International Journal Of

Recent Scientific Research

ISSN: 0976-3031

Volume: 7(2) February -2016

WARNING ALERT FOR THE FISHERMEN ON THE INDIAN MARITIME BOUNDARIES USING RADIO FREQUENCY AND ZIGBEE

Mahalakshmi V, Anto Bennet M, Murugan C, Vinod A, Immanuel S and Janakiraman G

THE OFFICIAL PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH (IJRSR)
http://www.recentscientific.com/ recentscientific@gmail.com

Available Online at http://www.recentscientific.com

ISSN: 0976-3031

International Journal of Recent Scientific Research
Vol. 7, Issue, 2, pp. 8758-8761, February, 2016

International Journal of Recent Scientific Research

RESEARCH ARTICLE

WARNING ALERT FOR THE FISHERMEN ON THE INDIAN MARITIME BOUNDARIES USING RADIO FREQUENCY AND ZIGBEE

Mahalakshmi V[1*], Anto Bennet M[2], Murugan C[3], Vinod A[4], Immanuel S[5] and Janakiraman G[6]

[1,2,3]Department of ECE, VEL TECH, Avadi-Chennai-600062, Tamilnadu, India
[4,5]Department of ECE, RMD Engineering College, Chennai, Tamilnadu, India
[6]Department of Automobile Engineering Dr. Mahalingam College of Engineering &Technology, Pollachi-642003, Tamilnadu, India

ARTICLE INFO

Article History:

Received 15th September, 2015
Received in revised form 21st November, 2015
Accepted 06th January, 2016
Published online 28th February, 2016

Key words:

User Centric Smart Card Ownership Model (UCOM), Zigbee, Microcontroller, RS 232

ABSTRACT

The peninsula , island and the coastal countries had their boundary limit in the sea , the people's lives in those types of country has the work of fishing in the sea due to carelessness or without knowing their boundary limit of their country fishermen crossing the borders. In such situation the lives of fishermen continue to be difficult. If the fishermen faced bullets from the Enemy Navy lot they were killed, now they are at the receiving end of attacks by apposite navy. Fishermen are being abducted and their boats are being captured. Nowadays people living in coastal areas are loss their valuable life unknowingly. Those peoples shot death by the neighborhood militants, saying that fishermen crossing the borders. So the author is designed to avoid such kind of accidents and to alert the fisherman about the border areas. This model supports an accurate evaluation of the reliability of the network with and without node failures .Using the proposed model analyze the tradeoff between the number of sensors and their communication range when deploying a wireless network that is connected with high probability and validate this analysis through simulation experiments.

INTRODUCTION

The ultimate aim of the work is to offer an advance security system in the peninsula, island and the coastal countries had their boundary limit in the sea the people's lives in those types of country has the work of fishing in the sea due to carelessness or without knowing their boundary limit of their country the fishermen crossing the borders. In such situation the lives of fishermen continue to be difficult. If they faced bullets from the Enemy Navy lot fishermen were killed, now fishermen are at the receiving end of attacks by apposite navy. Fishermen are being abducted and their boats are being captured. Nowadays people living in coastal areas are loss their valuable life unknowingly. Those peoples shot death by the neighborhood militants, saying that they crossing the borders. It is designed to avoid such kind of accidents and to alert the fisherman about the border areas. Detection of ship from remote sensing imagery is very important, with a wide array of application in areas such as fishery management,vessel traffic services,and naval warfare with the increasing number of and the resulting improvement in continuouscoverage of the optical sensors,SDSOI can partly overcome the shortcomings of SARbased approaches and should be investigated tohelp satisfy therequirements of real time ship monitoring. But in SAR there will be limited number of SAR sensors several factors such as clouds,ocean waves,and small islands affect the performance of ship detection includes low resolution,and creates unique security issues like simulator problem,produes computation burden.Ownership model does not provide optimum convience and flexibility to card holders.

Literature Survey

User Centric Smart Card Ownership Model (UCOM) gives the "freedom of choice" of respective applications to the smart card users. The user-centric architecture requires a trusted entity to be present on the smart card to provide security assurance and validation to the requesting application provider [1]. Author [2] had proposed the inclusion of a trusted computing platform for smart cards that we refer as the Trusted Environment & Execution Manager. The multi-application

Corresponding author:* **Mahalakshmi V
Department of ECE, VEL TECH, Avadi-Chennai-600062, Tamilnadu, India

initiative was put forward to have multiple applications on a single smart card. This would have enabled a cardholder to accumulate all of her smart card based applications (e.g. banking, telecom, and transport etc.) on a single device. However, despite the initial favour for the multi-application smart card initiative, there was no wide spread adoption of this model.

Sea target detection is a vital application for military and navigation purposes. A new supervised clustering method based on the combination of the techniques is presented for the sea target detection problem. The color components of the target and non-target pixels in the color space are used as features to train the classification algorithm. The new classifier is presented in the form of a new color space which we call the Target-based Color Space [3]. Author [4] had proposed an automatic ship detection method in High Resolution optical satellite images based on neighbour context information. First, a pre-detection of targets gives us candidates. For each candidate, had chosen an extended region called candidate with neighborhood which comprises candidate and its neighbor area. Second, the patches of candidate with neighborhood are got by a regular grid, and their SIFT (Scale Invariant Feature Transform) features are extracted.

The Author [5] had proposed a novel coarse-to-fine level set method for contour extraction in optical satellite images. To distinguish objects from a background, the undecimated wavelet transform is firstly adopted to extract image features, and a homogeneity metric is defined to measure the variation of the features inside and outside contours. In addition, the weight distribution ratio is proposed to adaptively tune the relative weight of the features. Tamper-resistant devices provide a secure, reliable, and trusted execution environment even in the possession of an adversary. With ever growing use of computing platforms (i.e. mobile phones, tablets and embedded devices, etc.) the potential for compromising the security and privacy of an individual is increased. Therefore, Author analyze the rationale for a general-purpose cross-platform user centric tamper-resistant device based on the smart card architecture, its applications in different computing environments, along with the ownership management framework ,relative weight of the features[6]. The application sharing mechanism in multi application smart cards facilitates between applications in a secure and reliable manner. Traditional application sharing can only be realized if both applications are installed on the same device. Author extends the smart card firewall to include the application sharing mechanism between applications installed on different smart cards. Furthermore, Author [7] provides an informal analysis of the protocols along with comparison with existing protocols. Author [8] proposed an approach for visual attention and investigates its application for ship detection in multispectral imagery. The author proposed approach describes high-dimensional data in the form of biquaternion and utilizes the phase spectrum of biquaternion Fourier transform to generate a required saliency map that can be used for salient target detection. In this method, the multidimensional data is processed as a whole, and the features contained in each spectral band can be extracted effectively.

Proposed Method

The main aim is to offer an advance security system in the peninsula , island and the coastal countries had their boundary limit in the sea , the people's lives in those types of country has the work of fishing in the sea due to carelessness or without knowing their boundary limit of their country they cross the borders. Four borders are assigned in the ocean using RF transmitter and receiver .Ocean section consists of RF transmitter section and RF receiver is present in the boat section ,when the boat reaches the first border the fishermen are informed that they have reached the first border through display unit. Similarly when the boat reached the second border the fishermen gets information that they have reached the second border .When the fourth border is reached an alert signal as well as a message is send to the navy section .The navy consists of zigbee,RS232 which is used for serial communiction between the boat section and the navy section.When the boat reaches the fourth border an alarm and a display is given to the fishermen.Similarly the navy receives a message that the boat is in danger and the navy can rescue the fishermen.

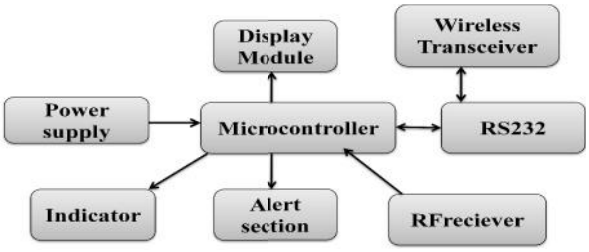

Figure 1 Block Diagram of Boat Section

From the fig 1 the boat section power supply of 9v is given the power supply is given to microcontroller .The microcontroller used is ARM7 which is low cost ,high speed and it uses pipelining which includes fetch, execute and decode. The wireless transmitter consists of zigbee 802.15.Zigbee is a specification for a suite of high level communication protocols used to create personal area network built from small Zigbee is based on a IEEE802.15 standard. It is low power consumption limit transmission distance to10-100meters depending on power output and environmental characteristics. Zigbee devices can transmit data over long distance by passing data through a mesh network of immediate devices to reach more distant one. Zigbee is used to connect with the navy section .The alert section is present in the boat which indicates when they reach the danger border.

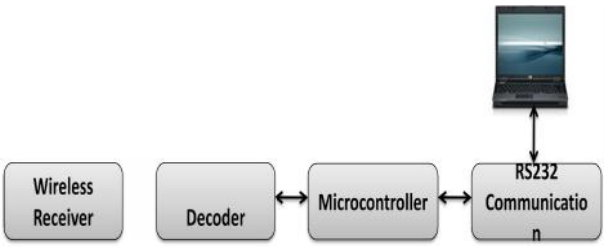

Figure 2 Block Diagram of Navy Section

From the fig 2,the 5v power supply is given through battery power.Decodes is device that converts information from one format to another.When the boat section reaches the fourth border.An alarm is given to the boat section and an indication is given to the navy through the zigbee. From the fig 3, the

power supply of 5V is the given to the sea section .The sea section consists of encoder and RF transmitter. An encoder is a device, software program that converts information from one format to another for the purpose of standardization, speed, accuracy or compression .The RF transmitter are of two types active and passive .Here we use active type which requires power supply. The RF transmitter identifies and indicates when a receiver comes into its boundary we assume four boundaries.

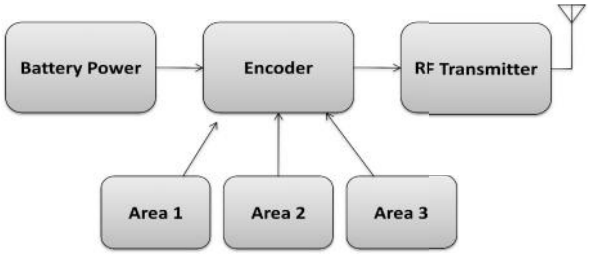

Figure 3 Block Diagram of Sea Analysis

When the boat reaches the first boundary an alert signal is given to the boat section similarly when the fourth border is reached an alert signal and addional information is send to the navy section.

EXPERIMENTAL RESULTS

From the fig 4 nowadays people living in coastal areas are loss their valuable life unknowingly. Those peoples shot death by the neighborhood militants, saying that fishermen crossing the borders. So the author is designed to avoid such kind of accidents and to alert the fisherman about the border areas. This model supports an accurate evaluation of the reliability of the network with and without node failures.

Figure 4 Working of Radio Frequency and Zigbee

Using the proposed model analyze the tradeoff between the number of sensors and their communication range when deploying a wireless network that is connected with high probability and validate this analysis through simulation experiments .The ship is continuously detected and it is displayed in the display unit which is shown in fig 5.

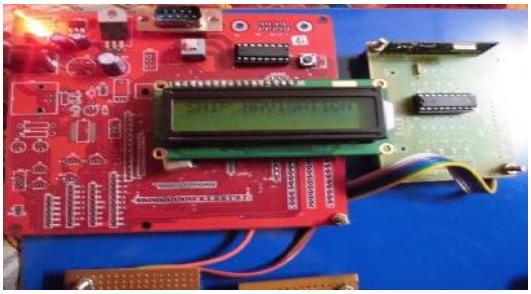

Figure 5 Ship Navigation

Power supply of 9v is given to the microcontroller. The microcontroller used is ARM7 which is low cost, high speed and it uses pipelining which includes fetch, excute and decode. The wireless transmitter consists of zigbee 802.15.Zigbee is a specification for a suite of high level communication protocols used to create personal area network built from small. Zigbee is based on a IEEE802.15 standard. It is low power consumption limit transmission distance to10-100meters depending on power output and environmental characteristics.

Figure 6 Boat Reaching the First Border

The boat consists of alarm and display unit shown in fig 6.When the boat reaches the first border displays that the boat has reached the first border .This display gives an alert to the fishermen on boat. The display of first border crossing is shown in fig 7.

Figure 7 Display of Border 1 Crossing

From the fig 8 the power supply of 5V is the given to the sea section .The sea section consists of encoder and RF transmitter. An encoder is a device, software program that converts information from one format to another for the purpose of standardization ,speed, accuracy or compression .The RF transmitter are of two types active and passive .Here we use active type which requires power supply .The RF transmitter identifies and indicates when a receiver comes into its boundary we assume four boundaries .

Figure 8 Boat Reaching the Fourth Border

When the fourth border is reached an alert indication is given that they have reached the danger level which is shown in fig 9.

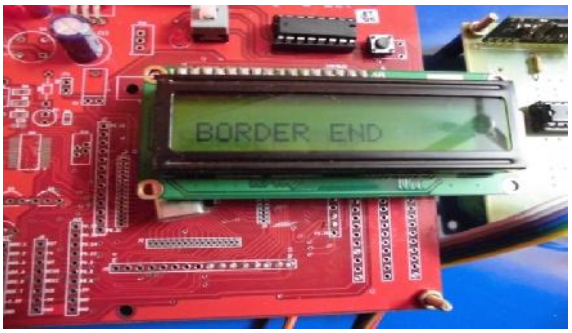

Figure 9 Display of Border 4 Crossing

The boat automatically comes in reverse direction. From the fig 10 the 5v power supply is given through battery power.Decodes is device that converts information from one format to another.When the boat section reaches the fourth border.An alarm is given to the boat section and an indication is given to the navy through the zigbee.

Figure 10 Alerts to Navy Section

The navy section is connected with zigbee which is used for wireless transmission when the boat has reached the final border the boat number details are displayed in the laptop .The navy can rescue the fishermen from the enemy.

CONCLUSION

This system used to reduce fisherman burden about boundary scanning and provide alert to fisherman through display and audio systems using wireless technologies. Secured and safety environment system for automobile users and also key points for the investigators can easily find out the hijackers image. We can predict the theft by using this system in our day to day life. This paper will help to reduce the complexity and improve security, also much cheaper and 'smarter' than traditional ones**.** In future it can be used as an advance security system in the peninsula island and the coastal areas to protect the valuable life of the fishermen.

It is used to alert the fisherman about the border areas. It has a major advantage of boundary scanning and in defense application. Similarly used for data storage and monitoring. Further transferring of data become secure.

References

1. S. Qing and J. Zhou, Eds. Beijing, China: Springer, November 2013,"Remote Attestation Mechanism for User Centric Smart Cards using Pseudorandom Number Generators", in 5th International Conference on Information and Communications Security (ICICS 2013).
2. S. Xie, Ed. Guangzhou, China: IEEE CS, November 2013,"Building the Bridges –A Proposal for Merging different Paradigms in Mobile NFC Ecosystem", in The 8th International Conference on Computational Intelligence and Security (CIS 2012).
3. S. Mirghasemi, H. S. Yazdi, and M. Lotfizad, Appl. Intell, Jun. 2012, "A target-based color space for sea target detection", vol. 36, no. 4, pp. 960–978.
4. G. Jun and Z. Chang-ren, Appl. Mech. Mater,Jul. 2012,"A novel method of ship detection from spaceborne optical image based on spatial pyramid matching", vol. 190/191, pp. 1099–1103.
5. Q. Xu, B. Li, Z. He, and C. Ma Sep. 2011 "Multiscale contour extraction using level set method in optical satellite images", IEEE Geosci. Remote Sens. Lett., vol. 8, no. 5, pp. 854–858.
6. R. N. Akram, K. Markantonakis, and K. Mayes, J. Li and J.-Y. Chung, Eds. Beijing, China: IEEE Computer Science, October 2011 "User Centric Security Model for Tamper-Resistant Devices", in the 8th IEEE International Conference on e-Business Engineering (ICEBE 2011).
7. C. Zhu, H. Zhou, R. Wang, and J. Guo, IEEE Trans. Geosci. Remote Sens, Sep 2010."A novel hierarchical method of ship detection from spaceborne optical image based on shape and texture features", vol. 48, no. 9, pp. 3446– 3456.
8. R. N. Akram, K. Markantonakis, and K. Mayes, B. O. Apduhan, O. Gervasi, A. Iglesias, D. Taniar, and M. Gavrilova, Eds. Fukuoka, Japan: IEEE CS, March 2010"A Paradigm Shift in Smart Card Ownership Model," in Proceedings of the 2010 International Conference on Computational Science and It's Applications (ICCSA 2010).

****

How to cite this article:

Mahalakshmi V.2016, Warning Alert For The Fishermen on The Indian Maritime Boundaries Using Radio Frequency And Zigbee. *Int J Recent Sci Res.* 7(2), pp. 8758-8761.

TSSN 0976-3031