which isn't identified by human eye. The information transmission rate is around 10Gbps by utilizing white brilliant LED. At the point when a picture sensor is utilized as a collector, light sources are superbly isolated on a central plane (a pixel exhibit) in light of the fact that there are countless pixels, and optical signs are independently yield from each pixel. This keeps signals from getting to be noticeably blended, along these lines permitting correspondence, regardless of the possibility that many LED transmitters and pointless lights (clamor sources, for example, daylight and streetlights are available..

II. LITERATURE SURVEY

Most of us are familiar with Wi-Fi (Wireless Fidelity), which uses 2.4-5GHz RF to deliver wireless Internet access around our homes, schools, offices and in public places. We have become quite dependent upon this nearly ubiquitous service. But like most technologies, it has its limitations. While Wi-Fi can cover an entire house, its bandwidth is typically limited to 50-100 megabits per second (Mbps) today using the IEEE802.11n standard. This is a good match to the speed of most current Internet services, but insufficient for moving large data files like HDTV movies, music libraries and video games.

The more we become dependent upon 'the cloud' or our own 'media servers' to store all of our files, including movies, music, pictures and games, the more we will want bandwidth and speed. Therefore RF-based technologies such as today's Wi-Fi are not the optimal way. In addition, Wi-Fi may not be the most efficient way to provide new desired



capabilities such as precision indoor positioning and gesture recognition. Optical wireless technologies, sometimes called visible light communication (VLC), and more recently referred to as Li-Fi (Light Fidelity), on the other hand, offer an entirely new paradigm in wireless technologies in terms of communication speed, flexibility and usability.

III. EXISTING SYSTEM

WiFi is a short name for Wireless Fidelity. Generally, WiFi refers to any type of IEEE 802.11 Wireless Local Area Network (WLAN).

Wi-Fi or WiFi (/ˈwaɪfaɪ/) is a technology for wireless local area networking with devices based on the IEEE 802.11 standards. Wi-Fi is a trademark of the Wi-Fi Alliance, which restricts the use of the term Wi-Fi Certified to products that successfully complete interoperability certification testing.

Devices that can use Wi-Fi technology include personal computers, video-game consoles, phones and tablets, digital cameras, smart TVs, digital audio players and modern printers. Wi-Fi compatible devices can connect to the Internet via a WLAN and a wireless access point. Such an access point (or hotspot) has a range of about 20 meters (66 feet) indoors and a greater range outdoors. Hotspot coverage can be as small as a single room with walls that block radio waves, or as large as many square kilometres achieved by using multiple overlapping access points.

IV. Drawbacks of existing system

In real-world applications, wireless networking is significantly slower than wired networking when transferring files over a local area network. The problem becomes even more acute if you have a busy network or if your signal strength is weaker than optimal.

Reliability

Wireless networking uses radios to transmit networking signals. Just as with terrestrial or satellite radio, wireless networks have a limited number of channels and, if every channel is full, connections will slow down or fail to work. The spectrum assignments and operational limitations are not consistent worldwide. Power consumption is fairly high compared to some other standards, making the battery life and heat a concern to some users. Inter-operability issues between brands or deviations can cause limited connection or lower output speeds. Free access points can be used by the malicious to anonymous to initiate an attack that would be extremely difficult to track beyond the owner of the access point.

V. PROPOSED SYSTEM

Li-Fi (Light Fidelity) is a high speed, wireless communication using visible light. It falls under the category of optical wireless communications. Data transmission takes place through LED bulbs whose intensity varies. Based on this variation, communication occurs digitally. The word Li-Fi was first coined by Harald Haas at the University of Edinburgh. This technology has vast applications where the use of Wi-Fi is limited or banned. It also takes out the adverse health effects of using electromagnetic waves. Unless light is seen, data can't be hacked and so data transmission is secure. Data transmission is typically in terms of Giga bytes per second.

As light is present everywhere it would be very convenient if we channel this into transmitting data. This is where Li-Fi (Light Fidelity) technology comes into play. In Li-Fi, Digital data transmission takes place using LED bulbs with flickering intensity controlled by varying currents. The working is simple as shown in Fig. 1. There is a light emitter at one end. Light emitter can be simply LED. When the LED is on, a digital '1' is transmitted. When the LED is off, a digital '0' is transmitted. This is received by a photo detector at the other end.

This refers to a single bit data transmission. An array of LED's can be connected so that a large amount of data transmission takes place. Speed depends on the rate of variation of LED intensity. In this manner data is encoded and transmitted. The main factors to be considered during design are –

Line of Sight (LoS).

Line of sight (LoS) is a type of propagation that can transmit and receive data only where transmit and receive stations are in view of each other without any sort of an obstacle between them. FM radio, microwave and satellite transmission are examples of line-of-sight communication.

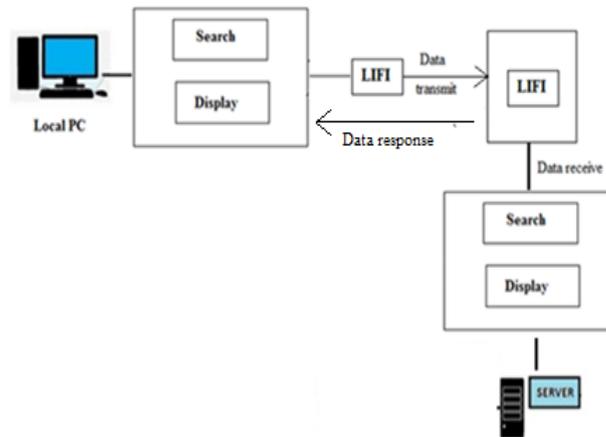
Presence of Light.

Illumination.



Li-Fi provides with more bandwidth that is free and clean to use. It is also unlicensed. Li-Fi additionally presents with extra information density compared to that of Wi-Fi. The statistics density is about a thousand times than wireless. This is due to less interference of mild than RF waves. Because of high facts density and bandwidth the output pace is likewise very high.

We are proposing technique which is used for shopping mall. This system can be helpful to new users. New user will login to application. User will fill all details given in form. After registration, login credentials are allotted to users. System will add new users. Server will add new floors and new shop. User will search floor and shops. This data is transmitted through LiFi in form of text to server. Server will fetch required data from database. Server will send response text/image through LiFi to user. Data transmission is very fast in LiFi. Following is architecture diagram.



Architecture design

This has many advantage which will help to apply in may fields. LiFi is advance technology used in various things.

VI. ADVANTAGE

Li-Fi can be utilized around very inflammable regions like Petrol bunks, airplanes and so forth as there wouldn't be any obstruction with inflammable items. It can be utilized for submerged correspondence as light goes through every single fluid medium. Li-Fi gives a domain free from electromagnetic waves and consequently makes a sound situation. Li-Fi innovation gives wellbeing, security, quick and productive correspondence. The Electromagnetic free condition made by Li-Fi can be utilized for healing facility applications.

Li-Fi can be considered as a light-based Wi-Fi. It uses light instead of radio waves to transmit information.

Li-Fi is transmission of data using illumination i.e. sending data through an LED lamp that varies intensity of light faster than what human eye can perceive.

Instead of Wi-Fi modems, Li-Fi would use transceiver-fitted LED lamps that can light a room as well as transmit and receive information.

Wi-Fi is great for general wireless coverage within building and Li-Fi is ideal for high density wireless data coverage in confined area and for relieving radio interference issues.

VII. APPLICATIONS

Security

By contrast, in the case of Li-Fi, with its greater number of available access points, each pool of light provides full channel data rates with fewer simultaneous users. The overall net benefit to each user is up to 1000 times greater speeds.

Dense urban environments

Dense urban environments by their nature tend to have complete artificial lighting coverage. This lighting infrastructure can provide always available high data rate access for users as they move through that environment.

Cellular communication

In external urban environments, the use of Li-Fi enabled street lamps would provide a network of internet access points. In cellular communication, the distance between radio base stations has come down to about 200-500



metres. So, instead of deploying new radio base stations in our cities, street lamps could provide both, illumination during night, and high speed data communication 24/7.

VIII. CONCLUSION

With the creating innovation and developing utilization of the web offerings, openings are exceptionally over the top that utilization of li-fi period may be rapidly practically speaking. The possibility of li-fi is spreading so quick as it is easy to utilize, it's miles pulling in enthusiasm of people. The utilization of li-fi period offers an absolutely brilliant chance to supplant or to exhibit contrasting option to the radio based wi-fi advancements. As the amount of individuals and the entrance of web is expanding on one of these substantial scale, accessing net through remote will soon be deficient as the usage is developing however the transfer speed remains the indistinguishable. On this record paper we complete that the open doors are various and might be investigated moreover this innovation is in assembling framework to give every knob to wind up plainly a wi-fi hotspot to transmit remote measurements

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