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### IMBL safety system for fisherman using IoT

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#### ABSTRACT

Border system have recently achieved interest to address concerns about national security. The major problem in protecting long stretches of borders is the need for large human involvement in patrolling the premises. Minimize the need for human support, multiple surveillance technologies, which complement each other are required. It is designed to avoid such kind of accidents and to alert the fishermen about border area well before using latest technology of Global Positioning System (GPS) and Global System for Mobile communication (GSM). And also this paper shows how this technology can be used for detecting natural hazards and obtaining meteorological information.

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#### INTRODUCTION

Countries with the International Marine time Boundary Line (IMBL) will always has security problems and continuous life threatens for recently unmanned border patrol system consist of high tech devices, like unmanned aerial vehicles, surveillance towers equipped with wireless camera use fishermen whose family's main economical support is fishing [1-5]. From Tamil Nadu about 18,000 boats of different kinds conduct fishing along the India-Sri Lanka maritime border. But by accidentally crossing 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 [6-8].

#### LITERATURE SURVEY

"Alert System For Fishermen Border Crossing Using Android," J Charles Finny Joseph. R Dinesh Kumar, M Shubinaldo.

It is widely used by the people in the border to find the destination correctly. In this system notification sends to the border security forces which acts like a server and operated by people in the ships and boats. It helps to identify the opponent force in the ships. It is mainly used by the Tamilnadu fishermen. In this system GPS plays major role to track the exact location. Here tracking is based on device and not on network.

"Novel Wireless Weather Data Communication for Fisherman," Ashutha K, Shetty Arpitha Shekar.

Fishing is one of the primary occupation of Asian countries. They need to look for their safety. The weather is not uniform and every time it is dynamic so it is power full to predict the weather. It contains 2 modules. One module connected with shore and other connected with ocean. It sends the weather report to the fishermen. It helps the fishermen to secure come from the ocean.

"Integrated Source- Wind, Solar, Power to Floating Station For Maritime Boundary Detection," CJ Profurn, R Sruthi.

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It contains integrated source like solar, wind power used to floating station for marine boundary detection. It swings a floating module inside the ocean border. The hybrid section uses every star and wind sources for the power generation. It is connected with pic. It senses the amount is voltage generated by star. The transmitter fish at ship through their methods, once the boat is nearing the border the alerts the ship by the voice message.

“Advanced Navigator and Monitoring System for Fisherman,” Mrs Sup Riya Lohar.

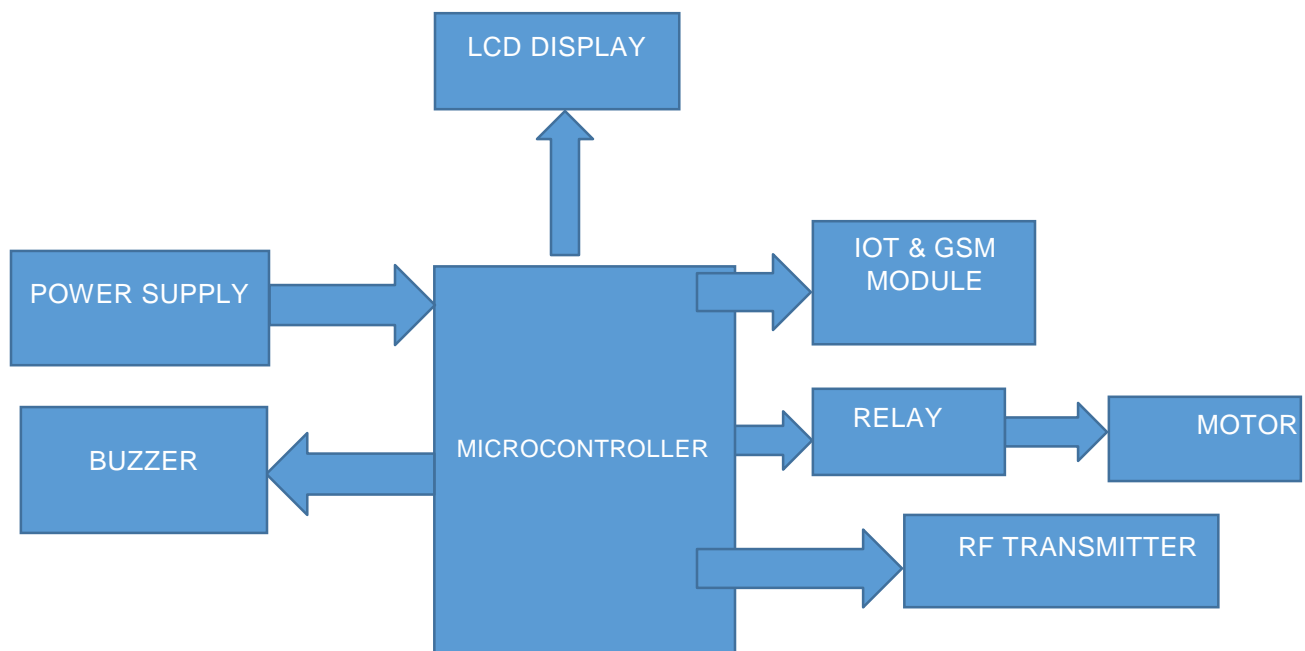
There is no proper boundary knowledge for fishermen in India. Especially in the tamilnadu, the fishermen enter into the srilankan boundary. They get caught or shot by government. To save the lives of the fishermen here the system introduce the technology called GPS and GSM. To give the alert messages to the fishermen in the ships. There

are 3 boundary location for which they giving alert to the fishermen.

## EXISTING SYSTEM

In this system the position of the boat is received by the Zigbee receiver module and is forwarded to PIC16F877A microcontroller. The microcontroller then sends the information to the GSM using MAX232 and further it is sent to the mobile through message if needed. This system saves the life of the fishermen by making an alarm system and a motor controlled device, which is to be mounted in the boat/ship. If fishermen navigate near country's border, an alarm is generated indicating that the boat/ship is near the border of our country. The motor turns off if the boat touches the border.

## PROPOSED SYSTEM



**System Block Diagram**

The diagram shows an embedded technology which uses GSM and RFID (RF Identification), LPC2148 Arm microcontroller which are embedded with various components like motor, switches, a buzzer, an LCD display. Border B3 is the final state original boundary of a border and

remaining two borders B1 and B2 are comes under the parental country circumstances.

Two indicators for safety purposes which are speaker connected with the voice board and an LCD display. The RFID tags are fixed under the boat/ship. One Emergency button of single relay

switch is present in the boat/ship. All these elements are embedded with the LPC2148 ARM microcontroller which is an advanced controller. The GSM Unit will be combined with the UART for sending and receiving information.

## FUNCTIONAL DESCRIPTION

### Microcontroller (pic 16F877A)

The pic initially referred to "Peripheral Interface Controller". Because of its low cost, availability, user base, development tools and programming. It contains RISC, Timer and CMOS technology. There are 5 ports available in the pic (A to E).

### ESP8266



### ESP8266

It contains VCC, Ground, RX, TX, GPIO0, GPIO 1, and CH -PD. The development board equips the ESP- 126 module containing ESP8266 chip having Ten silica Xtensa 32 bit Lx106 RISC (

### GSM

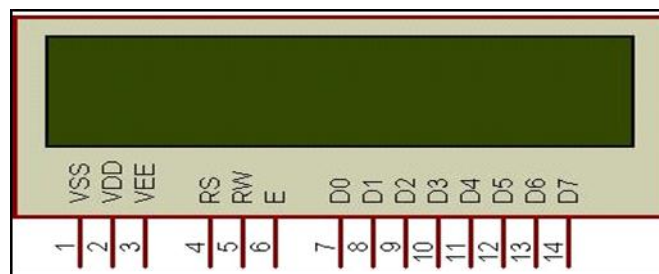
It is an open and cellular technology used for the mobile voice transmitting operating frequency (850, 900, 1800, 1900MHz). Frequency like 850,1900MHz used in American countries.

### RF transmitter and receiver

Transmitter operates at a frequency of 433MHz. It receives serial data and transmits through RF. Rate of transmission 1kbps to 10kbps same frequency used for receiving. Here encoder/decoder is available to encode or decode the data.

Reduced Instruction Set Computer) microprocessor which operates at 80 to 160 MHz adjustable clock frequency and supports Real time operating time.

### LCD display



### LCD display

It is the output device with the limited view angle. Because of the output and its display is

better when compared to T segment LED display. There are 2 types Transitive and Reflective type.

## Buzzer



**Buzzer**

It is a signaling device. It is used to indicate whether his device is working or not. It is usually

electronic but mainly used in automobile, household appliances.

## Relay module



**Relay module**

It is a switching device. It helps to open and close the circuits electronically. It is used to control the high voltage circuit with the low voltage signal.

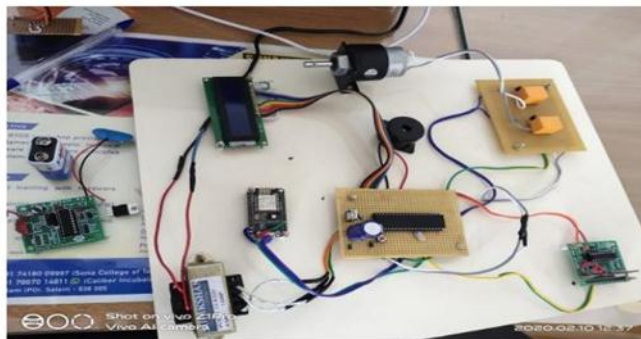
## Power supply

It is connected to transformer which steps to ac voltage. It supplies electric power to an electric load. It contains 2 supplies Dc and Ac.

## Capacitor

It is used to store the electrical energy and the stored energy again used to the circuit when necessary. It block Dc and permits the AC flowing.

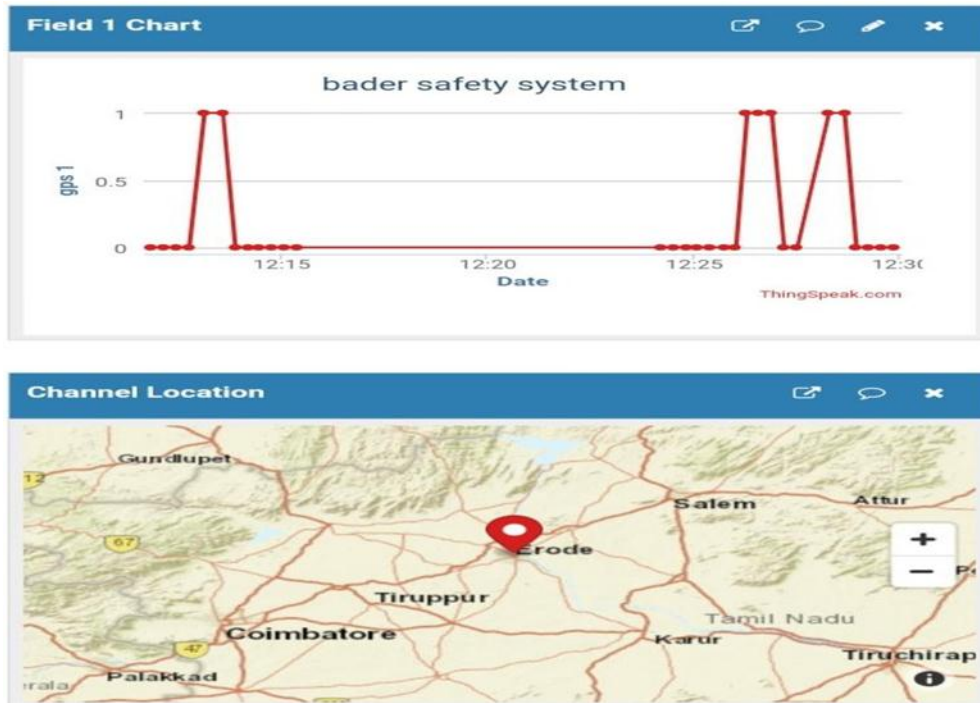
## RESULT AND DISCUSSION



## Hardware

With the help of this paper, we can easily identify the border and continuous monitoring of climatic condition using wind speed sensor. And also we can track the boat location. Thus the

fishermen can easily identify the national sea borders and therefore prevents them from entering their area. Thus saving their lives and providing good relationship with the neighboring countries. Also, the piracy of ship can be easily brought.



**Simulated output IMBL safety system for fisherman using iot**

## CONCLUSION AND FUTURE WORK

Easily identify the border by continuous monitoring of climatic condition. The alert system which we have developed will provide an effective solution for fishermen problem and prevent them from crossing other country border. This conclusion will save many fishermen lives from crossing the national border. Our project mainly focus on smooth relationship between two countries. Death rate will be decreased and fishermen life time can be increased. On using wind speed sensor and also we can track the boat location. Thus the fishermen can easily identify the national sea borders and therefore prevents them from entering their area. Thus saving their lives

and providing good relationship with the neighboring countries.

In future this idea can be enhanced by using smart watches and satellite phone. Future avenues of work include implementing the system on a hardware platform and testing it with real life scenarios, such as various intrusion models, complex terrains and different sensing modalities. Current scenario is of building 50 Wi-Fi based BSNs, which are equipped with accelerometer vibration sensors. This hardware platform is designed to accept a broad range of sensor types, which will allow testing the proposed system in other applications such as gas pipeline monitoring.

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