

Surveillance and Security for Correctional Facilities

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ABSTRACT

Prisoners are segregated in different wards. But it is the tendencies of a few bad elements to leave the barracks on the pretext of availing medical services, canteen services and telephone services etc., and going to some other barracks to receive or distribute prohibited articles. To overcome this situation, a system is proposed for the surveillance of the prisoners, using biometric sensors for monitoring purpose. This project overcomes the limitations of the existing systems of correctional facilities. In this proposed method the finger prints of the prisoners are taken as input and the other parameters that apply are the source and destination along with the time difference. Thus, the proposed system will make prisons more secure. This work provides more secure and efficient way to eliminate the wrong traversals and to inform the officials about it when this happens. The biometric sensor along with LED display, the alarm, RF receiver, RF transmitter is integrated with the PIC microcontroller. The fingerprint module takes the input and identifies the prisoner and then displays the details in the LED screen. Source controller RF and the destination RF interact, as soon as the prisoner checks in, the timer starts to function and counts until prisoner reaches. If the prisoner does not reach before the average time taken, then the alarm goes on and the official can know along with the prisoner ID on the screen. Thus the proposed system gives a better monitoring and control over the prisoners.

Keywords : Surveillance, security, prisoners, biometric, PIC microcontroller, RF transmitter/receiver source and destination.

I. INTRODUCTION

Security features a wide range of meaning which incorporates protection from hostile forces, preventing potential damage or harm. One of the methods for top level security is the use of biometrics. Biometric uses distinctive feature of a human to identify an individual. Biometrics features a high range of functionality which ranges from attendance system to high security monitoring systems. Biometric is based on the Physiological characteristics are associated to the form of the body. Examples include, but aren't limited to fingerprint, palm veins, face

recognition, DNA, palm print, hand geometry, iris recognition, retina.

Biometric security is mainly implemented in places with critical physical security requirements or that are highly susceptible to fraud. Characteristics are stored inside a biometric security system or scanner, which may be accessed by authorized personnel. The person walks to the scanner and evaluates, match is found from the stored records and individual is granted/denied access.

This paper mainly focuses on fingerprint-based security for correctional facilities. Prisons, and their

administration, are a state subject covered by item four under the State List in the Seventh Schedule of the Constitution of India. The management and administration of prisons falls exclusively in the domain of the State governments, and is governed by the Prisons Act, 1894 and the Prison manuals of the respective state governments. Thus, the states have the primary role, authority and responsibility to change the current prison laws, rules and regulations. The Central Government provides assistance to the states to improve security in prisons, for maintaining the old prisons.

The current security situation of the prison is mainly based on manual ways which has many cons, to overcome this biometrics security can be used. By using biometric system, we can keep track of the jail inmates' movements and also identify any malpractices done by them.



Fig 1: type the name of the figure here done by them.

II. METHODS AND MATERIAL

SYSTEM ARCHITECTURE

The system currently has a microcontroller each for the source and the destination. The microcontroller used here is PIC 16F877A, it is a 40pin microcontroller which is readily available, cheap and also has sufficient number of interfaces. Other parts which are needed are two LCD screen which is a 16x2 display, two set of keypads, a RF transmitter, a RF receiver, two power supply unit, crystal oscillators, an alarm clock, two fingerprint readers with 9600 baud/sec.

LCD display

“LIQUID CRYSTAL” is basically a mix of two states of matter, the solid and the liquid. They have both the properties of solids and liquids and maintain their respective states with reference to another. Solids usually maintain their state unlike liquids who change their orientation and move everywhere within the particular liquid. Further studies have showed that liquid materials show more of a liquid state than that of a solid. It must even be noted that liquid crystals are more heat sensitive than usual liquids. A little amount of warmth can easily turn the liquid into a liquid. This is the reason why they are also used to make thermometers. The liquid-crystal display has the distinct advantage of getting a coffee power consumption than the LED.

Fingerprint Sensor

Fingerprint processing Fingerprint processing includes two parts: fingerprint enrolment and fingerprint matching (the matching are often 1:1 or 1:N). When enrolling, user must enter the finger twice . The system will process the two-time finger images, generate a template of the finger based on processing results and store the template. When matching, user enters the finger through optical sensor

and system will generate a template of the finger and compare it with templates of the finger library. For 1:1 matching, system will compare the live finger with specific template designated within the Module; for 1:N matching, or searching, system will search the whole finger library for the matching finger. In both circumstances, system will return the matching result, success or failure.

III. III. RESULTS AND DISCUSSION

After identifying the prisoner's finger print for leaving from the source to the destination the timer starts and the prisoner should reach the destination before the allotted time.

Only after entering in the admin mode we are able to make changes to system such as enrolling, identifying, deleting single id and deleting all ids. Nobody other than admin can modify or alter the system. The admin can be a higher official or the jail warden.

the system cross checks the prisoner's fingerprint with the multiple fingerprints that are already present in the system, when a match is found the prisoner's id is displayed and, in the destination, check point the timer starts.

When the prisoner fails to reach the destination check point before the allotted time. Then the alarm starts beeping and the warden can know that the prisoner with that specific id has not reached the destination point, and so they can investigate on this.

IV. CONCLUSION

The challenges present in existing correctional facilities' security and surveillance methodologies can be enhanced by applying this proposed biometric system. This system provides an efficient security system for the prisoners in prison using biometrics.

This project also creates a safer and well susceptible environment for the prison.

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