

**“GEO-FENCING AND GEO-TAGGING FOR FISHERMAN SECURITY”****P.ANNAPURNA BAI (Assistant Professor, ECE dept.)****St Martin’s Engineering College, Dhulapally, Secunderabad-500100, Telangana State, India.****EMMADISETTY SINDHU    ERRAVELLY KOUSHIK KANTH    MARI MUTHU POOJA****St Martin’s Engineering College, Dhulapally, Secunderabad-500100, Telangana State, India.****I.    ABSTRACT**

In day- to-day life we hear about many fishermen are being caught, taken into custody and also killed, when they cross the sea border between countries. The main reason to cross the sea border is the border is not easily identifiable. “Geo-fencing and Geo-tagging for fisherman security” designing a system which is capable of alerting the fisherman through buzzer and auto cut-off ignition of boat through relay when their boat is crossing the country border and also displays the data on a LCD display also send alert to Head of the department using LORA technology.

**II.    INTRODUCTION**

The 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[1]. This leads to loss in the both humans as well as their economic incomes. At the present time there are few existing systems which help to identify the current position of the boats/ships using GPS System and view them on an electronic map[3]. For the purpose of identification the fisherman are using the GPS72h, equipment used for the navigation in sea. It provides the fastest and most accurate method for mariners to navigate, measure speed, and determines location. This system enables increased levels of safety and efficiency. It ensures whether the shipreaches its destination safely. The accurate position information becomes even more critical as the vessel departs from or arrives in port. This system which eliminates such problems and saves the lives of the fishermen. . 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%[2]. 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[4].

**III.    EXISTING SYSTEM**

In existing method which protects the fishermen by logging their entries and exits in the harbour using embedded system, notifying the country’s sea border to them by using Global Positioning System (GPS), Geo Fencing and Mobile Systems. We use GPS as a method to track the current location of the fishermen. The GPS’ current latitude and longitude coordinates are sent to the database where the administrator utilizes it for continuous tracking and monitoring of the user, if in distress using their credentials and last known location, current location predictions can be made. Another benefit being the logging procedures help

official authoritative agencies to identify fishermen and their activities for their own safety and security.

#### **IV. PROPOSED SYSTEM**

In the proposed system, “Geo-fencing and Geo-tagging for fisherman security” using PIC16F877A microcontroller which is capable of alerting the fisherman when their boat is crossing the country border displays the distance from point on LCD display and audible alert to the fisher man through buzzer and auto cut-off ignition of boat through relay. We can track the location of boat using GPS. And also sends the information to Department through LORA transmitter to LORA receiver with Laptop/PC. The Microcontroller is programmed using Embedded C language.

#### **V. SYSTEM DESIGN**

The block diagram uses PIC16F877A microcontroller and LORA technology. LoRa is the physical layer or the wireless modulation utilized to create the long range communication link. Many legacy wireless systems use frequency shifting keying (FSK) modulation as the physical layer because it is a very efficient modulation for achieving low power. LoRa® is based on chirp spread spectrum modulation, which maintains the same low power characteristics as FSK modulation but significantly increases the communication range. Chirp spread spectrum has been used in military and space communication for decades due to the long communication distances that can be achieved and robustness to interference, but LoRa is the first low cost implementation for commercial usage.

#### **Working principle:**

The functioning of the device is achieved by employing a micro controller. The micro controller forms the controlling unit of the project. To the micro controller GPS receiver, LCD, buzzer, relay, and LORA Transmitter are interfaced. When GPS receiver receives the information about the location in which the boat is present. The controller compares the location of the boat with the territory location. Whenever the boat was approaching the boundary it alerts through the buzzer. When boat is very near to boarder it OFF the motor. This system also displays the distance from point on LCD display. When boat reaches near to boarder it also sends the information to Department through LORA transmitter to LORA receiver with Laptop/PC. The Microcontroller is programmed using Embedded C language.

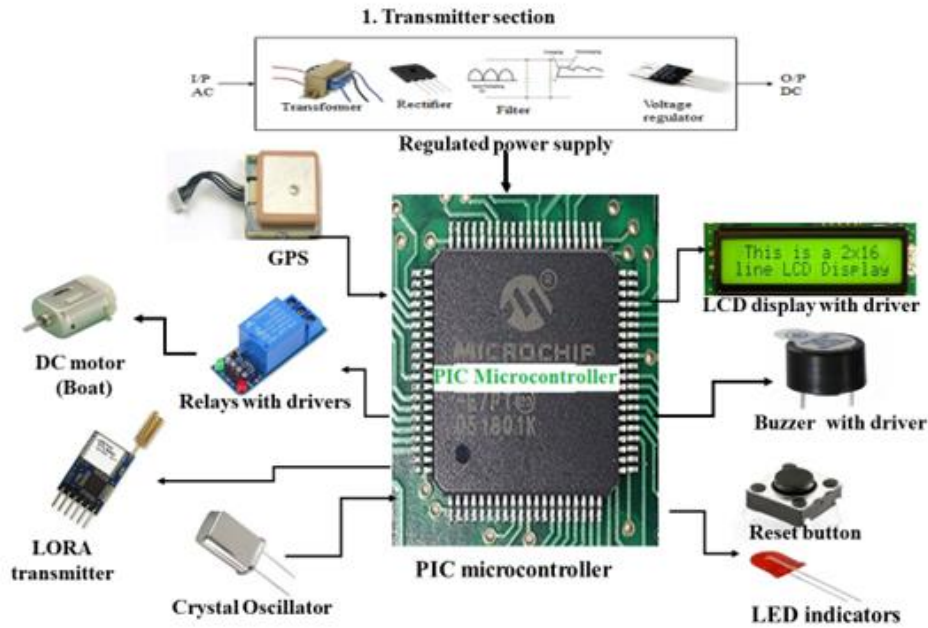


Fig 1: Block diagram Geo-fencing and Geo-tagging for fisherman security

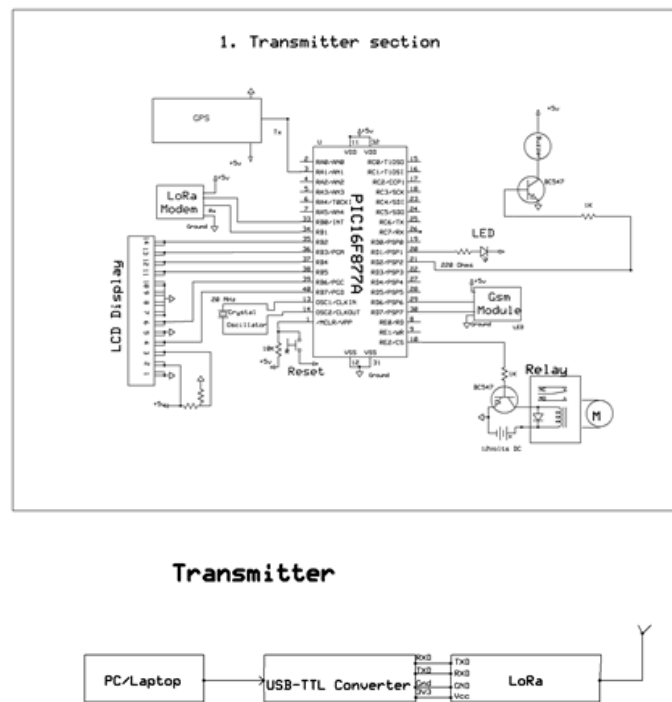


Fig 2: schematic diagram Geo-fencing and Geo-tagging for fisherman security

The above schematic diagram Geo-fencing and Geo-tagging for fisherman security explains the interfacing section of each component with micro controller and GPS module for the location which is to be identified according to the user requirement. Crystal oscillator

connected to 13th and 14th pins of micro controller and regulated power supply is also connected to micro controller and LED's also connected to micro controller through resistors.



Fig 3: receiver section

VI. RESULTS



Fig A: LCD display represents the distance to the border.



Fig B: LCD display represents the latitude and longitude of the location



Fig C: LCD display represents the alert while crossing the

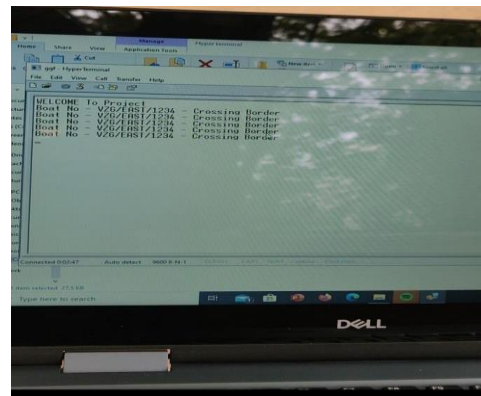


Fig D:Alert while crossing the border at receiver border at transmitter.

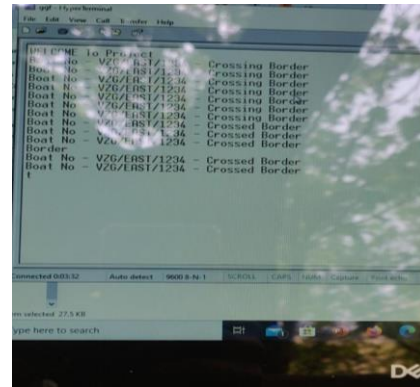
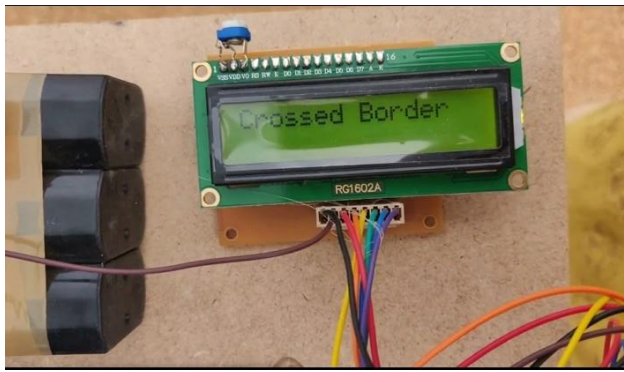


Fig E: LCD display represents the alert when crossed the border at transmitter

Fig F:Alert when crossed the border at receiver

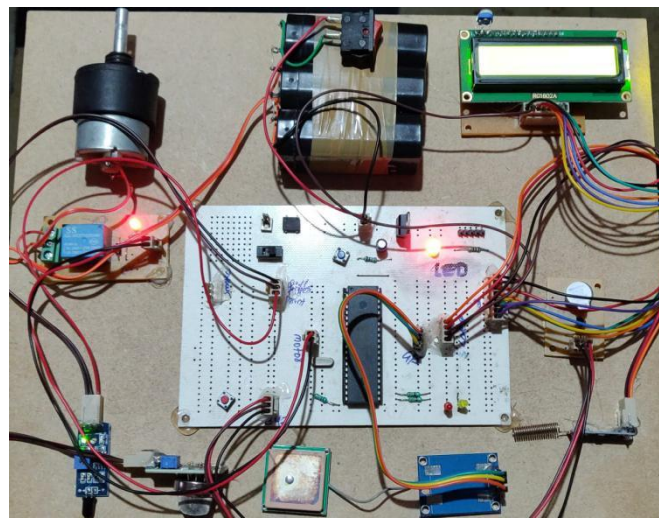


Fig G: Motor turned off when crossed the border.

## VII. CONCLUSION

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Secondly, using highly advanced IC's with the help of growing technology, the project has been successfully implemented. Thus the project has been successfully designed and tested.

## VIII. FUTURE SCOPE

“Geo-fencing and Geo-tagging for fisherman security” is mainly intended to a micro controller. The micro controller forms the controlling unit of the project. The micro controller is interfaced with a GPS receiver so that it can receive the information about the location in which the boat is present. The controller compares the location of the boat with the territory location. Whenever the boat was approaching the boundary it alerts the driver. To alert the driver it is interfaced with a buzzer and auto cut off the ignition of the boat through relay also the value of the boat on LCD display. The Microcontroller is programmed using Embedded C language. It can be extended using high efficiency a GSM module. The GSM module gives the intimation of the person with this system through SMS.

**IX. REFERENCES**

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