

Intelligent Life Assist Motion Control for Fishermen

A.K. KAVITHA¹, AISWARYA S², HARI PREETHI G³, MADHUMITHA K⁴

^{1,2,3,4} Department of Electronics and Communication Engineering, Sri Ramakrishna Institute of Technology, Coimbatore

Abstract- *The border problem between India-Sri-Lanka mainly arises since they are more close to each other. The most important fact is that the “Life of fisheries” is in danger. India stands 10th place that is nearly 2.24 million tons yield. This means that their lives are in danger. This leads to loss in the both humans as well as economic incomes. The most recent issue of fishermen of Tamil Nadu being arrested, tortured and killed by the Sri Lanka navy, in order to bring the consciousness and awareness are some reasons for the evolution of this work. The main objective of this system is to avoid such risks and to safe-guard the life of fishermen. This system can be widely used by the fishermen to identify the borders of other countries. It proposes an Arduino Node MCU which is based on wifi-module which is interfaced with GPS that is capable of giving accurate information about the current position of the ship and to navigate the boat when nearing the boundaries. The latitude and longitude are measured and are compared with boundary values. And when the boat reaches near to the border, the motor is cut down. This paper describes an idea to assist the life of fishermen by a system in which if any ship needs help it can communicate with nearer ship by lively monitoring the ship under danger which does not require an internet connection. So that they can be aware, that the boat is nearing to the other country. Satellite communication, VHF transceivers and extension of mobile communication network are the integration of the existing technologies. This system is built for RF range so the problem of losing the message signal while travelling will be reduced.*

Index Terms: GPS, Webcam, RF Transmitter and receiver

I. INTRODUCTION

The common economical occupation in Indian Seashores is fishing. The major role is to save the life of fishermen. It normally deals with Marine safety, environmental security and fisheries. People are unaware of territorial boundaries. It is said that, nearly 2500-2700 Indian fishermen have been killed or died who have gone for fishing. But they get shot by the other country navy people by accidently crossing the border; this alone is not the reason for

their death. Even the unpleasant weather, some obstacles causing them during their travel. That is they get stuck by these causes, sometimes they are been drowned by unpleasant waves from seas or oceans. There should be provided with proper safety which is given by the government to protect them and safeguard them when they face worst cases. This alone does not give complete protection to the fishermen going into the sea. Also by safeguarding and monitoring the fishermen is also difficult in all the places. This work plays a vital role in safeguarding the fishermen to take care of themselves during difficult situations in sea. It mainly focused on some effective ways to be safe on most critical and dangerous situation and also to alert to the boat travelling in the sea about their conditions. By using this device, the fishermen can take care of their own and they can shift to their neighbor boat when they face any unpleasant obstacles while travelling and they can be return back to the shore without any major causes or attack by other territorial armed forces. Live monitoring is done using IOT technique. With all these techniques incorporated, the proposed system can work well for all the conditions. By considering this, the fisheries life can be rescued and death rate can be reduced.

II. IDENTIFYING THE RESEACH AND COLLECTION OF IDEA

The most common economical occupation in Indian Seashores is fishing. Fishermen are unaware of the ocean territorial boundaries. In all previous research work, there are only two techniques which are commonly used. One is GSM for communication between the coastal guard and the ship travelling in the sea. The alert message will be send by the coastal guard to the fishermen. The message will be sent at the rate of 9.6kbps. The drawback of this system is GSM can work only for a particular range. So that message cannot reach to the fishermen boat at a proper time. GSM works up to the distance of 25-30kms from the tower. So that GSM technology cannot be implemented in the sea or ocean since there are no tower connections inside the water territories. Then later, another research work is been done by replacing GSM technology, they added Zigbee to the system that made communication easier in RF frequency range up

to 160MHz. By taking this into an account, there are some modifications and alternatives through which a better communication can be done.

III. EXISTING METHODOLOGY

An analysis of the features, advantages and disadvantages of the ideas proposed and implemented in literatures has revealed that most of the systems relied on only GPS and GSM. In all these, GPS is used for detecting and updating the location, whereas GSM is used for communication. The latter had some issues, as GSM technique cannot be implemented in the sea or ocean as there is no proper tower connections. This system did not have any measures for the safety of fishermen except that of detecting the location. Then the Zigbee techniques has come up to make better communication, but for a very limited range. Thus, by comparing all those existing models, this system came up with some upgrades to the system.

IV. PROPOSED METHODOLOGY

A. Live Video Streaming

In Live Video Streaming, there is a correlation between the coastal and the boat which is travelling in the sea. The coastal can view the boat lively, which can give alert to the boat when they are nearing to the border of other country. When the boat needs monitorization from the coastal guard, they use Wi-Fi hotspot to share their IP address to the coastal. Once they are paired to each other, Live Streaming will start and it monitors the boat travelling the sea. Even when the day turns night, they can continuously monitor the boat by turning ON the night vision mode which is available in tools. Once it is done, the Front flash will be turned ON to the paired mobile that is travelling in the sea. By this, coastal guard can continuously monitor the boat. is done using many application tool, here in this work an IP Webcam Viewer 5.0.4 is been used to view and indicate the boat. The app features motion detection, tilt and zoom functions, camera scan capabilities and home screen widgets.

B. User help Switch

In all the boat travelling in sea will be given with RF Transmitter and Receiver. In all RF Transmitter, an user help switch is been interfaced. Its main purpose is for ship to ship communication. When the boat needs help while travelling in sea, the defected boat will press the user help switch, once the switch is pressed, it detects the certain frequency range for seeking help

from another boat travelling in the sea. Once the boat is detected, buzzer is activated in the boat which receives the information. By using this techniques, the boat which needs help can seek the help from another boat.

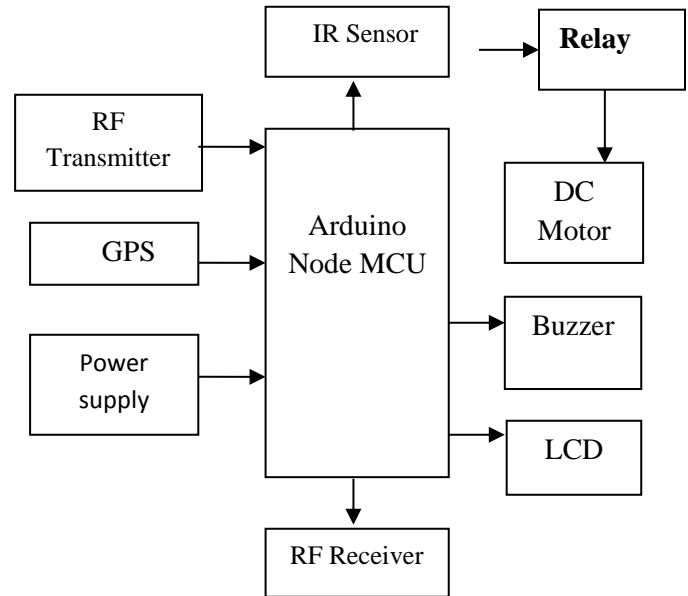


Fig. 1 Block Diagram of the Proposed System

The main motive is to design an efficient system for the safety of fishermen. The coastal keep on monitoring the boat when travelling in the sea and incase if any emergency, there is a ship to ship communication so that fisherman can be rescued. If the boat moves towards the boundary, then the motor stops and once they recognize that they are nearing boundary-the motor restarts its engine and return back. The second part is that there is a user help switch, which is been pressed when the boat needs any help from another boat. Switch is been interfaced in RF receiver which detects the frequency range and seek help from other boat travelling near to the defective boat. It is an indication of any attack or any problem or any obstacles facing by the boat while travelling in sea or ocean.

C. Use of Simulation software

There are numbers of software available which can reduce the process involved in implementing the work and can produce the possible result. One such type of software is Arduino. Arduino 1.8.5 is used for compiling the Embedded C code. Once the code is successfully compiled, then it can be uploaded to the hardware, which makes the process simpler.

In addition to this, an application tool is been used for live video monitoring the boat travelling in the sea. This is done by using many application tools, here in this work an IP Webcam Viewer 5.0.4 is used to monitor and control the boat. This app features a motion detection, tilt and zoom functions, video recording, camera scan capabilities and home screen widgets. As by adopting the above techniques, the process can be made simpler.

IV. RESULT

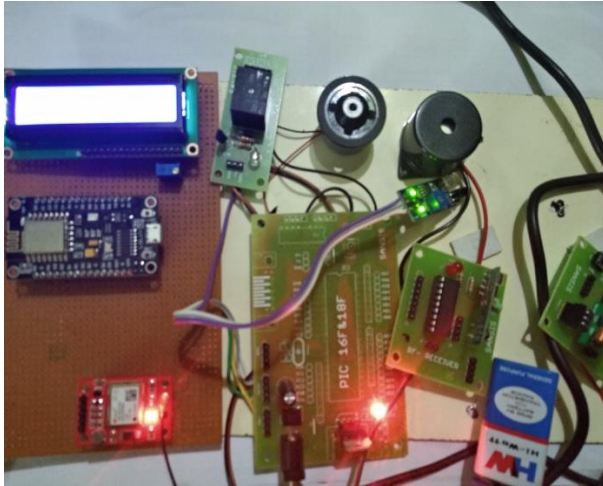


Fig. 2 Hardware Setup

Whenever the fishermen go for fishing, the device starts updating the location of the boat; it detects the surrounding location and prints them in the LCD. The system then starts receiving the information about the current location via Wi-Fi module and when it is about to reach near to the border, the motor stops automatically. With this there is also information about any nearby ship to be safe during extremities and take care of them in order to survive, if they find trapped in an adverse obstacles. Here in this part whenever it comes to know that there are possibilities of any obstacles like unpleasant weather, fast moving waves and storms inside the sea or ocean, then the defected boat can use the push button to have live monitoring by the nearer boat and can seek help from the nearer boat. The defected boat can also send the audio note to the helping boat in order to reach to the current location of the defected boat. If it comes to know that the boat cannot reach to the shore on time, since coastal guard is also monitoring the boat, they can understand that the boat is not safe.

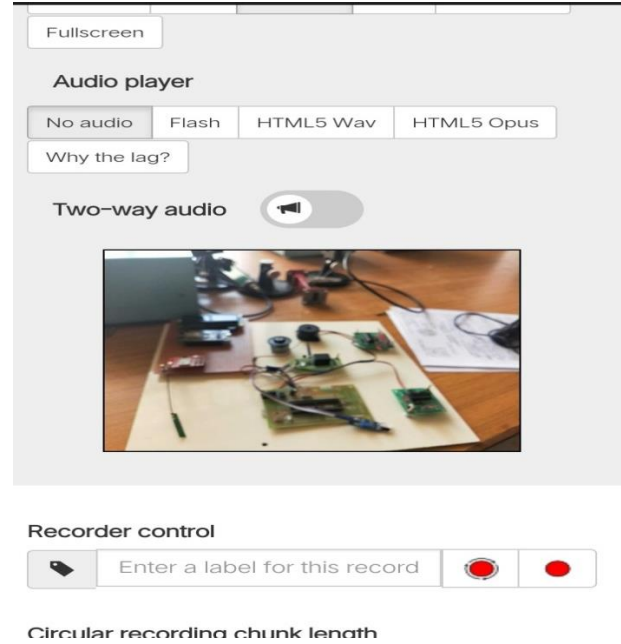


Fig. 3 Hardware Result with Live Video Monitoring

V. CONCLUSION

The Intelligent Life Assist Motion Control system is an effective device for safety of fishermen when they go for fishing. The case study implementation works well for remote area for waking a computer, but the interface has many further applications. In order to perform other automation tasks, the receiving device could be used unmodified in place of switches on other devices. This provides an extended accessibility to the ICT network which helps to enable a better use of the technology for a better livelihood and safety management. Fishermen used the extended signal to call for any help when a boat was attacked and under emergency. Similarly, the coastal can also monitor and control the boat about varying factors. The system is mainly useful in drastic conditions and emergency for a very long distance communication where communication through towers is not possible. This is possible only with the Wi-Fi module that communicates with other module in a RF range. This helps communication become simpler with high efficiency at good data rate. This module of data acquisition can be used at a very great extent. The field of RF has led to many innovations and great discoveries with which communication with very less loss in larger bandwidth, high noise rejection, less return loss and less insertion loss is possible.

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