

A Survey Paper on Valuable Security System in Railways using Biometric and Wireless Communication

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Abstract— The important objective of this device is to provide the security and alarm system to the Valuable Carrying in Railways which can be used by individuals which require a cheap but reliable security system. The idea behind this project is to provide its users with a simple, fast and reliable way to get help during emergency situations. The device can be placed at any remote location which can be easily accessed by the user. It uses Biometric for identification of an individual and provide security function such as electronic signature creation, valuables along with weight calculation of the valuable for security purpose. It uses a microcontroller for system control, GSM (Global System for Mobile Communication technology for communication and sends SMS containing the emergency message and the GPS (Global Positioning System) location of the sender by which it will be beneficial for the growth of Indian Railway Economics.

Keywords— *Microcontroller, Biometric, GSM, GPS.*

I. INTRODUCTION

In Indian Railways there is excessive degree of theft, also there is need for higher protective device. It is a whole lot safer to have a system that communicates to the tool owner without putting human existence threat.

There is less security for the passengers travelling by Railways such as Camera's are installed only on the platform, also the luggage carried out by passenger is just secured by the number padded locks.

In this research of a system it provides the tendency to utilize the supply of GSM network, cellphone and electronic circuit. To comfy it in opposition to theft, crime, etc. A powerful protection System is needed not only most effective to detect but also pre-emit dangers. The protection using weight of the valuable the individual will insert in the locker i.e. metal box and then will be lock by using fingerprint which will count the weight of valuable

including the box and store the calculated information in the Cloud Database.

If the threat occur or another individual rather than Authenticated individual misbehaves with the box then the individual will receive a message on Mobile that the valuable are being stolen, and in this way the individual will get an alert and this will make the reduction in the railways theft by a proper validated security system.

II. LITERATURE SURVEY

Advance Encryption Standard (AES) is used for Image Encryption and Decryption purpose. Limitations of 3DES is that it is relatively slow in software and it uses 64bit block size whereas, AES uses 128, 192 and 256 bit block size which provides more security to block size[2].

AES algorithm uses a round function that is composition of 4 different byte oriented transformation. For encryption purpose 4 rounds consists of:

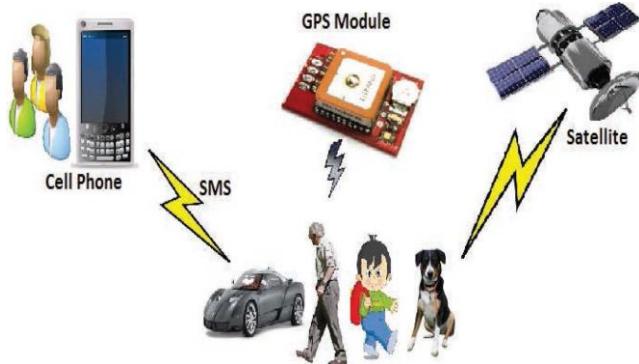
1. *Substitute Byte*
2. *Shift Row*
3. *Mix Columns*
4. *Add Round Key*

while Decryption is a reverse process of Encryption. [1]Encryption is used Encrypt the Data.

GPS is used to get the position of the moving object. GPS receiver is used to get the current information of the object. GPS receiver continuously sends the data to receive the pin of microcontroller and require information of longitude and latitude which is extracted by the program. When the object intentionally or unintentionally tries to cross the predetermined area, the microcontroller switches on the relay and GPS gets connected whereas GSM disconnects and coordinates are saved in RAM. Again relay is used to disconnect GPS and connect GSM to send saved coordinates to user in the form of message.

The task of GPS receiver is to find out the coordinates of each satellite. With the help of this information it can deduce its own location. This whole operation is called tri-lateration. [3] To find the coordinates of the object, the following things are required by the GPS receiver:

1. The position of at least three satellites above site
2. The distance between the site and each of those satellites.



The GSM network is used to provide communication from one place to another. [4] The GSM module consist of a mobile station, (ME and SIM). [5] To alert the user GSM module work like an automatic calling system. [6][7] Cloud computing is a logical paradigm shift in computing which provides quicker and cost effective services for large web applications. Moreover, storing the application data in a cloud database facilitates greater flexibility and cost effectiveness to the users. The cloud data are accessed through search systems and user interfaces since the cloud provides large amount of storage space for online services. [8]

III. CURRENT SYSTEM

Security plays major role in everywhere. In every sector automation security gives more security than manual security. Safety is accorded the highest priority by Indian Railways and all possible steps are undertaken on a continual basis to prevent theft and to enhance safety. Surveillance is kept through CCTV cameras to ensure safety and security of passengers. At present, CCTV cameras are provided at 436 stations over Indian Railways. Frequent announcements are made through Public Address System to educate passengers to take precautions against theft, snatching, drugging etc. For security purpose people by their side make use of Number Padded locks. All these parameter lack for the security towards passengers.

IV. LIMITATIONS OF CURRENT SYSTEM

- I. Low Security is provided by Indian Railways.
- II. Maintenance of the Camera's installed is poor.
- III. No Growth in Indian Railway Economics.
- IV. Number Padded Locks are used for Security of Luggage.

V. PROPOSED SYSTEM

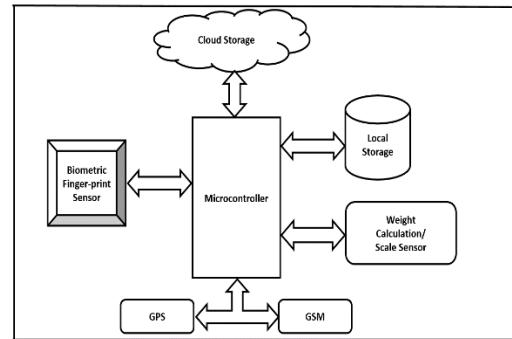
In the Proposed System, we are going to provide better security to the passengers while travelling into train with the minimum fare. We have used Technologies and concept like

- i. Biometric Module
- ii. Weight Calculating Module
- iii. GSM and GPS Alarm Module
- iv. Cloud Database

Working of the system is as follow:

1. Passenger will book the ticket by entering the individual details which will include all his aadhar card details.
2. On the day of Journey, after entering into the train the individual will use his Metal Box to keep his valuable which will be accessed by the biometric assigned through the aadhar card details which he has been entered while the booking.
3. Then the total amount of weight of the box including the valuable will be calculated and stored into the cloud database.
4. In the middle of journey, if Unknown person try to indulge with the box then the Alarm will beep and SMS will be send to passenger on his registered mobile number by GSM module and the passenger will get alerted.

PROPOSED SYSTEM ARCHHITECTURE DIAGRAM:



VI. CONCLUSION

In this work, a new access to travelers based on security through Indian Railways has been provided using Biometric, GPS and GSM Module and Cloud Storage for Database. In addition, a temporal model is also proposed in this work to enhance the security of the railways. Which may also help for the growth of Indian Railway Economic.

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