

# 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 – not just whether the traveler or a vehicle is on the watch list and the live video is transmitted to social media and more.

**Keywords-** Internet Of Things(Iot), Programmable Interface Controller(Pic), General Pocket Radio Services(Gprs).

## I. INTRODUCTION

In 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. In this method we use a separate node points to calculate the borders.

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.

## II. 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 Navigation Alert System For Fishermen With Solar Power Harvesting had been proposed by Nandhitha.B states that Peril faced by the fishermen, who are caught by navy for breaching the border has increased. In spite of latest development in the technology hardly any action to neutralize the terror has taken place. The border between the countries in the sea level is not very easy to identify and this causes problems. The Tamil Nadu fishermen even today summon the historical rights and routinely go astray into the International Maritime Boundary Line (IMBL) for fishing.

This has led to trepidation by the Sri Lankan Navy and in some cases even to shoot or arrest the particular fishermen. This leads to loss in the both humans as well as their economic incomes. The fishermen mainly cross the border as they are unaware of their limits in the maritime border. If the fishermen become conscious of their current location with the alertness of boundary limits then they will not willingly put themselves in danger by passing the line of control. In order to make it easy for the fishermen to recognize the border this system is developed. Using Global Positioning System (GPS the current location of the fishermen's boat is calculated and then it is compared with official boundary values.

2.2 Zigbee Based Boat Monitoring And Border Alert System By Using Gps had been proposed by Jayahari. V states that Increasing tensions across the Indian and Sri Lankan borders caused much havoc among the two countries. In this paper, the proposed concept is to protect the fisher men crossing the

border and guides them to go in a right path and save their life. The proposed idea helps in locating the Fishing boat. The GPS system is the latest technology which helps us in identifying the Fishing boat either inside or outside the border.

This information is transmitted by using zigbee wireless network to the base station. Then by detecting the latitude and longitudinal position of the Fishing boat, the base station detect the present area of the Fishing boat and send control signal to the Fishing boat using wireless mode to guide the vehicle if the boat is out from the border. If it crosses the limit, the warning alarm is ringing and it turns off the running motor of the boat. Thus the boat may be automatically off and the boater may easily understand the situation.

2.3 Design and Implementation of GPS Based BorderAlert and Identification system for Fishermen had been proposed by P.Deepak The sea border between the countries is not easily identifiable, which is the main reason for this cross border cruelty. Here we have designed a system using 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). We use GPS receiver to find the current location of the fishing boat or vessel. 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. The area is divided into four zones- normal zone, warning zone, zone near to restricted zone and finally the restricted zone. If the boat is in normal area, then the LCD displays normal zone. Thus they can make it clear that the boat is in normal area. In case it moves further and reaches the warning zone, the LCD displays warning zone. If the fisherman ignores the warning or fail to see the display and move further and if the boat enters the zone nearer to the restricted zone the alarm will turn on and the speed of the boat engine automatically gets controlled by 50%. If the fisherman did not take any reaction about the alarm and move further, then the boat will enter into the restricted zone, the alarm continues to beep as before, and once it touches the restricted zone, the boat engine gets off by the control of fuel supply to engine, and also the information or location of the fishermen and the boat will send to some specified numbers like there family members or any control station. Through this SMS they can easily know, where the fishermen is in the sea.

### III. WORKING PRINCIPLE

The GPS Modem will continuously give the signal which determines the latitude and longitude and indicates the position of the fishermen to them. Then it gives the output which gets read and displayed in the LCD. The same data is sent to the mobile of the fisherman and simultaneously the same data is sent to the Sea border security. An EEPROM is used to store the data, received by GPS receiver. The hardware which interfaces with microcontroller are LCD display, GSM modem and GPS Receiver. GPS (Global Positioning System) is increasingly being used for a wide range of applications. It provides reliable positioning, navigation, and timing services to worldwide users on a continuous basis in all weather, day and night, anywhere on or near the Earth. 28 satellites inclined at 55° to the equator orbit the Earth every 11 hours and 58 minutes at a height of 20,180 km on 6 different orbital Lanes and each one of these satellites has up to four atomic clocks on board.

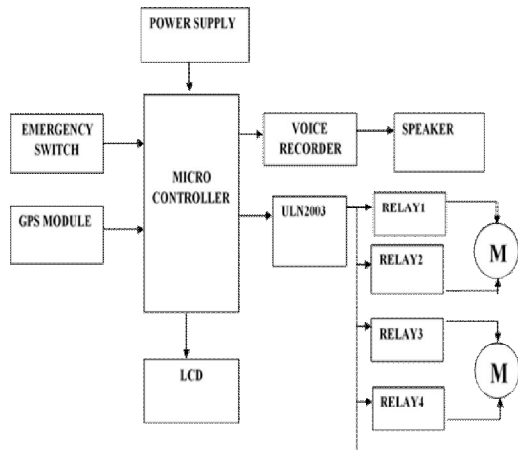
All we require is an accurate clock. By comparing the arrival time of the satellite signal with the onboard clock time, at which the signal was emitted, the latitude and longitudinal degree of the boat's location is determined. The current design is an embedded application, which will continuously monitor a moving Boat and once the boat goes beyond the level of the defined layer the particular operation will be done. For doing so an AT89c51 microcontroller is interfaced serially to a GSM MODEM AND GPS receiver.

### IV. PROPOSING SYSTEM

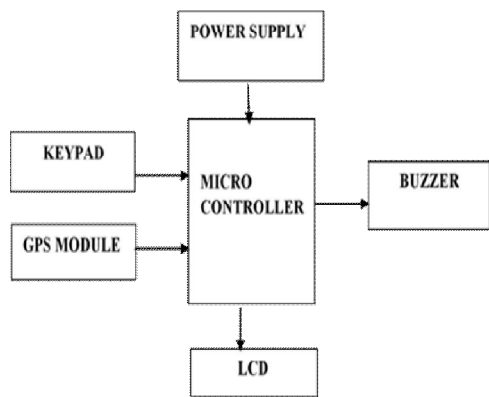
In the boat module microcontroller is used to control all the activities at the boat. This microcontroller is programmed in such a way as to it continuously track the boat and send GPS signals to the system at coastal guards. So once the boat crosses the safe zone the microcontroller sends a signal to 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.

#### A. PROPOSED SYSTEM ARCHITECTURE

##### 1. BOAT UNIT



2. CONTROL UNIT



V. EXPERIMENTAL RESULTS

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

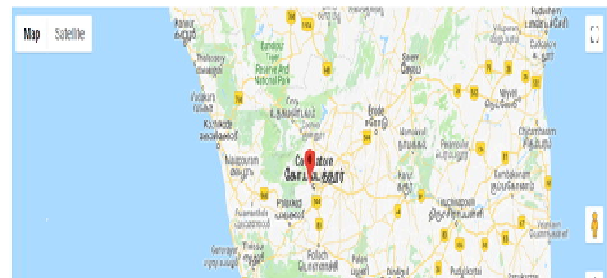
Set GPS values

Latitude:   
 Longitude:

Fisherman's GPS coordinates:

lat	lon
11.01346124	8.999285711

Fisherman travel route



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