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IOT BASED FISHERMAN TRACKING AND COMMUNICATION USING WIRELESS WATER COMMUNICATION

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ABSTRACT The most difficult medium for data communication is the underwater medium. It is due to its characteristics. The various existing mode of the communication in water medium are acoustic waves and optical signal. To overcome these, in this project, a EM technique is used for data transmission in water medium. It uses Magnetic Transmitter sources for transmission of data. This will ensure the maximum transmission rate and it is more efficient and cheaper than the other existing methods. In this project, automation via GPS tracking capabilities are also incorporated. Our proposed system has the aim to give a well understandable user friendly technological mobile computing gadget. To support and give enough awareness of IMBL and protect them not to cross the maritime boundary at any cost. And give full secureness and reliable safety for Indian Fisherman lives. To perform this task some modern concepts of mobile computing method have to be taken into hands. WWSNs, which have components, i.e. the sensors, that are buried underwater and that communicate through Water. The majority of the applications for WWSNs – intelligent communication, environmental monitoring, of the Water. In this proposed system emergency messages are received and send it to the centralized server or fishermen boat through water for emergency conditions.

INTRODUCTION

The Internet of Things (IoT) has revolutionized the way we interact with the physical world. IoT-based solutions have been deployed in various industries such as agriculture, healthcare, transportation, and logistics to name a few. One of the industries that can benefit greatly from IoT-based solutions is the fishing industry.Fishing is a crucial industry that provides livelihoods for millions of people around the world. However, it is also a dangerous occupation, and fishermen face various challenges such as unpredictable weather conditions, equipment failures, and accidents at sea. Therefore, it is crucial to have a reliable communication system that can track fishermen and provide them with timely assistance in case of emergencies.This paper proposes an IoT-based fisherman tracking and communication system using wire water communications .The system uses underwater sensors to collect data such as water temperature, pressure, and location. The data is transmitted to a central server using wire water communications technology. The server analyzes the data and provides real-time information to fishermen and other stakeholders such as fisheries managers and rescue teams.

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RELATED WORK

[1]. In this paper, the design of a boat safety and accident prevention system prototype has been introduced. The proposed system consists of a radar, crash detection, and Coast Guard application subsystems. The radar system has three detectors on the front and the sides of the boat to detect obstacles, including stationary objects as well as moving objects like other boats. The crash detection system sends an SOS signal with the GPS location of the boat to the Coast Guard if an accident is detected in addition it will send location of the person using the PFD. [2].This paper proposed a GPS based system for detection and control of maritime boundary intruding boats which is a recurrent problem due to the restrictions of maritime boundary conditions and the illiterate nature of poor fishermen who depend on fishing in the dangerous waters for their livelihood and sustenance.

[3].Risk of fishermen in border line due to unknowingly crossed the border could be reduced by this system.Thus saving their lives and providing good relationship with the neighboring countries.

[4].Every year natural disaster takes thousands of lives. During natural disaster like cyclone, fishermen become the most vulnerable since they got almost no communication equipment on board which can get them help on their location during emergency situation. The proposed system aims at preserving fishermen safety by using GPS and GSM technology.

[5].The performance evaluation shows the potentiality and applicability of the proposed system. The system can be deployed to the marine fisheries of developing countries, although the performance are studied for Bangladesh. The system can forward messages to 98% users when 50% or more boats are at sea. The system can also send the message to more than 90% users at low density network, thanks to missing message retrieval procedure of broadcasting protocol.

[6].The proposed system aims at preserving fishermen safety by using the trizonal implementation, thereby preventing them from crossing the International Maritime boundary in sea. The system also helps identify the boats in the sea zone wise- safe, intermediate and danger zone from one location. The control room can thus have control over all the boats till a specified region. [7].This paper proposed a GPS based system for detection and control of maritime boundary intruding boats which is a recurrent problem due to the restrictions of maritime boundary conditions and the illiterate nature of poor fishermen who depend on fishing in the dangerous waters for their livelihood and sustenance. A system dynamic enough and well suited to both communication and localization of fishing boats is proposed.

BLOCK DIAGRAM AND WORKING

The proposed system is used to determine a country's border using the position's longitude and latitude, not just between Sri Lanka and India but everywhere in the world. The suggested solution makes use of a GPS receiver, which interprets signals from the satellite and provides the boat's current location. The signal is picked up by the GPS receiver, which transforms it into the desired data message. Radio frequency receivers produce an alarm and transmit a message if the vessel is discovered outside the boundary. The proposed system can provide several benefits to the fishing industry such as improved safety, increased efficiency, and better resource management. By tracking fishermen's locations and monitoring weather conditions, the system can provide timely warnings and alerts in case of emergencies. Additionally, the system can provide information about fish populations, helping fishermen to optimize their fishing activities and reduce overfishing.The undersea media is the

most challenging for data communication. It is because of its traits. Acoustic waves and optical signals are two of the different communication methods that are now used in water. This idea uses an EM approach for data transmission in a water medium to get around these issues. It transmits data using magnetic transmitter sources. This will guarantee the highest transmission rate and is both more effective and less expensive than the other methods now in use. Automation using GPS tracking capabilities is also used in this project.

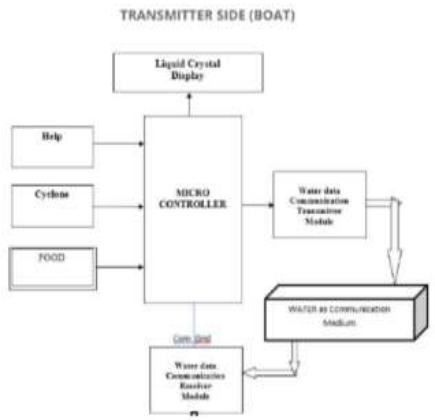

Fig: Block Diagram Transmitted side

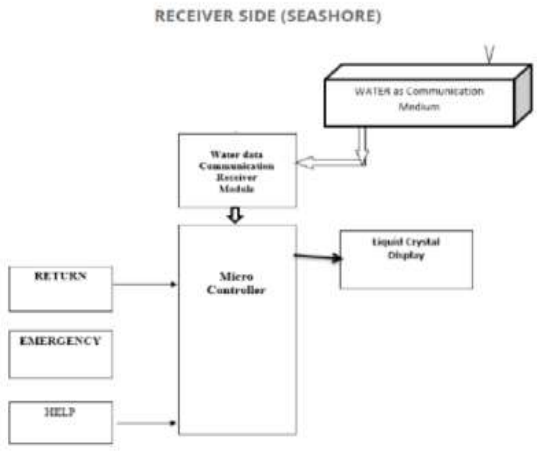

Fig: Block Diagram Receiver side

USB 2.0 TO RS-232 SERIAL CABLE USB 2.0 to RS-232 Serial Cable is used for serial data transmission. It provides the connection between USB and the traditional RS-232 serial port. PLCs use RS232 to talk to other modules or even other PLCs.

LEVEL SENSOR Level sensors detect the level of liquids and other fluids and fluidized solids. The level measurement can be either continuous or point values.It is used to identify the floating level of the boat.

DATA TRANSMITTER / RECIEVER Once the image/message is encoded in the transmitter end which consists of an electrode that are immersed in the water from the transmitter end. The image which has to be transmitted is sent in the form of vibrations and these vibrations or signal is observed by those electrodes that present in the communication module at the receiver end.

CONCLUSION In conclusion, the project proposes a new approach for data transmission in the underwater medium by utilizing electromagnetic techniques with Magnetic Transmitter sources.The system also includes GPS tracking capabilities to ensure the safety of Fishermen and prevent them from crossing the maritime boundary.With the ability to receive and send emergency messages through water for emergency conditions, the proposed system is expected to improve the efficiency and reliability of communication in the underwater medium

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