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Pic Micro Controller based Border Alert and Secured System for Fisherman

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***Abstract*— The system which protects the fishermen by implementing the option of Embedded Microcontroller PIC IC to reduce the deaths of fishermen by controlling the entire vehicle with the help of GPS Coordinates which is programmed into IC and it receives the signal from GPS satellites about the exact location. If the location is found that the fishermen crossed the border, it alerts the fishermen by the emergency switch and entire control took by concern authority.**

Keywords*— Global Positioning System (GPS), Global system for mobile communication (GSM), nautical border.

I. EXPLANATION OF ISSUE

The Palk Bay, a slim strip of water separating the state of the state in Asian country from the Northern Province of the country, has traditionally provided made fishing grounds for each country.

The region has become an extremely contested website in recent decades, with the conflict taking up a brand new dimension since the tip of the Sri Lankan warfare in 2009. Multiple problems have combined with serious ramifications for internal and bilateral relations. These problems embody current disagreement over the territorial rights to the island of Katchatheevu, frequent cooking by Indian trained worker in Sri Lankan waters, and also the damaging economic and environmental effects of trawling. However, with the governments of each country recently affirming their commitment "to notice a permanent answer to the trained worker issue," there's a chance to form a win-win situation, during which the bay becomes a typical heritage of mutual profit.

In India, the fisheries dispute principally began with an interior dialogue concerning sovereignty associated with relinquishment of the island of Kachchatheevu to country the most drawback with Indian fishermen is that an outsized range of them area unit captivated with fishing in Sri Lankan waters, that is prohibited by the 1976 Maritime Boundary Agreement an outsized range of Indian fishermen area unit captivated with trawling that is prohibited in country.

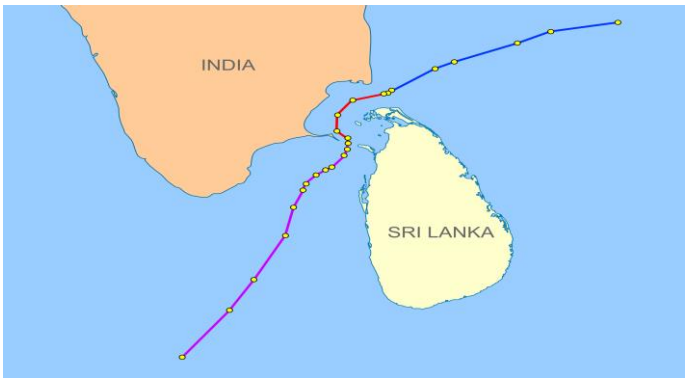

Fig No 1 Indo Srilanka Maritime Boundary

there are instances of Indian fishermen being prevented from fishing, facing harassment and arrest by the Sri Lankan Navy (SLN) SLN operations involving interdictions and firings on suspicion of the Indian trawlers while fishing in the area

The problem is relatively acute for the Sri Lankan fishermen because their livelihood is more dependent on the catch from the waters concerned, and, conjointly their means that of fishing square measure relatively less expedient and effective vis-à-vis Indian fishermen. The Indians mostly fish at night for shrimp and their use of gill nets and synthetic nets has caused severe damage to the ordinary nets of Sri Lankan fishermen.

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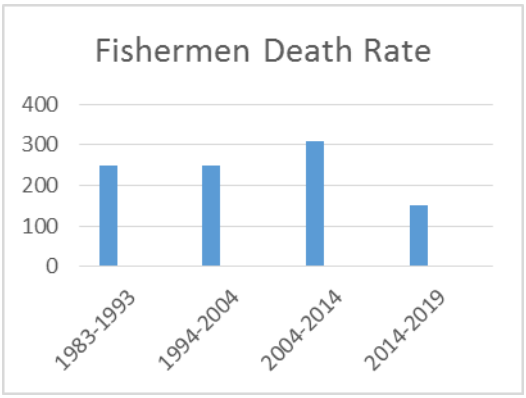

Fig No 2 Fishermen Death Ratio

If the underlying issues with the fisheries dispute are not addressed shortly, relations between fishermen and their governments, between Tamil Nadu and New Delhi, and between Tamil Nadu and Colombo could worsen and reach a crisis point.

There have been tensions between those fishermen using traditional methods and those using mechanized methods, as well as increased the infringement of territorial boundaries. According to the govt of state, the sufferings of Indian Tamil fishermen could be a direct consequence of relinquishment Kachchatheevu to Ceylon and sacrificing the standard fishing rights enjoyed by Indian fishermen trawling by Indian fishermen causes harm to marine ecology and, specifically, fish stocks

II. INTRODUCTION

The project induces the new methodology for saving the fishermen's valuable life and their properties from the Srilanka navy. this method makes use of PIC microcontroller that is associate degree open supply embedded kit obtainable for several major functions. Pic microcontroller is associate degree ASCII text file single-board microcontroller, a descendant of the ASCII text file Wiring platform, designed to form the method of victimization physics in multidisciplinary comes additional accessible.

The hardware consists of a straightforward open hardware style for the pic controller board with a 16f877a processor and on-board input/output support. The software package consists of a typical programing language compiler and also the boot that runs on the board. The GPS72h is that the instrumentation used ordinarily by all the fishermen within the navigation within the ocean for the aim of identification. It is a Satellite Navigation primarily based instrumentation conjointly GPS 72H acquires satellite signals quickly and tracks your location in difficult conditions, like significant tree cowl or deep canyons.
The GPS seventy-two H floats in water and its IPX7 waterproof to face up to the accidental dunk or splash within the lake. Whether on water or land, the GPS 72H will save to five hundred of your favorite places in memory and purpose you to your destination (no street or piece of ground maps). The GPS 72H is NMEA 0183 compatible.

To transfer knowledge to your device, GPS 72H simply connects to your laptop via USB. If you are into water travel, looking or fishing, you'll use the 72H's intrinsic celestial knowledge, which has sunrise/sunset times and a looking and fishing calendar. The vital system is IoT(Internet Of Thing).this is wont to send the boat location to the room and act the boat supported the room instruction

III. LITERATURE SURVEY

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

A. IOT Based Nautical Monitoring System

The current latitude and longitude are known to both fishermen and coastal guards. The border is identified by comparing the current values with the original values and the message is sent through Wi-Fi sensor using IOT.
A single antenna is used. This helps in continuous updating of the information instantly. The low earth orbit is used to provide connectivity without a 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 fisher and alerts the bottom station to produce facilitate

B. Alert Fishers

A LIFE-Saving mobile Application Mobile Application which may save time, effort and cash and life by giving tips and ways that to cut back the arrest of fisher on the far side boundaries that's designed and enforced.

The collected info contains all the small print associated with countries boundary from the boundary process department of Asian country and Ceylon and sorted them into a straightforward and compact application for the good thing about the every and each fisher

C. Secure And economical Border Crossing Indicator application In Coastal space

The planned System on Secure and economical Border Crossing Indicator Application in bone space R.Sangeetha et all Maritime police investigation is administered by (and on behalf) of national authorities chiefly to spot and deter (a) infringements to laws and (b) security and safety threats. (These classes overlap and embrace enforcement and compliance observation.)
Surveillance administered for the various domains, like fisheries protection, environmental protection, maritime transport safety, border management, etc., in most cases falls underneath (a) as a result of it's done on the idea of laws and laws that govern these domains. a police investigation may be a key component to exercise national sovereignty bewildered.

The police investigation systems embrace reportage / electronic communication systems, that have confidence the

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ships to produce info, like VMS, AIS and therefore the several manual reportage systems and regimes; and sensing element systems like radars and cameras that collect info concerning ships while not their cooperation. the previous is termed cooperative systems and therefore the latter non-cooperative systems.

D. Navigation Alert System For Fishermen With alternative energy gathering

The planned system on Navigation Alert System For Fishermen With alternative energy gathering By Nandhitha.B, Mohana Priya Peril long-faced by the fishermen, World Health Organization are caught by the navy for breaching the border has inflated. In spite of the latest development within the technology hardly any action to neutralize the fear has taken place. The border between the countries within the water level isn't terribly simple to spot and this causes issues.

The Tamil Nadu fishermen even these days summon the historical rights and habitually go wide into the International Maritime borderline (IMBL) for fishing. This has a diode to apprehension by the Sri Lankan Navy and in some cases even to shoot or arrest the actual fishermen. This results in loss within each human moreover as their economic incomes. The fishermen chiefly cross the border as they're unaware of their limits within the maritime border.

E. Embedded System For ocean Buoy To find, sight And Collect information regarding Marine Systems

The planned system on Embedded System for ocean Buoy to find, sight and Collect knowledge regarding Marine Systems by Nivetha P et all antecedently, underwater wireless communication technology is employed for police work the underwater device. The essential distinction between underwater acoustic communication and wireless communication is their propagation mediums [1].

Due to the characteristics of high consumption of radio waves within the water, it's terribly surrealistic to use wireless communication technology in underwater communication. Underwater wireless communication has been the obstacle of “sea, land, and air” three-dimensional interconnection for a protracted time. thus a great deal of maturity program of the wireless communication cannot be directly applied within the underwater acoustic communication.

Also, there's a private system used for pursuit the underwater device, monitor the marine atmosphere and for shielding the fishermen from crossing the border.

F. Design Implementation Of Gps primarily based Border alert And Identification System For Fishermen

The planned system on style And Implementation Of Gps based mostly Border alert And Identification System For Fishermen By P.Deepak, R.P.Shrianbarasu

In regular life we have a tendency to hear regarding several Tamil fishermen being caught and anesthetize Srilankan custody and even killed. the ocean border between the countries isn't simply specifiable, that is that the main reason for this cross border cruelty.

Here we've got designed a system victimization AN embedded system that protects the fishermen by notifying the country border to them by victimization the world Positioning System (GPS) and world system for mobile communication (GSM).

G.Novel Wireless Weather data communication For Fishermen

The planned system on Novel Wireless Weather data communication For Fishermen By Ashutha K, Shetty Arpitha Shekar Fishing is one in every one of the primary occupations of Asian country .

Fishermen need to look out of their safety whereas fishing for long distances. Since the weather is not uniform and it keeps on dynamic, thus it's powerful to predict climate. thus throughout this paper for the welfare of the fishermen we provide the fishermen the information concerning the region conditions.

This method contains two modules. the first module could also be a shore module that consists of a transmitter to send the knowledge from the shore and second module could also be an ocean module that consists of a receiver placed inside the boat that is in a position to receive the signal and show it on the alphanumeric display. information|the data} area unit attending to be sent unceasingly and knowledge of the weather area unit attending to be of the realm of fishing.

The fishermen area unit attending to be able to get the weather reports once they are perplexed and should be able to fathom the weather and build a secure come

H.Integrated Source-Wind, Solar, Power To Floating Station For Maritime Boundary Detection

The planned system on Integrated Source-Wind, Solar, Power To Floating Station For Maritime Boundary Detection By Cj. Profun1, R. Sruthi of the worker from going outside the border by swing a floating module inside the many ocean borders. The hybrid Section uses every star and wind sources for power generation. it's given to the PIC Controller.

It senses the amount voltage created by the star and rotary engine. The transmitter is placed in many boats. each Boat has altogether totally different Frequencies.. throughout this method once the boat is nearing the border, the module alerts the boat by a voice message. This activity is monitored by the coast guard in the chopper. once the worker is on the topic of the border, the area unit attending to be alerted by the coast guard.

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IV. IN-OPERATION METHODOLOGY

Fig No 3 GPS SIGNAL TRANSMISSION

The GPS device can often offer the signal that determines the latitude and great circle and indicates the position of the boat and it's displayed within the digital display. The hardware that interfaces with a microcontroller, liquid crystal display, GSM electronic equipment, and GPS Receiver. GPS provides consistent positioning, navigation, and temporal order services to users on a continual basis in a day and night.

GPS store the storage of the maritime position. whereas scrutiny the previous maritime restricted position and current position and result are going to be the latitude and longitudinal degree of the boat's location is set If the boat nearer to the restricted zone, automatically warning message and alert are going to be sent to the liquid crystal digital display and buzzer that is in a boat.

The warning message and alert area unit send by employing an It. Then the fishermen fail to ignore the warning and alert they move to succeed in the restricted zone mechanically engine gets off by suggests that of the relay and send through the message to the coastal guard.

A microcontroller is interfaced serially to a GSM electronic equipment and GPS receiver. a part of seas as towers cannot be placed in the middle of the ocean thus its places in coastal management workplace. therefore the coastal incessantly receive the GPS info from the GPS Address. the most aim of this GSM system is to confirm continuous watching of every boat and knowledge given to the coastal workplace. once boat crosses the border, the keep message adjacent to with compared position and message sent to the specified authority person by victimization GSM module.

This technique will work on the tactic of Coordinate points by having a good circle and latitude by scrutiny with them to their previous coordinate points. If the current coordinates and former coordinates match then it triggers an alarm or an alert messages area unit attending to be sent to the concerned fishermen in a boat and inside the management unit. At present, there are few existing systems that facilitate to identify the current position of the boats/ships using GPS/RADAR Navigation system and examine them in Associate in Nursing electronic map.

This provides the fastest and most correct technique for mariners to navigate, live speed, and determines location. this enables raised levels of safety and potency for mariners worldwide and correct position, speed and heading are required to verify the vessel reached its destination safely. the proper position information becomes even plenty of important as thevessel departs from or arrives in port and a personal need to watch the system for the police investigation the malpractice of the boats. throughout this case, there might even be a manual error to hunt out the boats crossing our boundaries.

Also, the information regarding the boundary crossing boats needs to pass to the higher official, coastal guards by manually. this may collectively provide a time to trace and warn the boats Another system is GPS72H by the GARMIN that's typically utilized by the fishermen is battery based power provide it stands for eighteen hours but the fishermen might even be sadly missing their backup batteries can lead to danger. Also, another downside is that this GPS72H collectively to be manually watched to identify whether or not or not they crossed the boundary. there isn't any indication for the fishermen whether or not or not they are traced by the foreign navy.

According to the project of man.Naveen from St.Joseph college of engineering Madras.Instrumentation which can stop the fuel affiliation to the engine of the fishermen vessel once they have an inclination to cross the boundary. they're going to provides a probability to restart the engine with reverse motion if not they fuel provide is permanently disconnected. this method lands up to build the vessels to lure on nearer to boundaries and which might flip too caught by the foreign navy. collectively this method is going to be applicable alone to the inboard engine and not for the outboard engine based vessels.

V. PROPOSED METHODOLOGY

The GPS device will frequently give the signal which determines the latitude and longitude and indicates the position of the boat and it is displayed in the LCD. The hardware which interfaces with a microcontroller, LCD display, GSM modem, and GPS Receiver.GPS provides consistent positioning, navigation, and timing services to users on a continuous basis every day and night.GPS store the storage of the maritime position.

While comparison the previous maritime restricted position and current position and result are the latitudes and longitudinal degree of the boat's location is set If the boat nearer to the restricted zone, automatically warning message and alert will be sent to the LCD display and buzzer which is in the boat. The warning message and alert are sent by using a Not.

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message to the coastal guard. A microcontroller is interfaced serially to a GSM electronic equipment and GPS receiver. Part of seas as towers can't be placed in the middle of the ocean, therefore, its place in coastal management workplace. Thus the coastal unceasingly receive the GPS data from the GPS Address.

The main aim of this GSM system is to make sure continuous watching of every boat and data given to the coastal workplace. When boat crosses a border, the hold on message adjacent to with compared position and message sent to the required authority person by victimization GSM module

VI. ADVANTAGES OF PROPOSED SYSTEM

1) Helpful for easy communication between both the country fishermen.
2) Helpful for Wreckage recovery.
3) Helpful for easy identification of location through GPS.
4) Easy to identify the mistakes who had crossed the International Boundary limit and started firing.
5) Live Coverage of Videos through Social Media and more.

VII. BENEFITS OF PROPOSED SYSTEM

1) Helpful for straightforward communication between each the country fishermen.
2) Helpful for Wreckage recovery.
3) Helpful for straightforward identification of location through GPS.
4) Easy to spot the mistakes Who had crossed the International Boundary limit and began firing.
6) Live Coverage of Videos through Social Media

VIII. PLANNED SYSTEM DESIGN

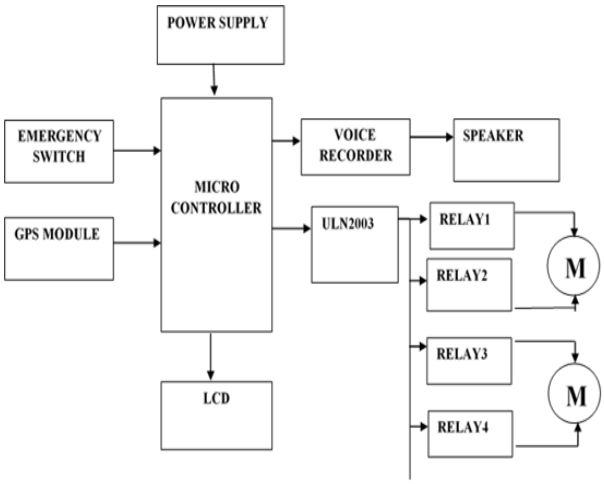

Fig No 3 Boat Unit

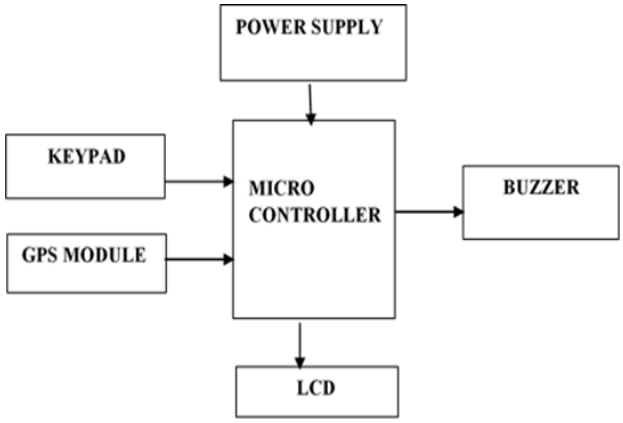

Fig No 4 Management Unit

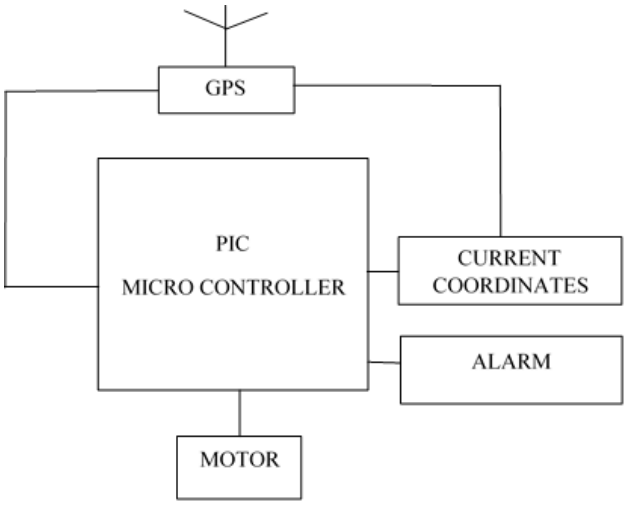

Fig No 5 Flow Chart

IX. EXPERIMENTAL RESULTS

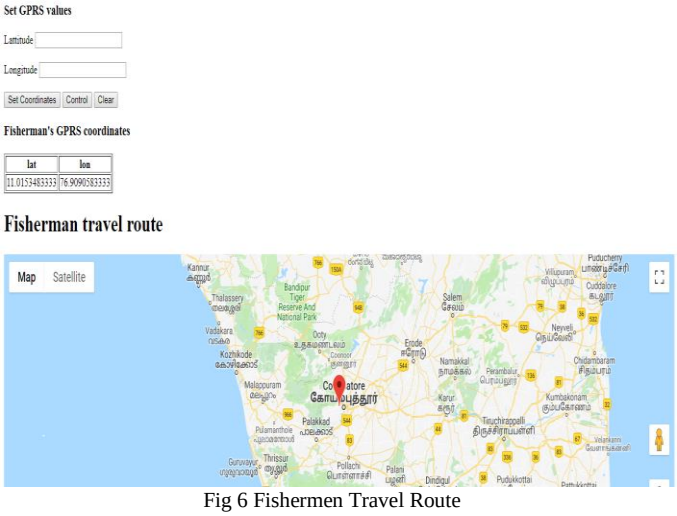

Fig 6 Fishermen Travel Route

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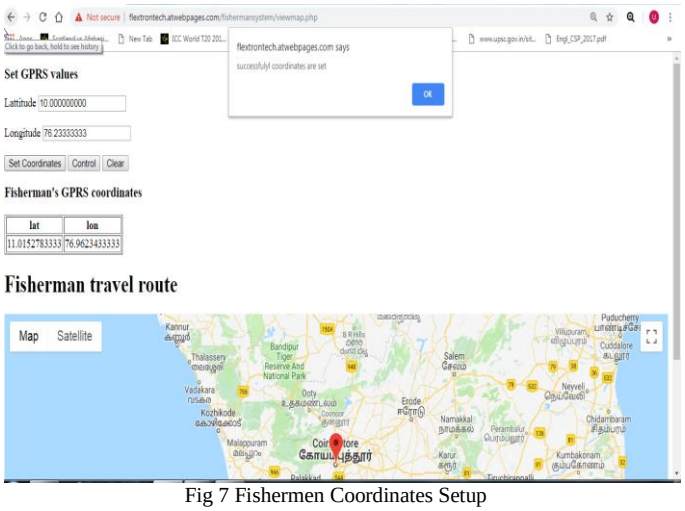

Fig 7 Fishermen Coordinates Setup

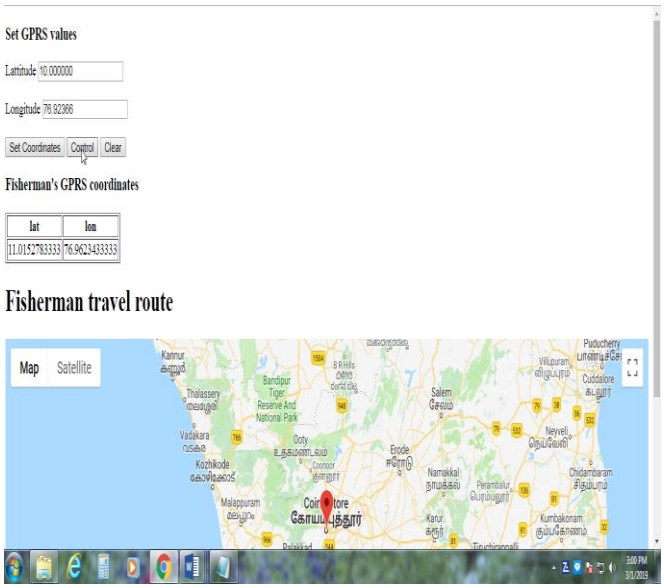

Fig 8 Fishermen Boat Management

X. FUTURE SCOPE

By having a separate Camera mounted to boat unit it helps in identifying the cross border issue and therefore the video is streamed on to social media.

It conjointly ensures the safeness of the fishermen by providing an in-depth report on border coordinates with the assistance of GPS satellites.

It will use the EEPROM to store the previous Navigating Positions up to 256 locations. It will navigate up ton variety of locations by increasing the memory of EEPROM.

It will cut back the scale of the kit by victimization GPS+GSM on a constant module of GPS navigator. It will increase the accuracy up to 3m by increasing the price of the GPS receivers.

XI. CONCLUSION

The Fishermen risk in borderline because of unwittingly crossed the border may be reduced by this technique, and conjointly saving their life and providing smart relationship with the near countries,and conjointly straightforward to seek out the border vary as inland for anyone on the far side the marine region.

When they crossed the border limit they need to pay a penalty or get in remission by neighbor country navy guards and conjointly this methodology helps the fishermen to guide by navigation and alerting them to succeed in safety the border limit. we tend to have introduced the fishermen border alert system controlled by PIC microcontroller i.e. PIC16F877A. it's a forty pin IC that having the property of burning a program whereas running another program. it's reliable, versatile and of low value.

The alert system that we've developed can give an efficient answer for fishermen's downside and forestall them from crossing the alternative country border. the applying will save the lives of the many fishermen. the applying works as AN automatic incident management application that intimates the user if border crossing happens.

If the sailor crosses the border the alarm is employed for identification of fisherman and the alert message is given to countries.

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