ENHANCEMENT OF MULTIMEDIA TRANSMISSION AND UNDERWATER COMMUNICATION USING LIFI THROUGH GPSDETECTOR

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ABSTRACT: Nowadays there are extensive ongoing research activities relating to underwater communication. This project focuses on the safety on sea in which the headlights which consists of LED acting as a transmitter communicate with photo sensor acting as a receiver. Underwater communication is a technique of sending and receiving information below water. It plays an important role in marine activities such as environmental monitoring, military purposes, etc. This project concentrates on using Li-Fi for underwater communication. The information to be sent is encrypted and send to the ARDUINO UNO which has the Li-Fi module connected to it the information is sent to the receiver microcontroller via light. Decrypted using MPLAB, HiTech Compiler and Embedded C in Visual Studio..

KEYWORDS: ARDUINO UNO, Li-Fi module HiTech Compiler and Embedded C, LED.

I. INTRODUCTION

In this Proposed method we neglate the PIC 16f877a microcontroller we replace it with ARDUINO UNO. Because in PIC MICROCONTROLLER the programs are more complicated and it detects less information. So we go with ARDUINO UNO to detect more information compared to pic microcontroller. Li Fi (Light Fidelity) is an emerging technology which uses the visible light spectrum for communication. This project focuses on the safety on sea in which the headlights, which consists of LEDs acting as transmitter, communicate with photo sensors acting as receiver. Then we add GPS detector to find the approximate location of the person, then we add pulse sensor to check the pulse of the person, The information to be sent is encrypted and send to the ARDUINO UNO which has the Li-Fi module connected to it. The information is sent to the receiver microcontroller via light waves and detected in the receiver end. The information is then decrypted and viewed. High-speed underwater optical communication has now become an enabling technology that has many prospective employments in a range of environments from the deep sea to coastal waters.

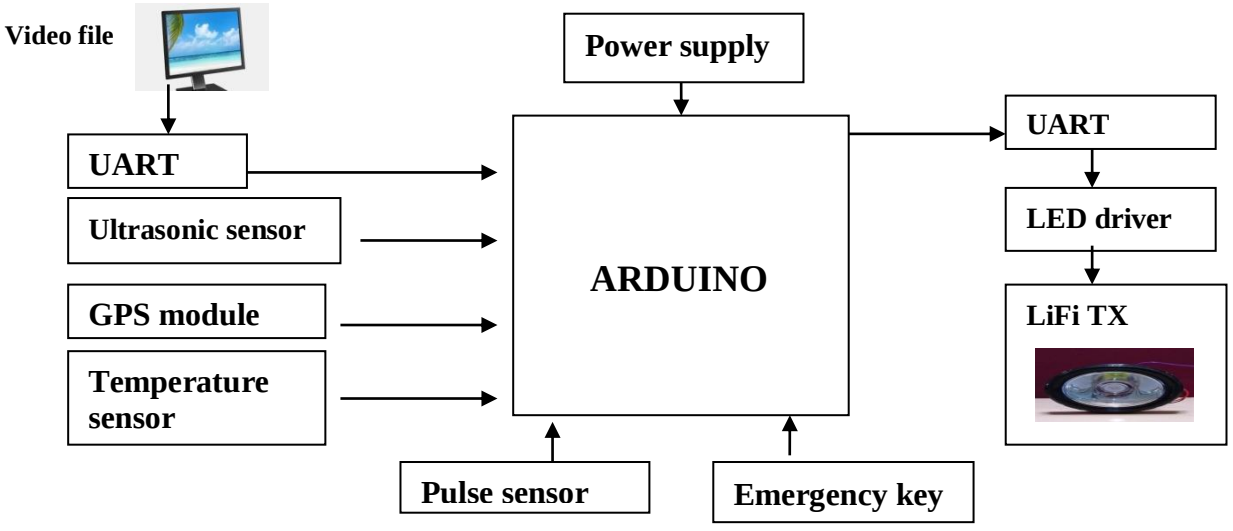


Fig: Transmitter diagram

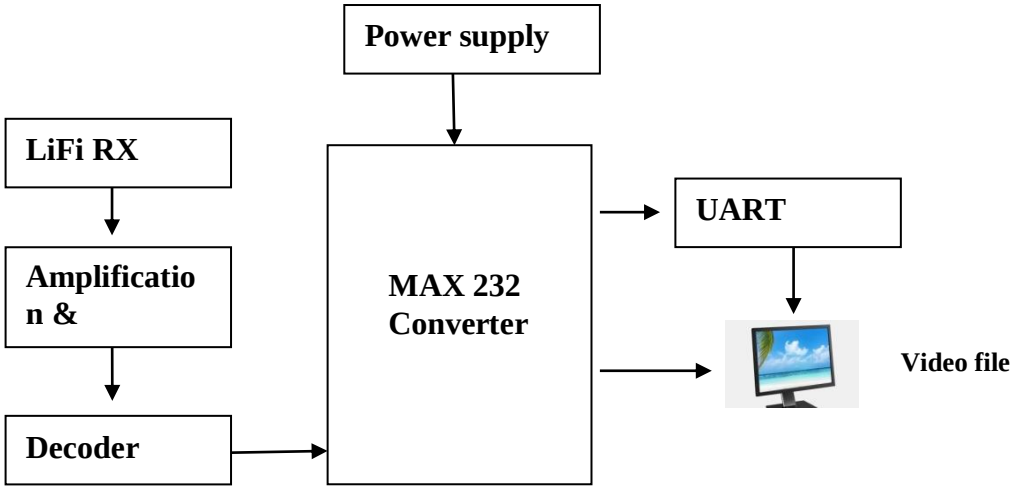


Fig: Receiver Diagram

II. RELATED WORK

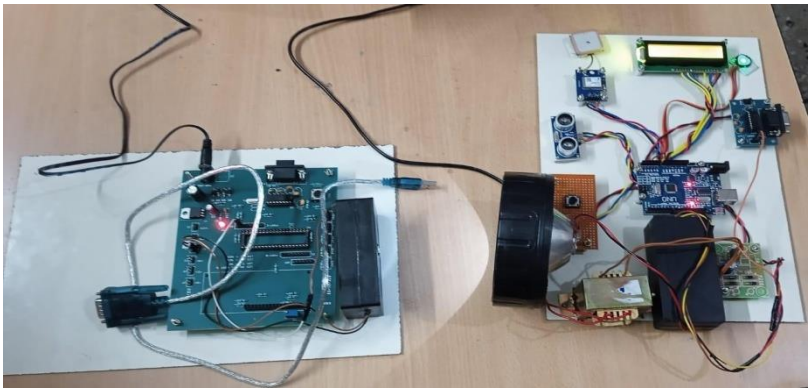
This development effort has enhanced infrastructure for scientific research and commercial use by providing technology to efficiently communicate between surface vessels, underwater vehicles and sea floor infrastructure. In place of Wi-Fi modems, LiFi would use transceivers fitted with LED lamps that could light a room as well as transmit and receive information. By adding new and unutilized bandwidth of visible light to the currently available radio waves for data transfer, Li-Fi can play a major role in relieving the heavy loads which the current wireless system is facing. Thus it may offer additional frequency band of the order of 400 THz compared to that available in RF communication which is about 300 GHz. Also, as the Li-Fi uses the visible spectrum, it will help alleviate concerns that the electromagnetic waves coming with Wi-Fi could adversely affect our health.

The main function of this technology is to transmit the data via light. This technology is idyllic for high-speed wireless communication in a restricted region, and it offers many benefits over Wi-Fi technology such as high bandwidth, ease of use, efficiency, and safety. These systems can communicate from street lights to autopilotedcars using their headlights. As the light speed is superior hence the data communication speed is also faster in the existing system. Furthermore, this technology can be implemented for speedy data access for the laptops, and gadgets that will be transmitted during the beam in a room. Takes place and information is received. The enabling of the Internet-of-Things (100 times more devices) Significantly enhanced secure wireless communication (reduced interception of signals) Enhanced energy-efficiency by 4 combining data communication and illumination (100 times energy reduction) Complete elimination of health concerns.

III. METHODOLOGY

LiFi is a category of Optical Wireless Communications and ultraviolet communications as well as visible light. However, LiFi is unique in that the same visible light energy used for illumination may also be used for communication Embedded C use most of the syntax and semantics of standard C, e.g., main() function, variable definition, data type declaration, conditional statements (if, switch. case), loops (while, for), functions, arrays and strings, structures and union, bit operations, macros, unions,etc.

IV. EXPERIMENTAL RESULTS



V. CONCLUSION

Although LIFI has some disadvantages but it shows huge advancements in the field of wireless technology. It has hit almost all the sectors and is definitely going to be boon for our society. LIFI technology has shown lots of scope since its inception. So these signals will provide many facilities in future. We can access internet anywhere in streets, footpaths, house, etc. with the help of available light source such as tube-light, lamps, street-lighs etc. Since LEDs are fast switching easily available cheap low power consumption and hence can be used in large amount to transfer data in a mere blink of an eye. In field of data electronics, it provides ample ways to transfer signals and its relative data to the greatest accuracy and in the most precise way. Communicating and obtaining data from satellite will be easier than ever before. It will be beneficial for defense services as their data is very confidential and private and LIFI cannot be hacked so data is protected. For marine commandos, who operate under water, it enables them to send important commands to other areas such as under water or in land etc.Since LIFI signals works under water.

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