



# Tracking and Warning System for Fishermen Using IOT

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**ABSTRACT:** The issues of fishermen stray in each territorial water have come as a potential irritant in the bilateral relations between the neighbouring states and countries. International Marine Time Boundary line (IMTL) between countries will always have security problem. Due to carelessness the fishermen may accidentally cross the country border. In such situation they may face attack from the opposite navy. To avoid such situation a device using embedded system has been designed to protect the fishermen. GPS receiver is used to find the current location of the fishermen. The heart beat sensor continuously monitors Heartbeat of the fishermen. GSM is used to transfer the data to the cloud storage using IOT. If fishermen navigate beyond the country border a warning message is send from the control room. This device helps the fishermen to handle any hazardous situation and to improve the safety.

**KEYWORDS:** ITML(international marine time boundary line), monitor heartbeat rate, getting data from GPS satellites, send message to GSM device, embedded microcontroller, Thingspeak, Internet of Things.

## I. INTRODUCTION

The fishermen stay into the international marine boundary line for fishing. International Marine Time Boundary line (IMTL) between countries will always have security problem. Due to carelessness the fishermen may accidentally cross the country border. In such situation they may face attack from the opposite navy. To avoid such situation a device using embedded system has been designed to protect the fishermen. GPS receiver is used to find the current location of the fishermen. The heart beat sensor continuously monitors Heartbeat of the fishermen. The main aim is to give a well equitable and user friendly environment for the fishermen to handle hazardous situation. This system is designed by using GPS and GSM. A GPS route device is preciously discover natural area by getting data from GPS satellites.

## II. RELATED WORK

Initially the GPS continuously takes input data from the satellite and stores the latitude and longitude values in AT89s52 microcontroller's buffer. If we have to track the vehicle, we need to send a message to GSM device, by which it gets activated. It also gets activated by detecting accident on the IR sensor, by detecting fire on the temperature sensor, by detecting theft connected to vehicle. Parallely deactivates GPS with the help of relay .Once GSM gets activated it takes the last received latitude and longitude positions values from the buffer and sends a message to the particular number or laptop which is predefined in the program. Once message has been sent to the predefined device the GSM gets deactivated and GPS gets activated. The proposed system is used for positioning and navigating the vehicle with an accuracy of 10 m. The Exact location is indicated in the form of latitude and longitude along with the exact Navigated track on Google map. The system tracks the location of particular vehicle and sends to users mobile in form of data and also to microcontroller. It is mainly benefit for the companies which are based on transport system. Since it can show the position of all vehicles in real time, so that they can create the expected data accordingly. These tracking system can store the whole data where the vehicle had gone, where did it stop, how much time it take at every stop and can create whole data analysis.

## III. PROPOSED ALGORITHM

### A. Design Considerations:

- Arduino UNO
- GPS(Global Positioning System)



- GSM module (Global System for Mobile Communication)
- Power supply
- LCD(Liquid Crystal Display)
- IOT
- Thingspeak
- Heartbeat Sensor

### B. Description of the Proposed Work:

In this system embedded based model is developed to save the fishermen life and to avoid the problem between two countries. Each fisherman who is sailing in the boat has this device. This device consists of GPS receiver which continuously receives the GPS location of the fishermen. Heart beat sensor is fixed in the device which is used to monitor the heart rate of the fishermen. The GPS location and the Heartbeat rate is stored in a cloud storage which is monitored by the control room. The particular layer land that is border level is predefined and it is stored in the microcontroller memory. If the current value is compared with the predefined value and if these values are same or greater than the predefined value, a warning message is sent to the fishermen and coastal guard. Here we are using Thingspeak IOT application to store and display the location and Heartbeat rate. The location can be viewed through google map.

### IV.PSEUDO CODE

```
01// update existing tracks
02 //for each existing track
03 //call UpdateTrack(unused data points, current model location)
04 r//remove all data points near updated model points
05 //if number of removed points < (min. number of points / 4)
06 || model-fit is too poor
07 //then remove this track
08 // initiate new tracks
09// while there are remaining data points
10//call UpdateTrack(unused data points,
11// first data point location)
12//remove all data pts near updated model points 5g
13//if number of removed points > min. number of points
14//&& model-fit is not too low
15//then create new track at this location
16 //ICP-based subroutine to align model with detections.
17//UpdateTrack(unused data points, current model location):
18//while (model point, data point) pairing list changes
19//call ICP to optimize model location
20//rebuild model & detection pairing list
21// return(updated model location)
```

### V.SIMULATION RESULTS

In this method, Arduino UNO microcontroller is implement the process. Here GSM module GPS receiver, LCD display and Heartbeat sensor are interfaced with the microcontroller .The GPS receiver receives the data from the satellite and provides the latitude and longitude .Similarly, the Heartbeat sensor continuously measures the Heartbeat rate. The Heart Beat rate and latitude and longitude value are store in the cloud storage by using GSM and IOT .By using IOT ,the current position and the Heart Beat can be monitored from anywhere in the world .Whenever the fishermen reaches the



border ,a warning message is send to them .The coastal guard also receives the message and helps the fishermen when the different situation arises . The overall hardware assembly unit and the LCD display indicates the latitude and longitude specifications



Fig 1. Latitude value using Thingspeak



Fig 2. Longitude value using Thingspeak

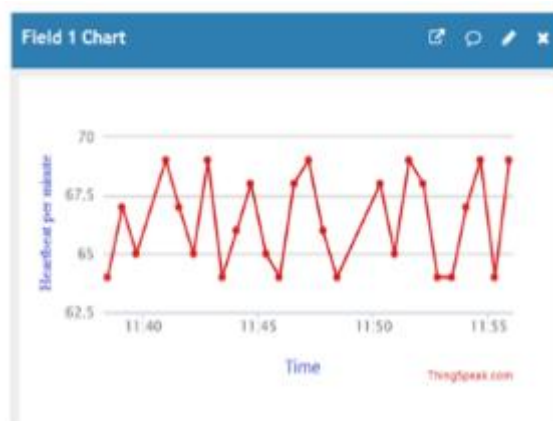


Fig 3.Heartbeat value using Thingspeak

Figure 1 &2 indicates the IOT based output. Here the position of the person can be tracked. Figure 3 indicates the heart beat rate and the variations after certain time can be noted. This helps to continuously monitor the health of the fisherman. The location can be triangulated in the google map.



## VI.CONCLUSION AND FUTURE WORK

The method implemented continuously registers the latitude and longitude position of the individual fisherman, violation of border can be alerted based on position data. The heart beat rate of each fisherman is monitored continuously and this enables the dispatch of medical assistance immediately to their position.

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