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IR Wireless Underwater Communication

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ABSTRACT : An optical wireless communication system, utilizing the transmission of light waves in the near-infrared spectrum through free space, is designed to facilitate voice communication. This system employs infrared light as the medium for establishing an audio communication link, enabling the transmission and reception of voices and music. The objective of this research is to create and implement an optical wireless system for voice transmission over a defined distance within a laboratory setting. This system offers several benefits, including its cost-effectiveness, common usage, and the ability to relocate the transmitter or receiver with minimal interference.

KEYWORDS: wireless communication, infrared transmitter and receiver, LCD display

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I.INTRODUCTION

Underwater wireless communication involves the transmission of digital information through underwater channels using acoustic signals or waves. Unlike in typical wireless communication where electromagnetic waves are utilized, in the underwater environment, these waves have limited propagation range. In the past, the solution for establishing high-speed communication between remote underwater locations and the surface involved the use of bulky and cumbersome cables. However, to address these challenges, underwater wireless communication has emerged as an innovative solution. This technology overcomes the limitations of traditional cabling, offering more flexible and efficient means of transmitting data in underwater settings.

II. RELATED WORKS

Research in the field of IR (Infrared) wireless underwater communication has seen various related works, and I can provide you with some general areas of research and topics related to this field. Keep in mind that papers or studies may be available based on your exact research requirements.

III.EXISTING METHOD

It's essential to choose the most suitable method based on the specific requirements, depth, distance, and data transfer rates for a given underwater communication application. Each method has its advantages and limitations, and the choice depends on the specific needs of the underwater communication system.

IV.PROPOSED SYSTEM

The proposed IR (Infrared) Wireless Underwater Communication system introduces an innovative approach to enable effective data transmission in the challenging underwater environment. This system utilizes optical communication, particularly infrared light, to facilitate wireless data exchange beneath the water's surface. Below is a detailed explanation of the key components and features of this proposed system. The proposed IR Wireless Underwater Communication system represents a cutting-edge solution for effective data exchange beneath the water's surface.

V.BLOCK DIAGRAM

Creating a block diagram for an IR (Infrared) Wireless Underwater Communication system involves breaking down the various components and processes involved in this technology. Here's an explanation of the key blocks in the diagram. Block diagram for an IR Wireless Underwater Communication system illustrates the key components involved in

transmitting and receiving digital data through an underwater medium using Infrared technology. Each block plays a crucial role in ensuring effective communication in this challenging environment.

TRANSMITTER

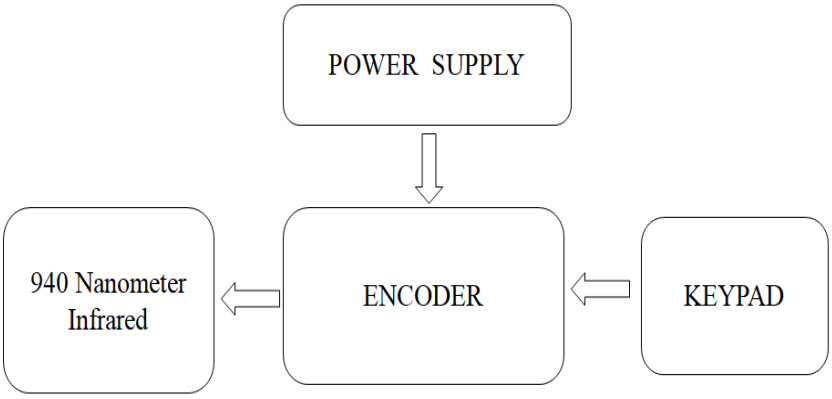

Fig: Block Diagram of Transmitter

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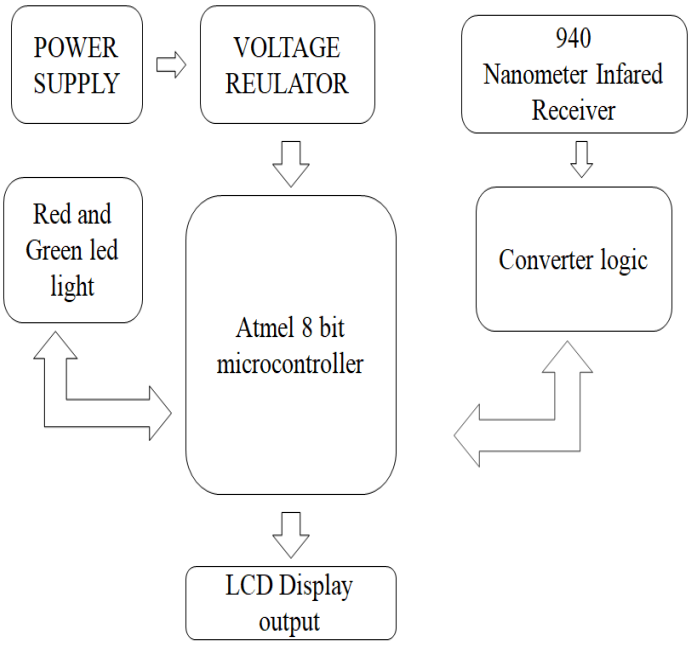

Fig: Block Diagram of Receiver

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VI.CIRCUIT DIAGRAM

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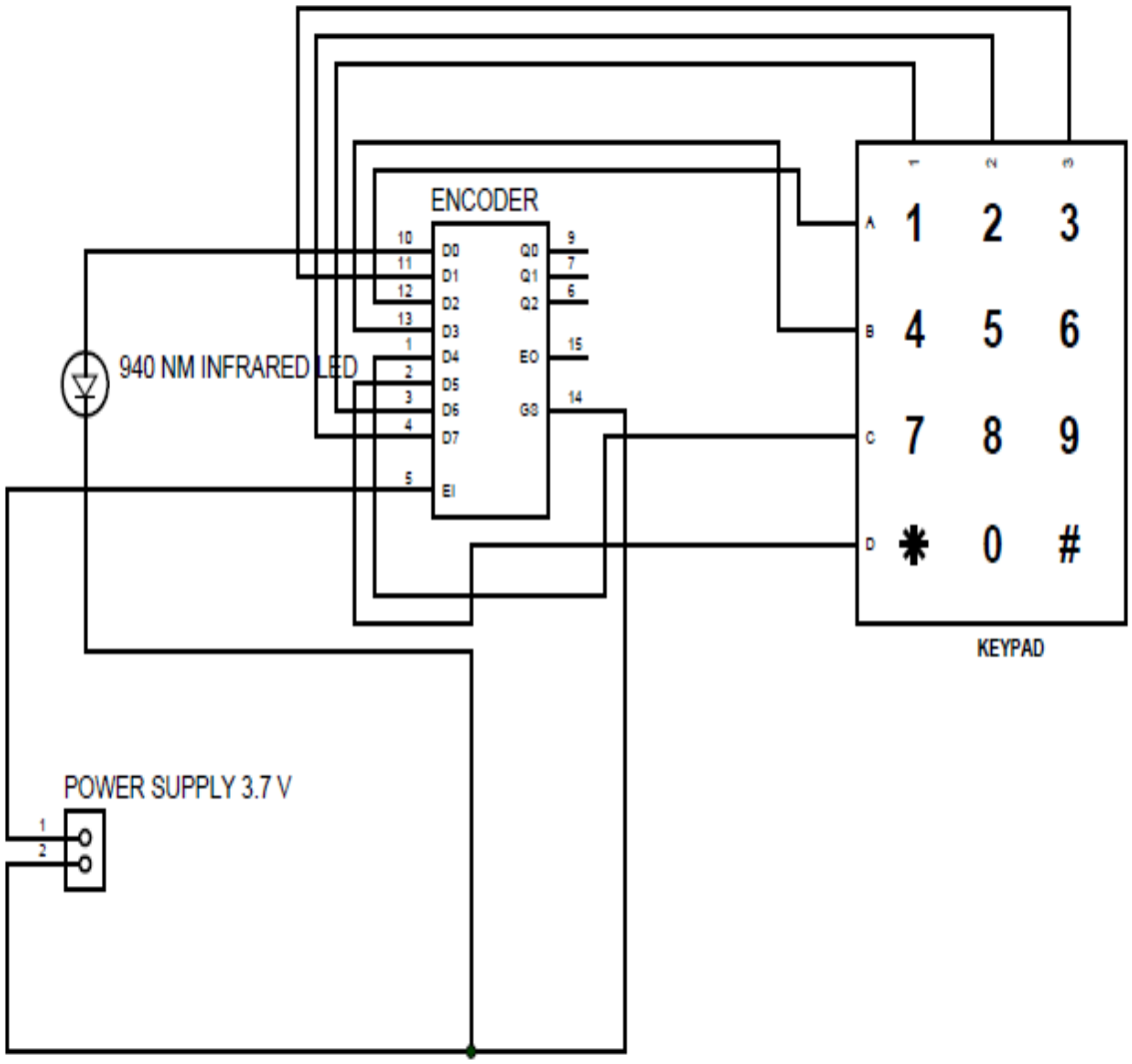
Fig: Circuit Diagram Of Transmitter



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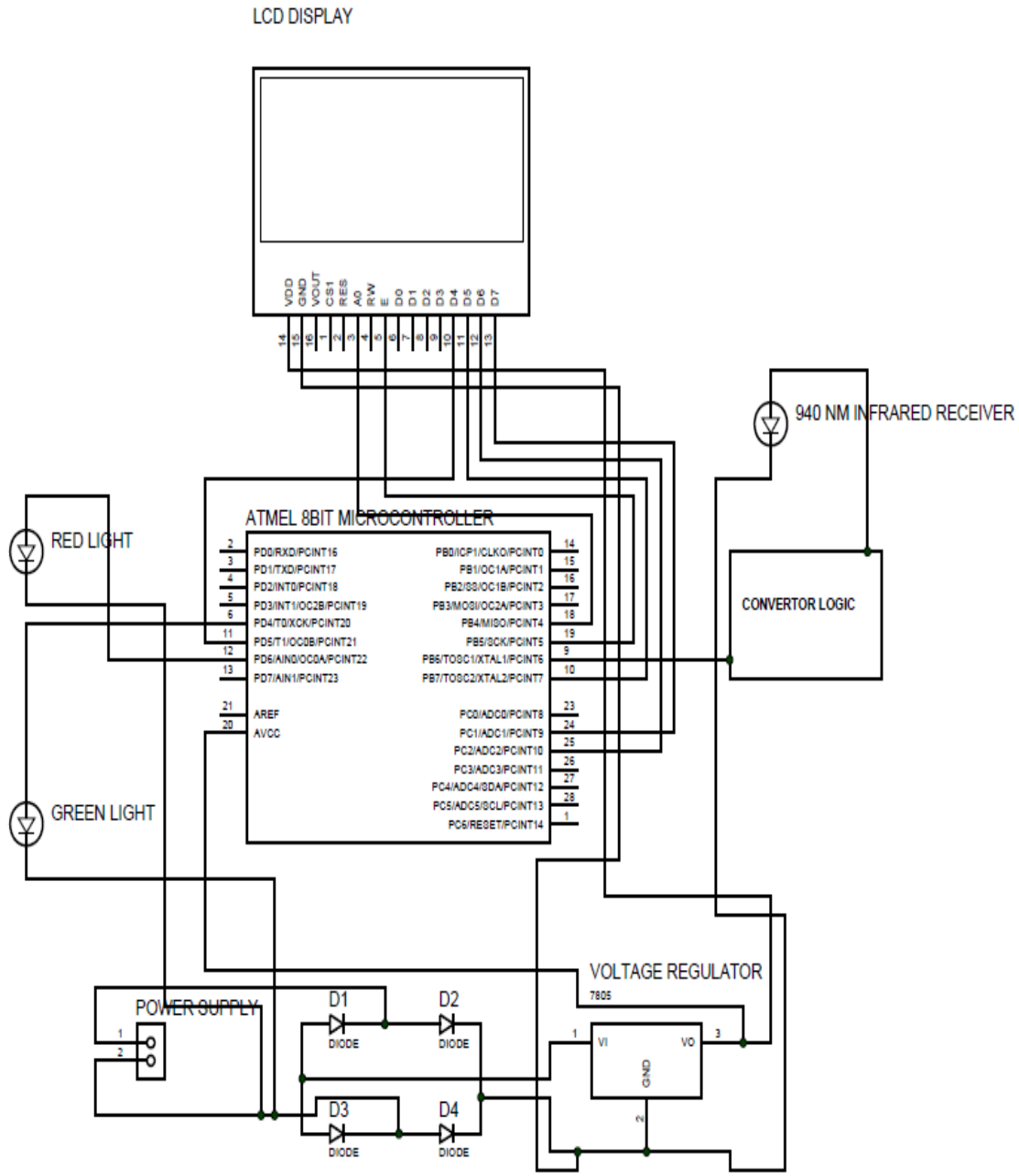


Fig: Circuit Diagram Of Receiver

VII. EXPERIMENTAL RESULT

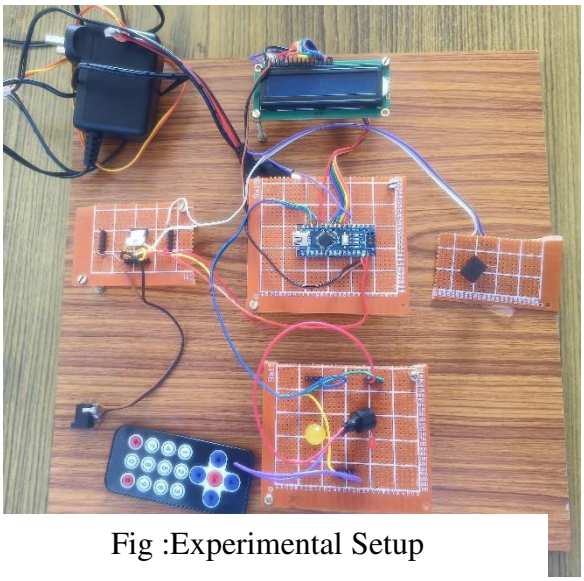
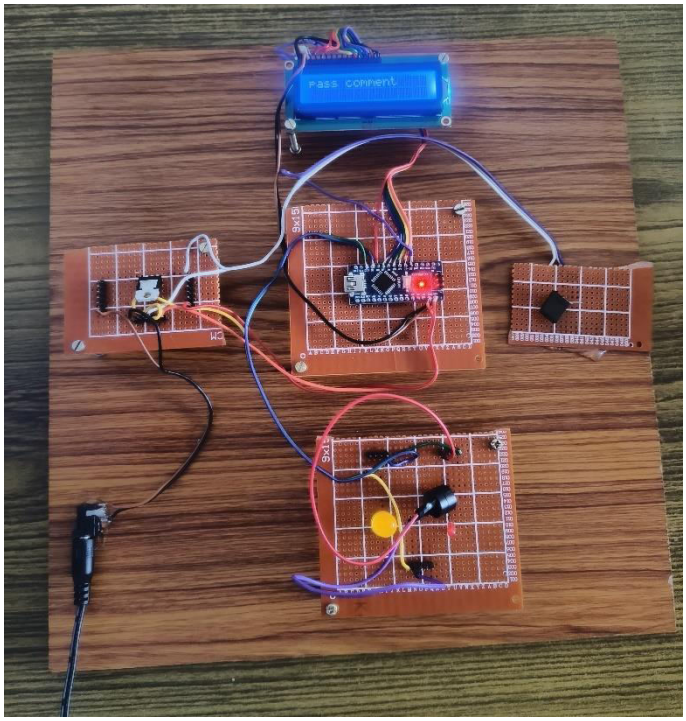


Fig :Experimental Setup



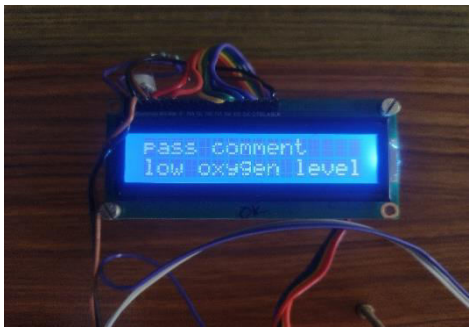


Fig: Experimental Setup

VII. FUTURE SCOPE

The future scope of an IR (Infrared) wireless underwater communication project is quite promising, and it can lead to several advancements and applications in various fields. Here are some potential future developments and areas where this technology could have significant impact,Overall, the future scope of IR wireless underwater communication holds immense potential for advancing scientific research, improving underwater operations, and contributing to environmental protection and safety. Advancements in this technology will likely depend on innovations in materials, energy efficiency, and underwater signal processing.

VIII. CONCLUSION

In conclusion, the IR wireless underwater communication project has made significant strides in advancing communication capabilities in subaquatic environments. Through this project, we have achieved several key outcomes: In summary, the IR wireless underwater communication project represents a significant advancement in underwater communication technology, with the potential to open up new possibilities for scientific research, industrial applications, and environmental monitoring in aquatic environments. We look forward to the continued evolution of this technology and its positive impact on underwater exploration and research.

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