

BIOMETRIC BASED AUTOMATIC TICKET CHECKING

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Abstract: Bio metric deals with measurement of human characteristics like face, voice, fingerprint, iris prints, etc. There are devices helps to identify and differentiate person to person based on their bio metrics. These devices consist of transducers which senses and converts the bio metrics into electrical signals and thereby verifying the person's identity with the data present in the existing databases. This technology is applied in various fields for security purposes, to ensure the entry only to authorized person. As of now it is used in places like military, companies and various institutions for protecting confidential details and to have restricted entry. There are researches that are going on for identifying people even from a distant place, which helps to identify terrorists who live among common people. These sensors are also available in mobile phones which helps to protect the personnel details of the owner. Bio metrics in railway system is already being proposed for implementing in the process of ticket booking few years back but there is no progress for the same. Today there are situations where people find difficulty in booking tickets and there are many cases where people travel without tickets or even ticket black marketing. This paper is deals with a device which uses bio metric system to check if the concerned person has ticket to board the particular train or not.

Keywords: *biometry; bio metric devices; ticket checker;*

I. INTRODUCTION

As every human being has unique bio-metric, it is very much useful in their identification. Bio-metric devices plays a major role in security. There are two characteristics that can be used to analyse the biometric of the people:

- Analysing physical characteristics :- This includes the analysis of DNA, gene, iris, shape of ear, fingerprint, retina, head, face etc.
- Analysing behavioral characteristics :- This includes the analysis of the typing rhythm, voice etc.

Apart from these two categories bio metric devices can also sense brainwaves, electronic tattoos. There are bio metric devices which sense the whole body as password where a microprocessor is swallowed as a pill. These devices are found to have applications in various fields. Bio metric devices sensing fingerprint, iris, face are attached with doors for security purpose in many places. The devices sensing signature was also very much useful to public. These devices works by storing the necessary data in the database, compares those bio- metric data with the bio- metric data obtained from the user and detects the right person.

II. EXISTING SYSTEM

The bio-metric system is been used in almost all the fields like in railways, smart phones as fingerprint sensors, airports, health care and so on. Bio-metrics is not yet implemented by Railways in India. In many other countries bio metrics is implemented for various purpose.

III. FACE RECOGNITION

In Beijing, there has been a rapid increase in the population. So to increase efficiency in the increased population the authority at the Beijing railway station have implemented a system. In this system the user has a smart id card with the user's photo and a unique number along with the biometric of their faces. There would be face recognition done at entry and checked if it matches with the one in smart id card and there by increasing the security. This does not take much time to detect and also cost efficient.

IV. FINGER PRINTS

The finger print is another major important aspect of railways to increase efficiency which is planned to be implemented in Pune railway station where the passengers can book only two tickets per day with the allotted coupon which are generated when the fingerprint is placed. The system will allow only two coupons per day, if anyone tries to book tickets more than the allotted, the system would alert the corresponding officials.

V. IRIS RECOGNITION

Iris recognition is another major important field of biometrics which is used in providing passport. It is an automated method that uses pattern recognition of the irises of an individual which is unique. Iris recognition has been used in several airports for several years. The user must sign up to the scheme. And the details of the people are stored in the International database. If the user makes use of these

system the user can avoid long passport queues by simply walking into a booth where the camera is placed and look at the camera. The software scans the iris and matches the details of the person with the International database and produces the passport.

VI. PROPOSED SYSTEM

The proposed system talks about the development of a system that does the automatic ticket checking. The main purpose of the system is to determine that only the person with tickets can board the train. Initially each person can be allotted with a smart card which contains a unique id, as well as the details about the person and the fingerprint biometrics. While booking train ticket the passengers unique id is collected. When the passenger wants to board the train it is checked if only that particular passenger has entered the coach. This is done by a biometric sensor placed at each entry point of the train which with the help of the biometric obtained checks if it matches with the finger print available in the list of passengers who are to board the train from the unique id has been collected earlier. If it matches then it is clear that the person has tickets and is allowed to enter without any trouble. Thus, this enables that only the particular person who has booked the ticket in a particular train in any particular coach enters inside. So only if the fingerprints match the passenger is allowed to enter the train and if not or if the passenger enters without placing fingerprint an alarm is created, the face of the person is captured and the authorized railway officer is informed along with the picture of the person. To enable that only one particular person enters with one of biometric check it is determined with the help of passive infrared sensors.

The following is the working of the system:

- A passenger books tickets by providing with the unique id.
- At the entry point of the train coach, the fingerprint of the person is checked with the help of a fingerprint sensor.
- If the fingerprint matches then the passenger is allowed to enter the train.
- If it doesn't match the entry of the passenger is prohibited by creating an alarm and the corresponding persons photo is sent to the railway station officers.
- The PVIR sensors detect the entry of the person, and if the person has not placed the fingerprint then the alarm is generated and the railway station officials are alerted.

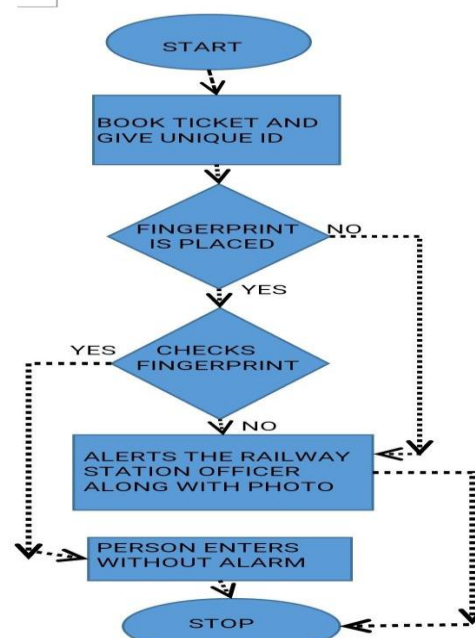
The following are the basic components required are:

- Fingerprint sensor : They are an important component in this system. This sensor can be easily made by using Raspberry pi. By doing so will improve the quality of fingerprint detection.
- PIV sensor : The passive Infrared sensors are used to determine the number of people entering with a single check of fingerprint. This enables that with a single check multiple people don't enter the train. This sensor works based on the heating of the

sensors.

- Camera: The main purpose of using camera is to click pictures of the person who enters without ticket and as well as those who don't place fingerprints. This helps the officials to easily identify the particular person.

The following is a simple flow chart showing flow of system:



As it is new technology it would take a longer duration to be adapted all over the country.

VII. CONCLUSION

This system thereby increases the safety in the aspect of railway journey. This enables in such a way that the train tickets are utilized properly and the facilities are not misused and also helps to prevent corruption by train ticket checkers and the system would become transparent between the user and the government.

VIII. REFERENCES

- [1]. Mary Lourde R and Dushyant Khosla, "Fingerprint Identification in Biometric Security Systems", International journal of Computer and Electrical Engineering, Vol No. 2, 2010.
- [2]. Monika Sharma, "Fingerprint Biometric System : A survey", International Journal of Computer Science & Engineering Technology, Vol No. 5, 2014
- [3]. Pankanti, S., S. Prabhakar, and A.K. Jain. 2002. "On the Individuality of Fingerprints". IEEE Transaction on Pattern Analysis and Machine Intelligence. 24(8)..
- [4]. Somnath Sarkar, Dipankar Chatterjee, "Biometric Ticketing System for Railway", International Journal of Latest Trends in Engineering and Technology (IJLTET), Volume 4, 2014.