

Gps And Gsm Based Automatic Border Alert System For Fisherman

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Abstract- This paper describes concerning the border alerting for fishermen victimisation GPS and engine management unit. In day-after-day life, we have a tendency to hear concerning the numerous issues confronted by the Indian fishermen, were captured by the neighboring countries attributable to crossing the border. The target of this technique is employed to encourage the fishermen to explore within our ocean nation border victimisation GPS (Global Positioning System) and GSM (Global system for mobile communication), GSM sends the message to the coastal guard workplace. If the boat nearer to the restricted zone the alarm can activate and {also the} sound carry on increasing and also speed of the engine can get reduced. If the fishermen fails to ignore the warning and that they move to reaches the restricted zone mechanically engine gets off and send through the message.

Keywords-GPS, GSM, Microcontroller (At mega- 328)

I. INTRODUCTION

Sri Lanka and India coast nations are remote by their ocean borders. In Tamilnadu concerning twenty,000 vessels build spinning within the Bay of geographic area. the most aim is to present a well evenhanded user friendly surroundings for Indian fisher to handle risky scenario with the assistance of engine management. This paper comes with a gentle answer for this downside and protects the Indian fisher from dangerous scenario and being crossing the marine boundary and save their life and improve the protection of fisher. The system is meant by mistreatment GPS and GSM. A GPS route device could be a device that specifically discovers natural space by obtaining information from GPS satellites. This device will track the GPS information each single time at no matter purpose the fisher man's cross the Indian border. it's a big depression issue and encourages hassle within the each folks and conjointly their economic expenditures.

II.LITERATURE SURVEY

D.Jim Isaac et al [1] the paper titled as "Advanced border alert system using GPS and with intelligent Engine control unit "In our system using GPS and GSM, where GPS is used to find the location of the boat. If the boat nearer to the boundary primarily it warning the fishermen with the alarm and emits the location of the boat to the nearest coast office via GSM communication. When it further nears the marine boundary an interferer is sent to the Engine Control Unit which controls the speed of the engine with the help of the electronic fuel injector. and its low cost marine. By this method, we can alert the fishermen and also monitor them thereby avoiding banned activities such as smuggling, intruders, etc. This is very

much useful to save the fisherman's lives. And the thread reduce due to the sea pirates.

S. Kiruthika et al [2] the paper titled as" A Wireless mode of protected psychoanalytic process to mariners mistreatment GSM technology "In our system mistreatment solely GPS to receive the knowledge from the satellite and hold on border locations to discover whether or not the boat has crossed the border or not. If therefore the sailor is alerted and therefore the message is transmitted to near coast workplace through RF signals at VHF (30-300MHz) vary that covers wide space.

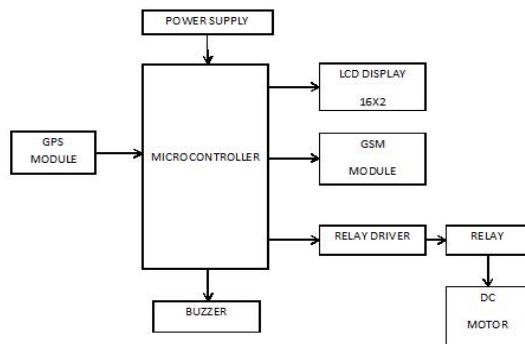
Naveen Kumar.M et al [3] the paper titled as" border alert Associate in Nursingd good chase system with alarm uses DGPS and GSM and this technique uses DGPS to trace the situation of the boat and to activate an alarm that consists of a Piezo-buzzer, once the border is move toward or crossed. Also, additionally, the DGPS data is shipped to regulate workplace, and additionally the knowledge is shipped to the family at regular time intervals that area unit in expectation regarding their family member's safety.

III. METHODOLOGY

The GPS device can repetitively offer the signal that determines the latitude and great circle and indicates the position of the fishermen and that gets scan and displayed within the alphanumeric display. The hardware that interfaces with microcontroller, liquid crystal { display LCD digital display alphanumeric display} display, GSM electronic equipment and GPS Receiver. GPS provides consistent positioning, navigation, and temporal order services to users on a nonstop basis in each day and night.

Then GPS store the storage of the maritime position. whereas scrutiny the previous maritime restricted position and current position and result are the latitude and longitudinal degree of the boat's location is set If the boat nearer to the restricted zone the alarm can activate and {also the} sound carry on increasing and also speed of the engine can get reduced by exploitation pulse dimension modulation. In its simplest pulse dimension modulation output signals square measure created by scrutiny 2 signals. The signals square measure restricted position (carrier signal) and current position (modulation signal) pulse dimension modulation operational at a coffee power frequency. whereas

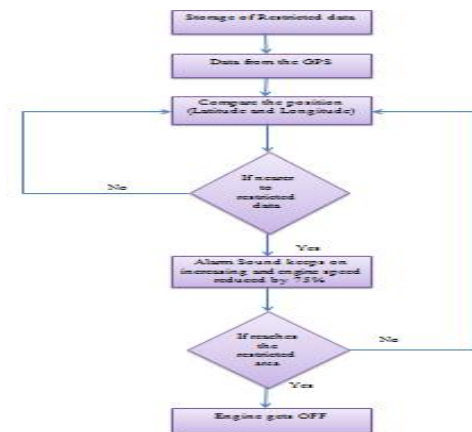
carrier frequency on top of the modulation frequency, the alarm can carry on increasing, if the opposite case carrier frequency lowers than the modulation frequency, the alarm can carry on decreasing.



part of seas as towers can't be placed in middle of the ocean thus it place in coastal management workplace. therefore the coastal endlessly receive the GPS data from the GPS Address. the most aim of this GSM system is to make sure continuous observance of every boat and knowledge given to the coastal workplace. once boat crosses border, the hold on message adjacent to with compared position and message sent to the required authority person by exploitation GSM module.

Fig-1: Block diagram of the system

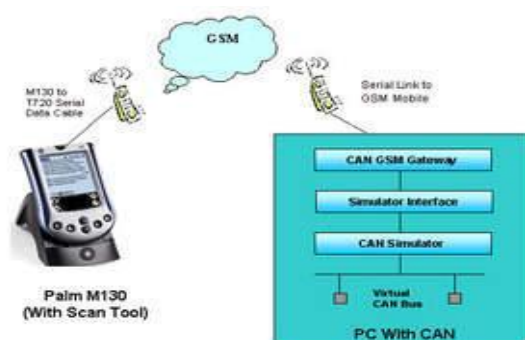
V. FLOWCHART



VI. HARDWARE COMPONENTS

A) GSM MODULE

GSM network operate during a range of various carrier frequency and its frequency up to 900MHz or 1800MHz. GSM module is employed for transmission of message searching for facilitate. The GSM makes use of narrowband Time Division Multiple Access (TDMA) technique for transmission signals. It can not be used as a



B) GPS

The Global Positioning System (GPS) could be a space-based navigation system that gives location and time info altogether climatic conditions.. The GPS detects the

latitude and great circle of the boat's position and sends the information to the microcontroller. This capability permits looking for whether or not the boat has crossed the restricted space or not. this offers the present position of the boat to the ATMEGA 328 Microcontroller within the Engine management Unit. It compares the present position associate degree keep restricted position if the boat is at a distance of 3 klick from the restricted space so processor to come up with an alarm persevere increasing and conjointly reduced the speed of the engine, The latitudes and longitudes received from the microcontroller is compared with the keep restricted space values and reaches the restricted space, the engine can get off

$$a = \sin^2(\Delta\phi/2) + \cos\phi_1 \cdot \cos\phi_2 \cdot \sin^2(\Delta\lambda/2)$$



$$c = 2 \cdot \text{atan2}(\sqrt{a}, \sqrt{1-a})$$

$$d = R \cdot c$$

$$\text{dist} = \sin(\text{deg2rad}(\text{lat1})) * \sin(\text{deg2rad}(\text{lat2})) + \cos(\text{deg2rad}(\text{lat1})) * \cos(\text{deg2rad}(\text{lat2})) * \cos(\text{deg2rad}(\theta));$$

ϕ is latitude, λ is longitude, R is earth's radius (mean radius = 6,371km)

C) ENGINE CONTROL UNIT

The eu consists of associate AT mega 238, random access memory (RAM), scan solely memory (ROM), associated an input/output interface. This unit is employed to prevent motor once it's reaches the restricted space. If it's nearer the restricted space, the motor speed reduced by victimisation pulse dimension modulation. The Electronic management Unit (ECU) will management nearly each operation in associate engine in conjunction with

explosion systems.. In electronic management unit operate at electronic fuel convenience with a coil valve to manage the fuel provide within the engine once the alarm is generated it's necessary to prevent the engine from moving forward The fuel convenience is fitted with a coil valve that may be a electromagnetically controlled mechanical valve. once the GPS position matches the keep restricted worth, the results of the worth offer to the fuel convenience. thus this successively reduced the fuel provide that stops the engine from moving forward.

D) POWER SUPPLY

The power offer is provided DC motor and microcontroller. The DC power offer with each positive and negative output voltages, a center-tapped electrical device is employed and Arduino operates at low power.

E) RELAY

A relay is Associate in Nursing electrically operated switch. wherever several relays square measure wont to Associate in Nursing magnet to automatically operate a switch, however alternative in operation principles are used, like solid state relays .Relays square measure used wherever it's necessary to regulate a circuit by a low-power signal wherever many circuits should be controlled by one signal. the primary relays were utilized in long distance telegraph circuits as amplifiers they recurrent the signal returning from one circuit and re-transmitted it on another circuit.

F) BUZZER

If the boat nearer to the restricted space the alarm can continue increasing by means that of pulse dimension modulation. It ranges from (0-255).