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# DATA TRANSFER USING INTEGRATED LI-FI IN NATURAL DISASTER

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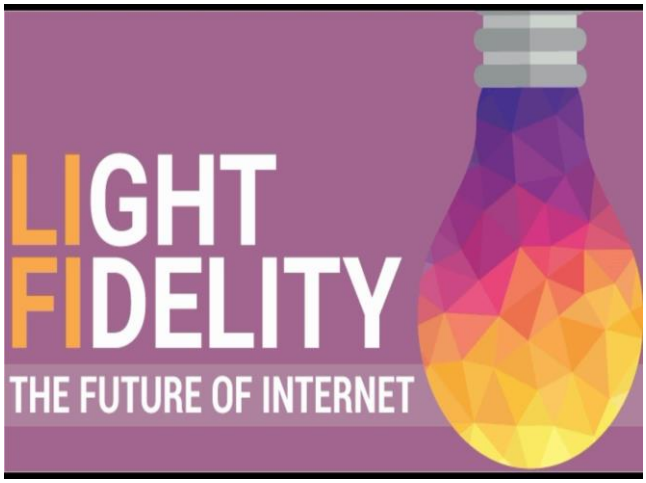
**Abstract -** *An aLi-Fi is nothing but a Light Fidelity which is a high speed and wireless network communication technology. It is similar to the Wi-Fi. We used Li-Fi for the detection of natural disasters(Earthquake detection, Water fluid detection, etc.) because Li-Fi is a faster data transmission technology. It is a wireless optical networking technology which uses LEDs i.e Light Emitting Diodes for the data transmission. Because of light travels in a straight line, it does not penetrate through the wall. Hence it provides more security. Advantage of Li-Fi is it can useful in more sensitive areas like hospital, Offices. So with the help of various sensors and photodiode ,we can able to detect the changes of environment. It provides efficient bandwidth, security than Wi-Fi. Also it able to transfer the data faster than wi-fi. According to our project, it has maximum possibilities of transferring of data through mobiles, laptops, computers, tablets using li-fi technology. Our paper constructed on use of Li-Fi in critical situations to avoid harmful effects of natural changes. For this we use Message Broadcasting facility.*

***Key Words*: Li-Fi, Wi-Fi, Earthquake detection, Water fluid detection, Photodiode, LED, Message Broadcasting.**

## 1. INTRODUCTION

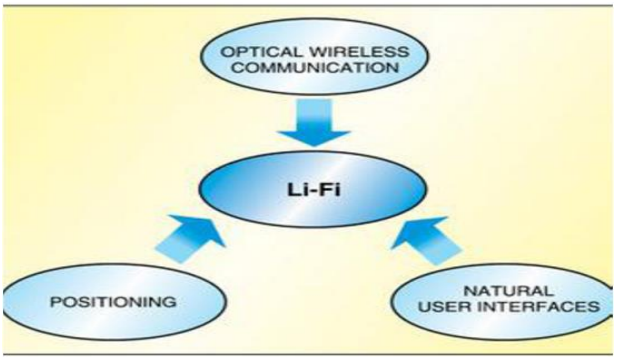
To make a communication with other, it is important to transfer the data from one place to another place. For this various technologies are provided such as Internet, Wi-Fi etc. But as the number of people increases to access same internet, the speed of data transmission get low. Best solution of this problem is Li-Fi technology. Because speed of Li-Fi is 10,000 times greater than Wi-Fi . It is expected as cheaper than wi-fi, short range, low reliability.

Li-Fi is light fidility. It is light communication instead of radio frequency spectrum. We transmit the data through LED. This transmission will be done in fraction of seconds. So it is invisible to eye. Radio has frequency band of 300 GHz where light gives 300 THz frequency band due to it transfer big amount of data in few time. So Li-fi is framework for today's and future services. As you can't see light waves, you can't access the data which transfer from it.




It is a VLC(Visible Light Communication), technology developed by team of scientists including Dr. Gorden Povey, Prof. Harald Has and Dr. Mostafa Afgani at University of Edinburgh Li Fi is now part of Visible Light Communication(VLC).

## 2. RELATED WORK




Sometimes, water level of dam is crossed and goes to dangerous level. It may cause an emergency conditions like dam overflow which does the more harmful impact on surrounding areas. Also we are not aware about the changes of inner part of an earth, which changes done before an earthquake. Our project gives solution on this natural harmful problems using Li-Fi technology.

In emergency condition of Dam Overflowing, we can detect the water level of dam using ultrasonic sensor. After the limited level is crossed by water, using light we can send the message to photodiode, and photodiode broadcast the message. This process is done faster as compared to

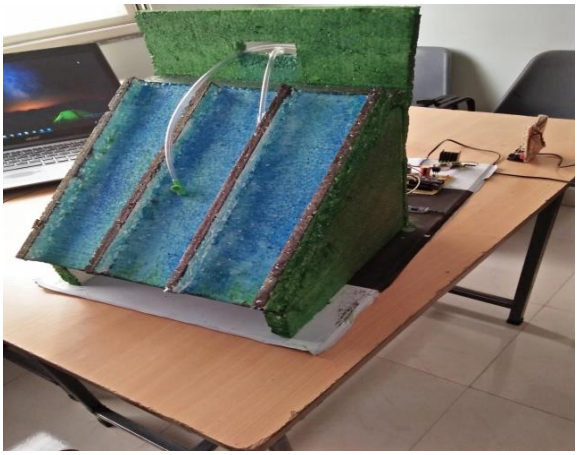
internet/wi-fi. Then due to this message we can release the water from dam and save our self from dangerous condition.

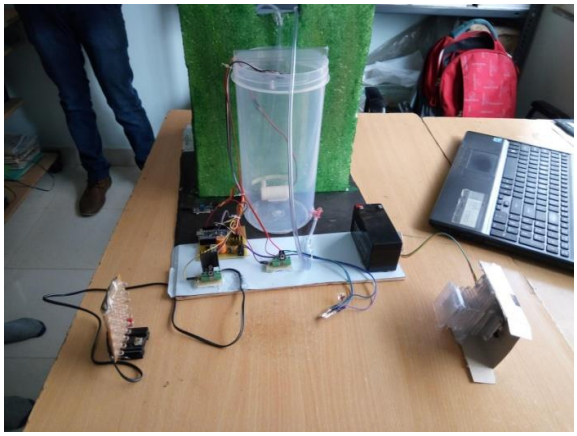
2) In emergency condition of Earthquake, by using earthquake or vibration sensor we able to detect the changes which is done in innermost part of earth. Information of this changes is stored in memory chip and send to LED. LED sends this to photodiode and it broadcast to other persons. Due to this we get aware about earthquake and can do something to save our self.

## 3. EXPERIMENTAL RESULTS

Figures shows the whole model of our project. Using Li-Fi technology we can broadcast the message in few time, whenever there is an emergency conditions like earthquake or the level of water in dam is crosses its limit. The basic idea is that the using Li-fi and photodiode we broadcast the messages earlier than the other media or technology.

**PHOTOGRAPHS OF OUR PROJECT MODEL:**





## ADVANTAGES

1) Faster Technology.
2) 10000 time wider bandwidth than radio frequency.
3) Data transfer rate is more.
4) In water model Wi-Fi does not work properly, instead of it Li-Fi is useful.

## LIMITATIONS

1) Line travel in straight line only.
2) Li-Fi has limited range of communication.

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