Student Data Logging System Based On Fingerprint Authentication

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Abstract- *Our work and research used for attendance which is commonly used to mark the presence in colleges, schools and offices. The main goal of our research is to develop an all institutions/ organization based on fingerprint scanning which is now current trend in technology. Our thesis will surely helpful for the society to enhance their work. The most important functions that can be done automatically like information acquisition of fingerprints, processing of data and wireless transmission, matching fingerprint and attendance report making.*

Keywords- Microcontroller, Finger Module, Max Board, Embedded System, Zigbee.

I. INTRODUCTION

Every organization needs to secure its personal data like employees data. The particular organization have to collect the information of the entrance and exit of the employees. Fingerprint identification is one of the most commonly used system and it can be used in almost all institutions and organization. The main aim of this project is to acknowledge the parents guardian of students about his entrance and exist of the college. Attendance taken by manual is very time consuming and hectic. So attendance using biometric is simple way. Nowadays students are less motivated to come to lecture room. Laziness on the part of student, extra social activities that have no importance in aiding the objective of the institution and a lot more. Our project is attempt at solving these problem by using biometric technology. Biometric is an fully automatic identification technology. To make identity management system more secure and reliable for authentication, biometric data are collected attendance management system. In this paper we are trying to create the system more secure and reliable. Attendance management is major part of todays human resource system; towards better human resource practice, system and excellence in work setting.

II. LERATURE SURVAY

A number of related works exist in literature, application of biometric Technology to different areas and specifically to the area of academic attendance monitoring problem. A number of related works exist on the application of different methods and principles to effectively monitor the attendance of students. An embedded computer based lecture attendance management system was proposed. The system provides an improvised electronic card and card reader serially interfaced to the digital computer system. A wireless attendance management system that authenticates using the iris of an individual. The system uses an off-line iris recognition management system that can finish all the process including capturing the image of iris recognition, extracting minutiae, storing and matching.

III. context /BACKGROUND

Every organization whether it be an educational institution or business organization, it has to maintain a proper record of attendance of students or employees for effective functioning of organization. Biometric Identification Systems are widely used for unique identification of humans mainly for verification and identification. Biometrics is used as a form of identity access management and access control. So use of biometrics in student attendance management system is a secure approach. There are many types of biometric systems like fingerprint recognition, face recognition, voice recognition, iris recognition, palm recognition etc. In this project, we used fingerprint recognition system.

A fingerprint is the pattern of ridges and valleys on the surface of a fingertip. The end points and crossing points of ridges are called minutiae. It is a widely accepted assumption that the minutiae pattern of each finger is unique and does not change during one's life. Ridge endings are the points where the ridge curve terminates, and bifurcations are where a ridge splits from a single path to two paths at a Y-junction.[3]

Fingerprints technology is one of the most fastest growing technology in todays world. They are secure to handle, secure to use and mainly secure to trust. When we compare this biometric technology to another technology then we will find the difference in their functions. This technology provides the reliable service to the users. Each person has the unique fingerprint so it will be easy to recognize the persons

identity and his uniqueness. By this unique fingerprint the persons attendance can be easily taken.

IV. BLOCK DAIGRAM

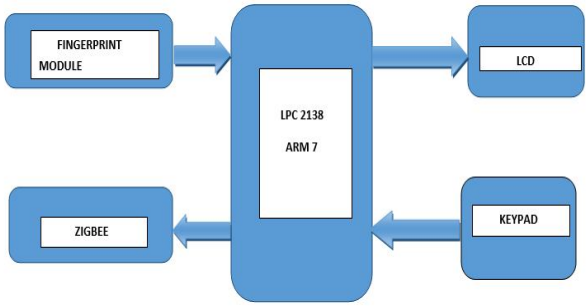


FIG.1.TRANSMITTER

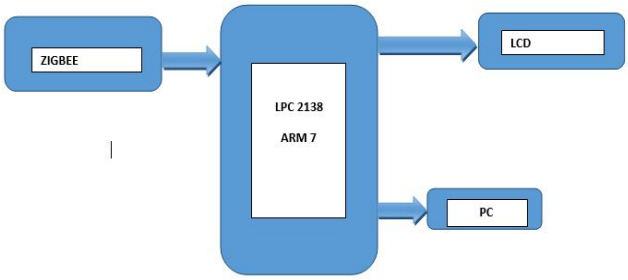


FIG.2.RECEIVER

A. Fingerprint module-

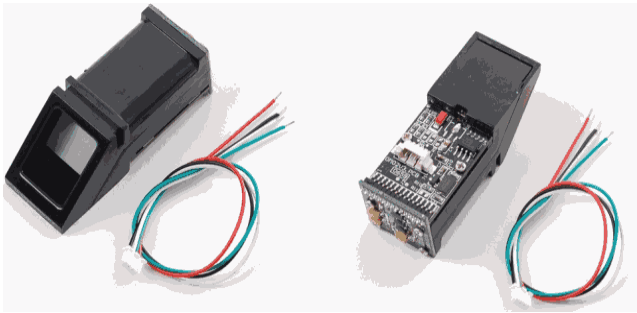


FIG.3.FINGER MODULE.

This fingerprint module consist of fingerprint reader, compatible different fingerprint sensor. It is an intelligent module which can freely get fingerprint, image processing can also be done. It verify the fingerprint, search and storage, and it can work normally without any disturbance. Fingerprint processing includes two parts: fingerprint enrollment and fingerprint matching. This module is used to registering persons information and their unique fingerprints into the system flash memory. During enrolment process, the fingerprints are captured image processing is done and their unique features are extracted from the captured fingerprint image and it can be successfully stored in a flash memory as a template along with the person's details.

a) FINGER STRUCTURE

B. ZIGBEE

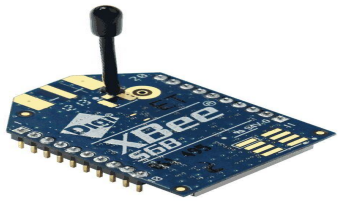


FIG.4.ZIGBEE MODULE.

ZigBee is the mostly used in industry for wireless data transmission. It is one of the most important networking standard for connecting sensors, instrumentation and control systems. ZigBee, a specification for communication in a wireless personal area network (WPAN), has been called the "Internet of things." ZigBee Module is a low-cost, low-power consume, wireless mesh networking standard. This module is better in transparent data transmission between many devices, and it can mostly form a MESH network.

This device network has the characteristics of electric power-saving. It has high reliability and it can be widely used in various fields of automatic control. The target application are at industry, home automation, telemetry and remote vehicle automation, agriculture automation, medical care and so on

V. PROPOSED WORK

The proposed system combines fingerprint authentication and processing of information students details thus it forms the system more secured.

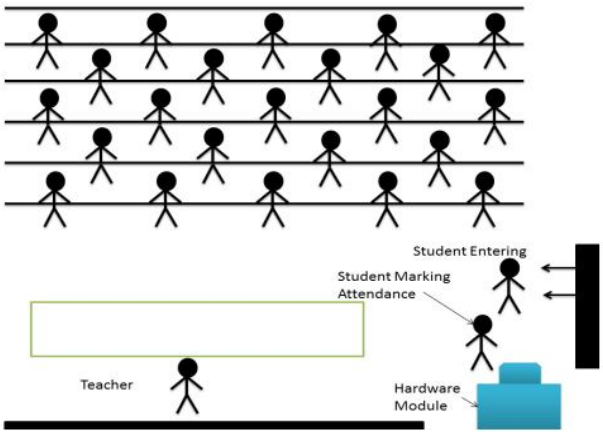


FIG.5.ACTUAL WORKING OF SYSTEM

During the attendance time the biometric fingerprint of the student is taken and this image can be compared to the stored record. If the data can be found correct then the attendance of that student is registered.

Following points will clear that the attendance should be taken without any problem-

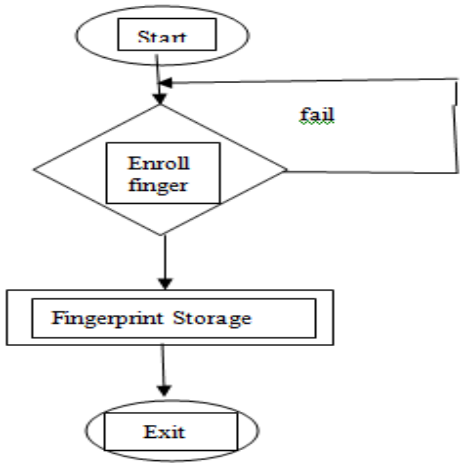
All the hardware will be in class so outside disturbance is notpossible.

To prevent any misbehavior with module, The module should be kept in a small cabin.

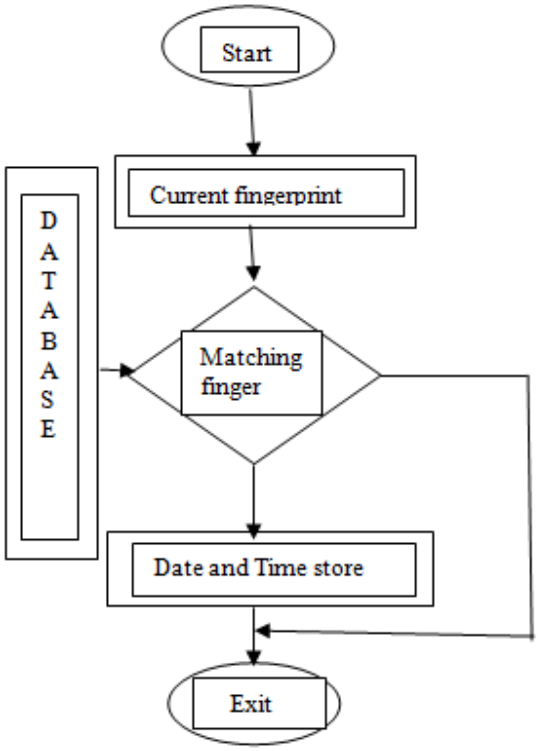
When teacher enters in class the attendece sould start. Computer software should start its work.

After 20 min, the process will be stopped for the students whoes entry is late.

VI. FLOWCHART



[A]. .FINGERPRINT FLOWCHART



[b].MATCHING FINGERPRINT FLOWCHART

All data of the students like their names, roll no, class, division are firstly saved in the PCs.

The above flowchart will clearly describe the overall working of the attendance system. The flowchart will be divided into two parts viz. fingerprint entering, fingerprint matching. Firstly the system starts with enrolling the finger. If the recognition is incorrect then it sends the message fails and process again starts. After successful attempt the fingerprint is stored. The current fingerprint image is matched with stored database and after the matching is done result will be displayed and stored with current date and time.

VII. RESULT ANALYSIS

The result analysis can be divided into several steps like placing finger instruction, scanning, authentication, comparing with previous stored data. The following images will shows the overall working of module.

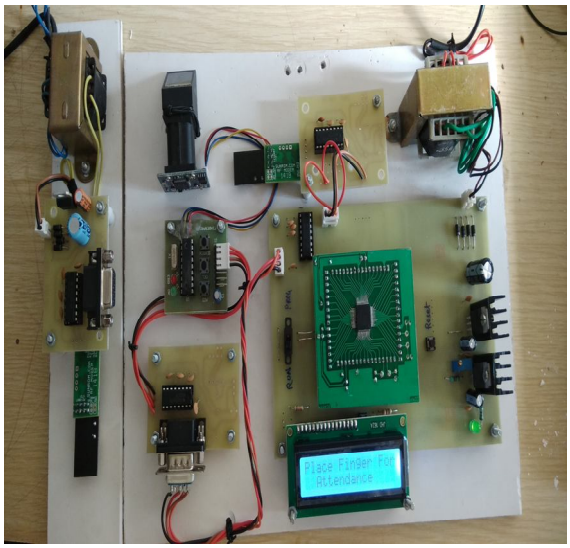


FIG.6.INITIAL STATE

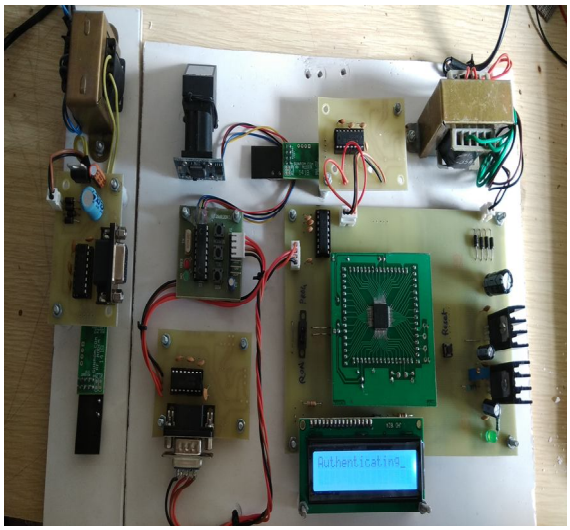


FIG.7.AUTHENTICATION PROCESS

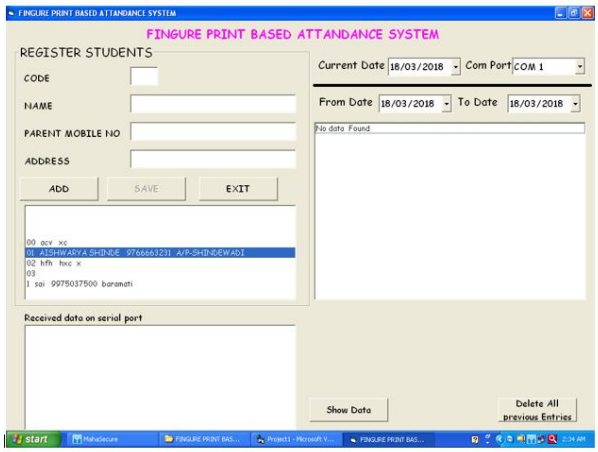


fig.8.student database

VIII. CONCLUSION

Our project "Biometric student attendance system" is surely applicable for all the institutions, organization, schools and colleges. In this project there is huge scope for research and work. It has high flexibility and lot of improvement of work. This research will be more useful for the future technology. It will be surely helpful for the society and the other areas.

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