International Journal on Recent Researches in Science, Engineering & Technology (IJRRSET)
A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy. Journal Indexed in JIR, DIIF and SJIF.
Available online at: www.jrrset.com

ISSN (Print) : 2347-6729
ISSN (Online) : 2348-3105

Volume 4, Issue 10
October 2016.
JIR IF : 2.54
SJIF IF : 4.334
Cosmos: 5.395

Received on: 01.10.2016 Published on: 28.10.2016 Pages : 30 - 35

SURVEY ON FISHERMAN BORDER DETECTOR USING RSSI ZIGBEE TECHNOLOGY

K.Pushpavalli , K.Arun Prasad,

1. Assistant professor 2. Associate professor

Department of Information Technology

Agni College of Technology,Chennai.

ABSTRACT:

This paper proposes a survey on the different border rescue systems using recent technologies for Fishermen. In this modern, fast moving and insecure world, it is become basic necessity to be aware of one's safety. On fishing time the fisherman faces maximum risk because of border crossing. In some situations they should not move after some point and they should not enter into other countries area. In this paper a real necessity in designing a system that can track the boat and send the information about the boat to the coastal guard and alert the fishermen by APR voice device. The boaters may sometimes cross their area limit without their knowledge. This causes a lot of problems. They may be caught by the other peoples. This project is developed for the boat users to find out their border in the sea area.

Introduction:

What challenge/problem are you trying to solve through your application:

• The main objective of the project is to help the fishermen no to navigate beyond other country's border.

• The fishermen's are unable to understand the border in sea area, but using application can know the maritime border between two countries.

• The Tamil Nadu factor in India-Sri Lanka relations that had been quiet for long has come to the fore in the form of the fishermen issue.

• If a fisherman navigates beyond the country's border then vibrate, sound and alert notification generated indicating that the fisherman has crossed the border.

How does your application solves the above mentioned challenge/problem:

• The proposed system, mainly for fishermen are used to detect the maritime boundary between the two countries.

• This mainly happens when fisherman crosses maritime border of neighboring country as he is not aware of the limits in sea.

• The proposed system uses a GPS concept to receive signals from the satellite and gives the current position of the boat.

• The latitude and longitude of the maritime boundary, already inbuilt application of android.

• To calculates the current position, stored boundary positions and indicates to the fisherman that he has crossed the boundary by, generate sound vibrate& alert notification.

Objective:

The Tamil Nadu fishermen even today invoke the historical rights and routinely stray into the International Maritime Boundary Line (IMBL) for fishing. This has led to apprehension by the Sri Lankan Navy and in some cases even to shooting or arrest the particular Fishermen. This leads to loss in the both humans as well as their economic incomes. So this project is going to produce a system which uses several modules to protect the Fishermen.

The main aim of this project is to help the fishermen no to navigate beyond other country's border. This paper is to "Securing the Fishermen in Maritime Border by". It is to secure the fishermen by using this Android mobile application. The fishermen mainly cross the border by unknown their limits in the maritime border. So, it's helpful to understand their current position in maritime. This application has action to give the alert to fishermen when they cross the maritime border.The fishermen can find their limits in border their self without any-one help.

ADVANTAGES:

•The project induces the new methodology for saving the fishermen's valuable life and their properties from the neighbors navy.
•Low cost and able to use in smaller boats.

•Using this application can sudden decrease the rate of fishermen dead.

•It is a useful device for safer navigation, especially for fishermen.

•Since Sri Lanka and India have got lots of problems regarding the maritime boundary of the country, this device is made to identify the maritime boundary and to provide assistance if needed.

•Avoids illegal border crossing.

LITERATURE SURVEY

[1] Tracking Autonomous Entities using RFID Technology Ricardo Tesoriero, José A. Gallud, María D. Lozano, Víctor M. R. Penichet.

GPS seems to be the best solution to develop outdoor location systems, but performance of these systems is not good enough to locate entities within indoor environments, mainly if accuracy and precision are required. In this article we propose a tracking indoor system based on passive RFID technology that is able to accurately locate autonomous entities, such as robots, people, etc. within a defined surface. In order to validate the proposal, we compared our system technology performance against other alternatives built on different technologies.

[2] Constrained and quantized Kalman filtering for an RFID robot localization problem Mauro Boccadoro • Francesco MARTINELLI In this paper a global localization problem of a robot moving in a known environment is considered. The environment is equipped with a relatively sparse set of passive RFID (Radio Frequency Identification) tags. The robot can detect the presence of the tags when traveling in their proximity and combines this information with the one given by other sensors (e.g. odometry). The RFID measurements are characterized by a highly non Gaussian noise: for this reasonin the literature Particle Filter (PF) methods have often been used to fuse these data with the measurements coming from other sensors. In this paper a different approach is pursued, based on the observation that RFID readings can be considered as noisy quantized measurements of the pose of the robot or as noisy dynamic constraints on the pose itself. This allows to exploit the rich literature on Kalman quantized filtering or Kalman constrained estimation, to realize reliable methods with a satisfactory performance which require a computational time significantly lower with respect to the one needed by a PF. Simulative and experimental results will be reported to illustrate the proposed methods.

[3] **Mobile Robot Localization Using the Phase of Passive UHF RFID Signals EmidioDiGiampaolo and Francesco Martinelli**.This paper presents a global localization system for an indoor autonomous vehicle equipped with odometry sensors and a radio-frequency identification (RFID) reader to interrogate tags located on the ceiling of the environment. The RFID reader can measure the phase of the signals coming from responding tags.

This phase has non-univocal dependence on the distance robot tag, but in the considered frequency, it is really sensitive to a change in the position of the robot.

For this reason, a multihypothesisKalman filtering approach provides a really satisfactory performance even in the case that a very small density of tags is used: In the experimental tests, an average position estimation error of about 4 cm is achieved using only two tags for an area of about 5 m2.

[4] Phase-Based UHF RFID Tracking With Nonlinear Kalman Filtering and Smoothing Simo Särkkä, Member, IEEE, Ville V. Viikari, Senior Member, IEEE, MiikaHuusko, and KaarleJaakkola

In this paper, we present an UHF RFID location tracking system, which is based on measuring the phases of backscattered signals from RFID tag using multiple spatially distributed antennas at a single carrier frequency. The wave length ambiguity of the phase measurements is resolved by using the Extended Kalman Filter (EKF) and the Rauch-Tung-Striebel (RTS) smoother, where the state includes the position, velocity and the phase offsets of antennas. The performance of the method is experimentally verified at 890 MHz using a commercially available RFID reader.

[5] Unscented Filtering and Nonlinear Estimation SIMON J. JULIER, MEMBER, IEEE, AND JEFFREY K. UHLMANN, MEMBER, IEEE

The extended Kalman filter (EKF) is probably the most widely used estimation algorithm for nonlinear systems. However, more than 35 years of experience in the estimation community has shown that is difficult to implement, difficult to tune, and only reliable for systems that are almost linear on the time scale of the updates. Many of these difficulties arise from its use of linearization. To overcome this limitation, the unscented transformation (UT) was developed as a method to propagate mean and covariance information through, nonlinear transformations. It is more accurate, easier to implement, and uses the same order of calculations as linearization. This paper reviews the motivation, development, use, and implications of the UT.

[6]Providing a border alert system for Fisherman by using GPS and GSM technology in wireless sensor network – March 2017.

Description: The main idea to design a border alert system is to safeguard the fishermen from being caught by Sri Lankans in coastal area.in this system we implement GPS and GSM technology. The GPS technology is to navigate or to track the current location of a boat. Whenever fisherman reaches the warning border, the border security forces will send notification to the LCD display in the ship, so that fishermen will be alerted. Even if they dint stop the boat, we use a relay to stop the boat. The relay will cut off the power supply to the motor, so that boat will be automatically stopped. This system is mainly designed for Tamil fishermen.

Keywords-GPS Tracker: It is a space based navigation system that provides location and time information in all weather condition; GSM communication: GSM is the acronym for Global System for Mobile Communications. It is utilized for transmission of message looking for help, message sent to the desired authority person by GSM module; RELAY: It is used to stop the boat. It is necessary to control a circuit by a low-power signal where several circuits must be controlled by one signal.

TITLE	APPROACH	RESULT	OSED CONCEPT
Providing a border alert system for Fisherman by using GPS and GSM technology in wireless sensor network	The GPS technology is to navigate or to track the current location of a boat. Whenever fisherman reaches the warning border, the border security forces will send notification to the LCD display in the ship, so that fishermen will be alerted. Even if they dint stop the boat, we use a relay to stop the boat. The relay will cut off the power supply to the motor, so that boat will be automatically stopped. This system is mainly designed for Tamil fishermen.	Tracking of boat and unauthorized travel	
	The boat will automatically stop and OTP		

Fisherman Alert System for Border Crossing	is given to the opposite country, when fishermen arrives the national border. The reputed person contains the OTP, if matched to fishermen id, they can proceed to sail the boat or may take any action for crossing border. ATMEGA 164 microcontroller is used in this process. RFID system plays a major role with 125 kHz.	This system expect 70% of result	In the **proposed system**, the boat distance can be measured using the received signal strength received from the slave RSSI Zig bee (boat). By using this RSSI we can find the location of the boat in the sea. Whenever the boat reaches the border the APR voice alert the concern person in the boat and at the same time boat will automatically turn OFF.
GPS based Border Alert System using Arduino	Only Android phone is used.	Better GUI then other system to indicate the location	
Border Alert Fishing Boat Security System Using Global Positioning System-March 2016	These paper can be overcome with the dynamic location of the vessel by using the Global Positioning System and the Electronic Control Unit that has ARM7 microprocessor. Using GPS, we can find the current latitude and longitude values and is sent to the microcontroller unit. Then the controller unit finds the current location by comparing the present latitude and longitudinal values with the predefined value. Then from the result of the comparison, this system aware the fishermen that they are about to reach the nautical border.	It is four zone to indicate the border	In this system, RSSI Zig bee is used to track the boat location at any time. The RSSI Zig bee technology helps in reading the boat and tells the localization of the patient. In this system we use PIC16F877A microcontroller, this device contain ADC device internally.

CONCLUSION AND FUTURE WORKS:

From the review of various papers, it is concluded that there are more system are proposed to solve the location tracking problem but each contains some issues and problems. The intimation of location should be to both the fisherman and coastal guard when the boat is nearer to the other countries boundaries with location using zigpee is better than other solutions. The system proposes only for one boat to track the location. In upcoming years, the system can be extended by tracking multiple boats using single system. Thus, the fisherman 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 under control. The project generates alarm if they crossing the border by mistake. The simple circuitry makes the project low cost product which can be purchased even by illiterate people.

REFERENCES

[1] J. J. Leonard and H. F. Durrant-Whyte, Directed Sonar Sensing for Mobile Robot Navigation, ser. The Kluwer International Series in Engineering.

[2] Y. Zhou, C.L. Law and J. Xia, "Ultra low-power UWB-RFID system for precise location-aware applications," in Wireless Communications and Networking Conference Workshops (WCNCW), pp. 154–158, April 2012.

[3] D. Petrovic and R. Kanan, "Extremely low power indoor localisation system," in IEEE 8th International Conference on Mobile Adhoc and Sensor Systems (MASS), pp. 801–806, Oct. 2011.

[4] J. Healey, D. B. Marco, R. B. McGhee, D. P. Brutzman, F. A. P. R. Christi, and S. H. Kwak, "Tactical/execution level coordination for Hover control of the NPS AUV II using onboard sonar serving," in Proc. Symp. Autonomous Underwater Vehicle Technology, 1994, pp.

[5] T.C. Karalar et al., "An integrated, low power localization system for sensor networks," in The First Annual International Conference on Mobile and Ubiquitous Systems: Networking and Services, pp. 24–30,Aug. 2004.