Computer Science

E-ISSN No : 2581-6195 | Volume : 1 | Issue : 4 | November 2018

IOT BASED BORDER ALERT AND SECURED SYSTEM FOR FISHERMAN

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ABSTRACT

An embedded system which protects the fishermen by notifying the country border to them by using Global Positioning System (GPS) and Global system for mobile communication (GSM). Using GPS, we can find the current latitude and longitude values and is sent to the microcontroller unit. Then the controller unit finds the current location by comparing the present latitude and longitudinal values with the predefined value. Then from the result of the comparison, this system aware the fishermen that they are about to reach the nautical border. Looking at this operation from an IoT (Internet of Things) lens, and taking account of the latest technology, it seems necessary and desirable to integrate the data sources to make sure that the perspective that decision makers need is based on a complete picture of the situation.

KEYWORDS: Microcontroller, lcd, Iot, Buzzer

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HOW TO CITE THIS ARTICLE:
Uthayakumar Jothilingam, Liston Deva Glindis(2018). Iot Based Border Alert And Secured System For Fisherman, International Educational Journal of Science and Engineering (IEJSE), Vol: 1, Issue: 4, 12-14

1. INTRODUCTION

This modern, fast moving and insecure world, it has become a basic necessity to be aware of one's safety. Maximum risks occur for fishermen in situations where they travel on a boat for fishing. The Tamil Nadu fishermen even today invoke the historical rights and routinely stay into the International Maritime Boundary Line (IMBL) for fishing. From Tamil Nadu about 18,000 boats of different kinds conduct fishing along the India-Sri Lanka maritime border. But by accidentally crossing the border without knowledge, they get shot by the Lankan navy. This leads to loss in the both humans as well as their economic incomes. We have developed a system which eliminates such problems and saves the lives of the fishermen.In some situations they should not move after some point and they should not enter into other countries area. There is a real necessity in designing a system that can track the vehicle and send the information about the vehicle to the concerned person and alert the fishermen also. The project aims in designing a system which is capable of alerting the fisherman when their boat is crossing the country border and also displays the alert message on a Liquid Crystal Display (LCD). GPS based border alert system gives a best solution for this problem, whenever the fisherman was about to reach the boundary he can have a voice based alert and also displays the speed of the boat on LCD. So that he can go back from that point onwards

2. LITERATURE SURVEY

There are several projects undertaken and various methods proposed for border alerting for small boats. Various technologies has been used to implement this keeping safety of fishermen as motto.

Following are the few papers which propose the idea of border alerting measurement and others are deliberate, using specifications that anticipate your paper as one part of the entire proceedings, and not as an independent document. Please do not revise any of the current designations..

2.1. **Border Alert System For Fishermen Using Gps System By Asif Iqbal Mulla, Sushanth K J** The livelihood of fishermen is such that he crosses the country border unknowingly and poses threats to them by being killed or captured. The sea borders between countries are not easily identifiable which is the main reason behind this problem. "Border alert system for fisherman using GPS" describes about a system which helps the fishermen by notifying the country border. Global Positioning System (GPS) and Global system for mobile communication (GSM) are used for this purpose. Here GPS receiver is used to find the current location of the fishing boat. Using GPS, present latitude and longitude values are sent to microcontroller unit. Later the controller unit identifies the current location by comparing the present latitude and longitudinal values with the predefined value. After the comparison, border alert system aware the fishermen that they are about to reach the nautical border. The region is divided into normal zone and warning zone. When the boat is in normal area, the LCD displays normal zone. Thus they can make it clear that the boat is in normal area.

Research Paper

In case if it moves further and reaches the warning zone, the LCD displays warning zone.

2.2 **Novel Wireless Weather Data Communication for Fishermen by Ashutha K, Shetty Arpitha Shekar** Fishing is one of the primary occupations of India .Atmospheric conditions play a vital role in fishing. Fishermen have to take care of their safety while fishing for long distances. Since weather is not uniform and it keeps on changing, so it is difficult to predict weather condition. So in this paper for the welfare of the fishermen we provide the fishermen the information about the atmospheric conditions .The design consists of two modules. First module is a shore module which consists of a transmitter to send the data from the shore and second module is a sea module which consists of a receiver placed in the boat which will receive the signal and display it on the LCD. The data will be sent continuously and information of the weather conditions will be of the area of fishing .The fishermen will be able to get the weather reports when they are at sea and can be able to know about the weather conditions and make a safe return.

2.3 **Intelligent Boundary Alert System (Ibas)** using GPS had been proposed by C. Sheeba thangapushpam. This system helps the fishermen in maritime navigation. The system uses a GPS which continuously receiving signals from the satellite and provide the current position of the boat based on the latitude and longitude data.ARM processor is already fetched details of the latitude and longitude of the maritime boundary. Comparison is done by the processor with stored data and current position of the boat, and it generates the alarm signal whenever the boat crosses the border. They used wireless sensor network to transmit the message to the base station, there they monitors the boat in the sea. This system provides an indication to both fisherman and to coastal guard.

2.4 **Iot Based Nautical Monitoring System** had been proposed by Kannan.K.R, Hakkem.B, Vignavi.K, Vinoth.P., Mohammed Noorul Karim.M, Rajbab The current latitude and longitude is known to both fishermen and coastal guards. The border is identified by comparing the current values with the original values and the message is sends through Wi-Fi sensor using IOT. Single antenna is used. This helps in continuous updating of the information at instantly. The low earth orbit is used to provide the connectivity without gap. This also helps in retrieving the missed messages. By using the electronic map, the navigation path can be identified. Thus it saves the lives of the fisherman and alerts the base station to provide help

3. EXISTING SYSTEM

There are many disadvantages in the existing system like the lack of awareness of border which causes accident. Although, there are borders defined but it is a blue eyed vision of people of country, it is important to pay their attention

3.1. GPS 72h

The GPS 72h equipment is used for navigation in the sea[2]. It provides the fastest and most accurate method for mariners to navigate, measure speed and determine location.

3.2. Vessel Traffic Management System

The System includes integrated RADAR, Automatic Identification System (AIS), Radio Direction Finders (RDF), Metrological and Hydrological Sensors, Microwave links as well as VOIP based Very High Frequency (VHF) radio system [5]All maritime traffic is recorded and movements are stored in a database.

4. PROPOSING SYSTEM

In the boat module microcontroller is used to control all the activities at the boat. This microcontroller is programmed in such a way as to it continuously track the boat and send GPS signals to the system at coastal guards.So once the boat crosses the safe zone the microcontroller sends a signal to stop engine of the boat and engine will be stopped. And the boat is controlled by server unit.It also helps to display various messages on LCD and voice module based on signals. GPS module with antenna is used to track the location of the boat at every instance of time. This location is sent to the base station with the help of microcontroller.LCD is used to display various alert messages for the boat at various situations and along with the LCD a voice module is also used which alert the people at the boats. The safe zone set by the control unit using keypad. The safe zone value is before the border this is useful to give the alert before crossing. The control unit receive the signal if engine is stopped or some critical situation the control unit control the boat based on the fishermen request

5. PROPOSED SYSTEM ARCHITECTURE

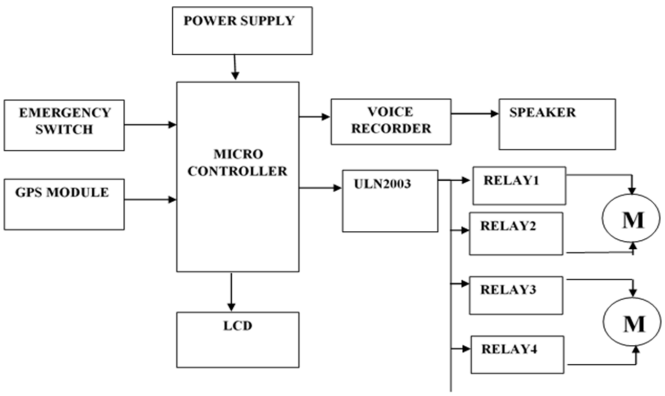


Figure 1: Boat Unit

The GPS receiver receives the signal and converts it into desired data message [2]. The data is sent to the microcontroller and controller extracts the longitude and latitude information from the data.Positions get compared with the predefined locations. If the location is matched then alarm is generated and message is transmitted to the base station and also to the fisherman

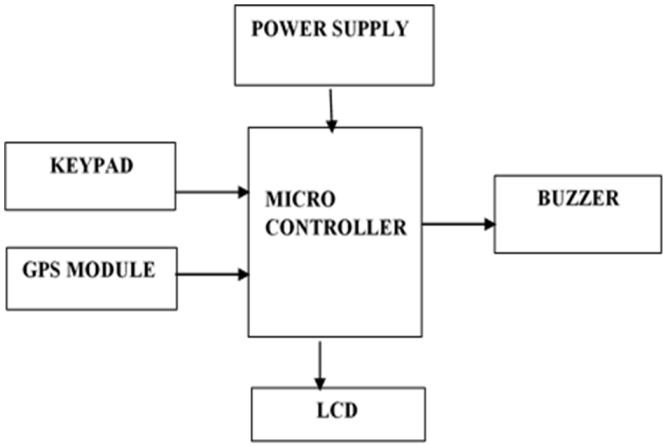
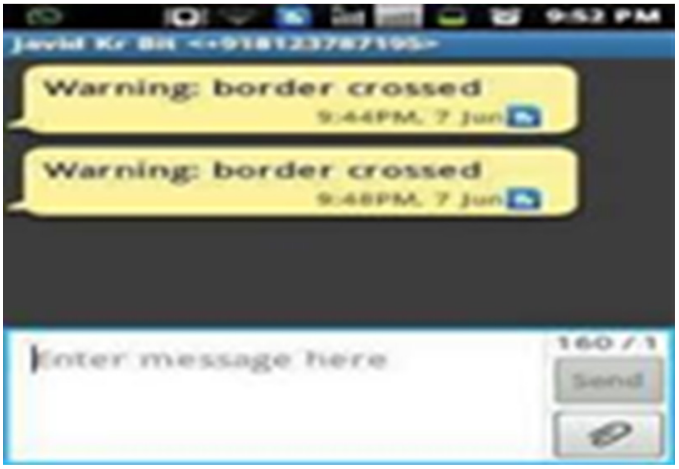


Figure 2: Control Unit

6. EXPERIMENTAL RESULTS

Border alert system for fishermen is used to detect the boundary location and warn the fishermen in danger situations



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