

Smart Attendance Management System

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ABSTRACT

Conventional attendance system followed in an educational system where the teacher call out the name of each and every student and mark the attendance causes time wastage during lecture time. This becomes more and more severe especially in the current scenario where number of students in a class is very large. Managing the attendance data of such a large group is also very difficult. Another disadvantage of present system is the chance for the student to mark fake attendance. Fingerprint based devices are being used in corporate environments. These devices use computer to store and verify fingerprints. It can be ported to academic environment with modifications.

Keywords

ZigBee technology, Fingerprint identification, Attendance System, Wireless communication, GPRS System.

1. INTRODUCTION

Smart attendance Management System could be a software package developed for daily checking for company purpose attending in colleges, schools and institutes. This facilitates to access the attending of explicit specific selected} student during a particular category info. The information is sorted by the good attending management system, which is able to be provided by the teacher for a specific category info of student. This good attending management system will facilitate in amendment management attending eligibility criteria of a student. Attending management system is extremely vital management a part of system. Currently, the magnetic card attending system is wide used The Zig-Bee technology is new technology developed in recent years .Zig-Bee may be a system that is definitely on the market in market with low value and low power potency as compare to alternative wireless communication technology. It's terribly straightforward to use wireless detector networks.

Wireless attendance management system, a style methodology of wireless fingerprint sensible of attendance management system using Zig-Bee technology. It achieves sensible attending management system, by fingerprint identification. It understand low-priced, power and high performance fingerprint information transmission and recognition operate. During this paper complete development and implementation of the sensible attending management system is provided by the employment for fingerprint module and GPS system. This numerous modules that represent completely different components of the sensible attending management system square measure explained victimization their hardware demand as shown in Fig.1.block diagram.

2. BLOCK DIAGRAM

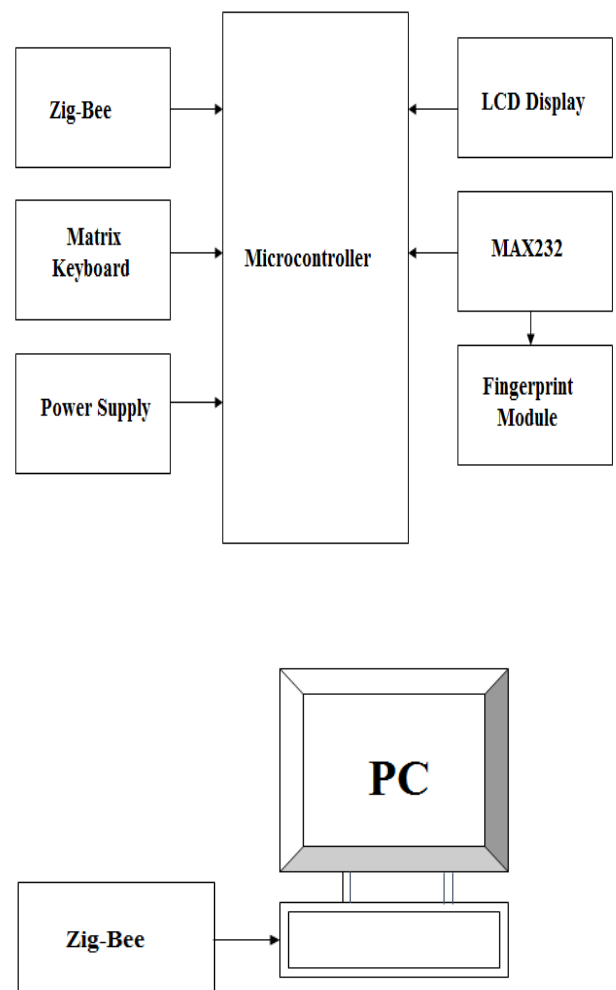


Fig 1. Block Diagram of Smart attendance management system

Block Diagram Explanation

1. The Basics of Biometric concept What is the Biometric?

The basic idea of Biometric ways are recognizing someone supported a physiological or behavioral characteristics. Among the biometric ways measured are face scanning, fingerprint scanning, hand pure mathematics scanning, hand writing, and voice. This ways are separate and distinct from

personal information. Biometric templates can't be reverse designed to recreate personal info and that they accustomed access personal informational. The biometric ways are use a physical attribute of anatomy, like your fingerprint with none problem to spot and verify that you just are WHO you claim to be answer within the market nowadays. The Biometric Technology technique is nowadays terribly straightforward technique and power full technology. This biometric technology could be a trendy advances technology. We have a tendency to plus massive reductions in value and currently create biometry simply obtainable and cheap to any organization, tiny business and agency like that.

2. Fingerprint Scanner Module

This is a fingerprint Scanner Module with TTL UART interface. The user can store the fingerprint data in the module. And this can be configured in 1:1 or 1:N mode for identifying the person's fingerprint. The fingerprint module can be interface with minimum 3.3v or 5v require in Microcontroller. Fingerprint scanner module interfacing with PC is required for MAX232 level converter.



Fig 2. Finger print module Picture

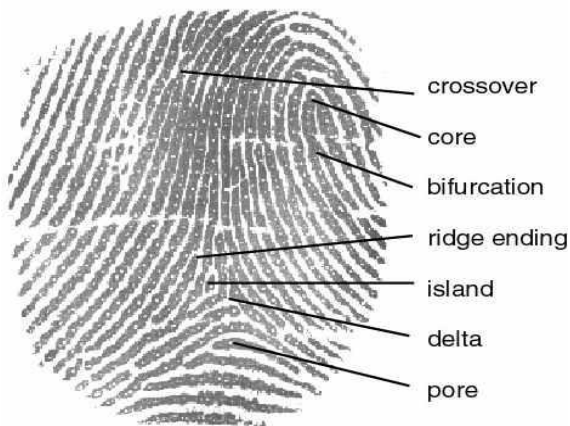


Fig.3. Finger scanning image details

The fingerprint scanner module is an impression left by friction ridges of a human finger. It needs to be of a high quality image.

The basic idea is to measure the distance between ridges and valley as shown in fig.4.

There are two types of fingerprint scanner following are

1. Solid state fingerprint
2. Optical fingerprint readers.

Fingerprint system we will be using optical fingerprint system which connected to the system using an (USB 2.0) universal serial bus. The fingerprint module top layer of the sensor, where the finger is placed is known as the touch surface. The

visible light reflected screen from the finger passes through the phosphor layer to an array of solid state pixels and there capturing the digital image.

This solid state pixels which captures a visual image of the fingerprint. If your finger is scratched or dirty, so fingerprint scanner is not match and bad image is print.

This system only one disadvantage of this type of fingerprint sensor module is the fact that the capture imaging capabilities are affected by the quality of skin on the finger, because your finger are scratched or dirty.

The fingerprint scanner only specific characteristics which are to every fingerprint, are filtered and saved as convert into biometric key or mathematical represent. The fingerprint scanning image directly not saved. This image converted into a binary code number form then saved the image, which is used for verification. The algorithm cannot be reconverted to an fingerprint scanning image, so no one can copy your fingerprints.

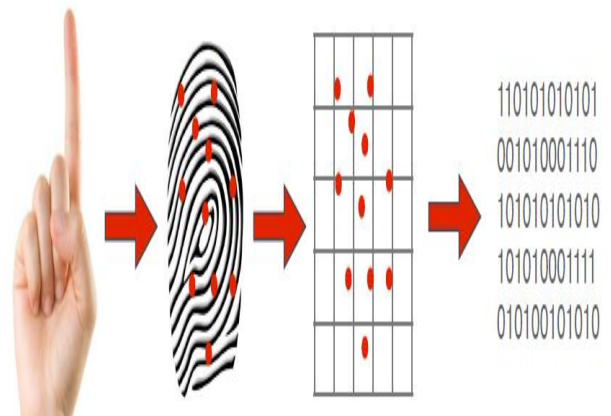


Fig.4 Fingerprint Optical Scanner Work

3. THE BASICS OF GSM MODEM

GSM is **Global System for Mobile communication**. A GSM modem is basic concept of a specialized type of modem which accepts a SIM card. And this SIM card operates on mobile phone. When a GSM modem is used to establish communication between a computers, this allows the computer to use the GSM modem to communicate over the mobile network. While these GSM modems are easily used to provide mobile internet connectivity, many of them can also be used for sending and receiving Text SMS and MMS Clip messages. A GSM modem can be allocated modem device with a serial, USB and Bluetooth connection. It can be a mobile phone that provides GSM modem capabilities.

4. ZIGBEE TRANSMITTER AND RECEIVER

The XBEE and ZIG-BEE are RF Modules as shown in Fig.4. ZIG-BEE technology is developed in a recent years. XBEE are IEEE 802.15.4 standards. The XBEE has advantages are used to create low cost and low power wireless networks. The modules require very little power and provide reliable delivery of data transfer between the devices. The modules operate within the 2.4 GHz ISM frequency band uses ZIG-BEE technology.



Fig 5.ZigBee circuit

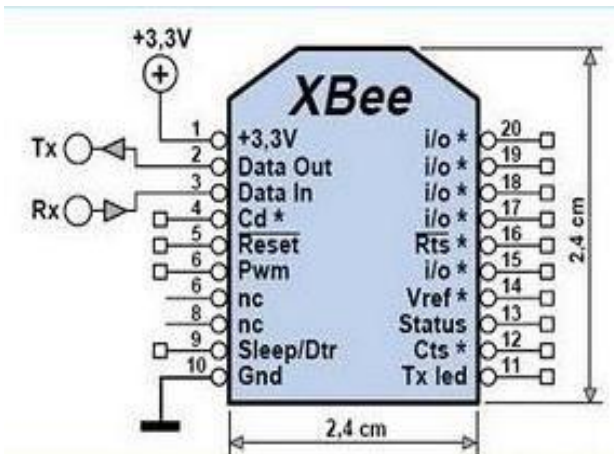


Fig 6.ZigBee circuit Pin diagram

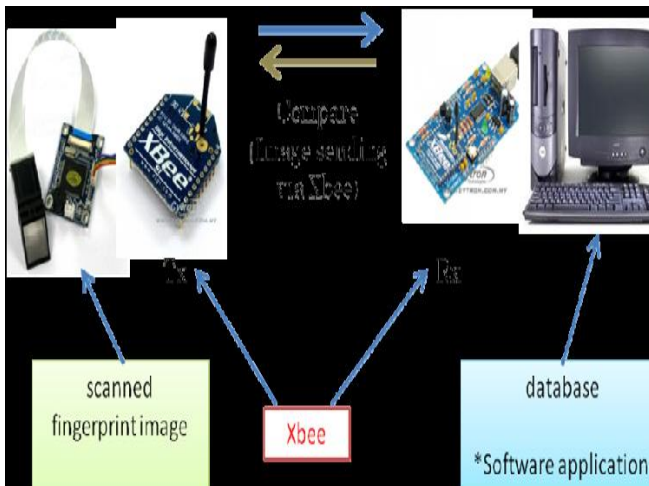


Fig 7.ZigBee connection of PC.

ZIG-BEE chip typically is integrated radios and microcontrollers with between 60 KB or 256 KB flash memory. ZIG-BEE operates in the **industrial, scientific and medical** (ISM) radio frequency bands. Data transmission rates vary from 20 kb/s to 250 kilobits/second. The ZIG-BEE device network layer supports both star and tree typical networks layers, and generic mesh networks layer.

5. DATA FLOW DIAGRAM

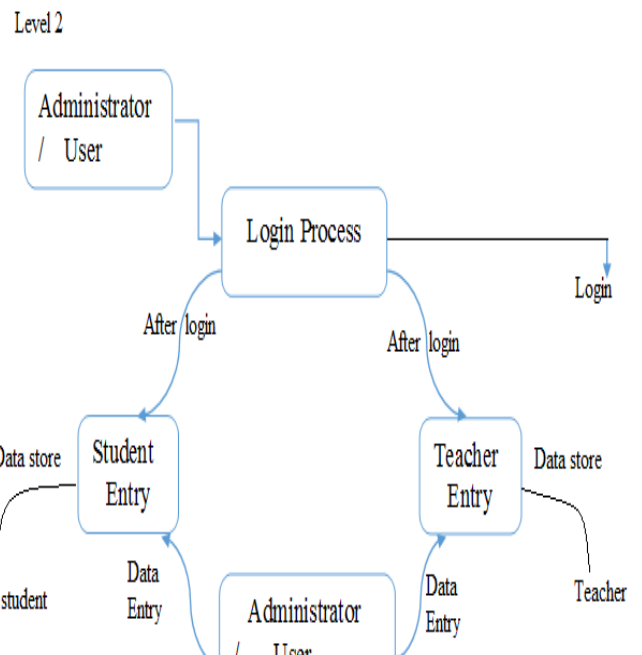
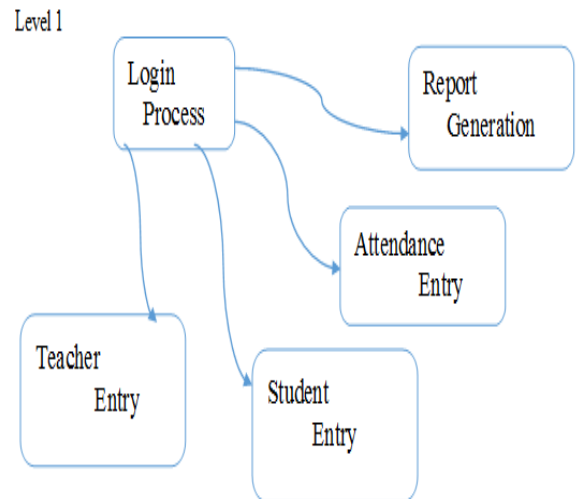
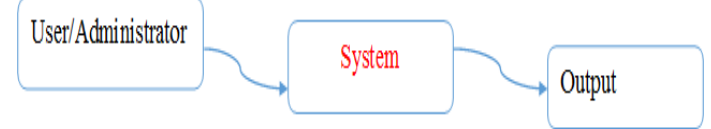


Fig 7. Data Flow Diagram

6. PROCESS

1. Login Form

This login Form is made For Security purpose. So only Authenticated User only Access in to the Project. There are two Type of persons can enter in the project

1. Administrator
2. User

2. Add Information Form

This form is showed when authorized administrator enters his correct User Name and Password. This Form gives the option to fill the name of Students and the name of Teacher if a new faculty has joined.

3. Student Information Form

This form enables the Administrator to fill the name of Students and their Semester where the Student Id will change automatically when a Student is saved in the Database. And course Will Be remain same because this System is made for Engineer. Students.

4. Teacher Information Form

This Form is made for Administrator to fill up the name of teachers when teacher Id is changed automatically. If a new teacher joined the collage its name also is included in the System.

5. User Form

This form is opened when user fill up his correct User Name and Password and User Type Is user. This form enables the user to fill up attendance of every student and see which student is short listed and what is the total attendance of each individual attendance in a particular Subject and in a particular month.

6. Semester Form

This form facilitates the user to choose a semester in which attendance is to be filled. In this system we are using the Fourth Semester so when the user clicks on Semester 4 the list of Semester 4 students is come.

7. Attendance Form

This Form is used to choose subjects and the month for which attendance is to be filled up and show a list of students. When a User click to corresponding Check box and click on save the students will be stated present and their attendance is added.

7. REPORT FORM

7.1 Short List Form

This form shows the list of Short listed students. We can see this list according to Subject wise and month wise. When user click on view, then list is shown accordingly.

7.2 Attendance Status Form

This form shows the status of the students or we can say number of classes attended in a particular subject in a particular month. When user click on the 'View Status' button of short list form then this form will appear with the status.

8. FLOW CHART

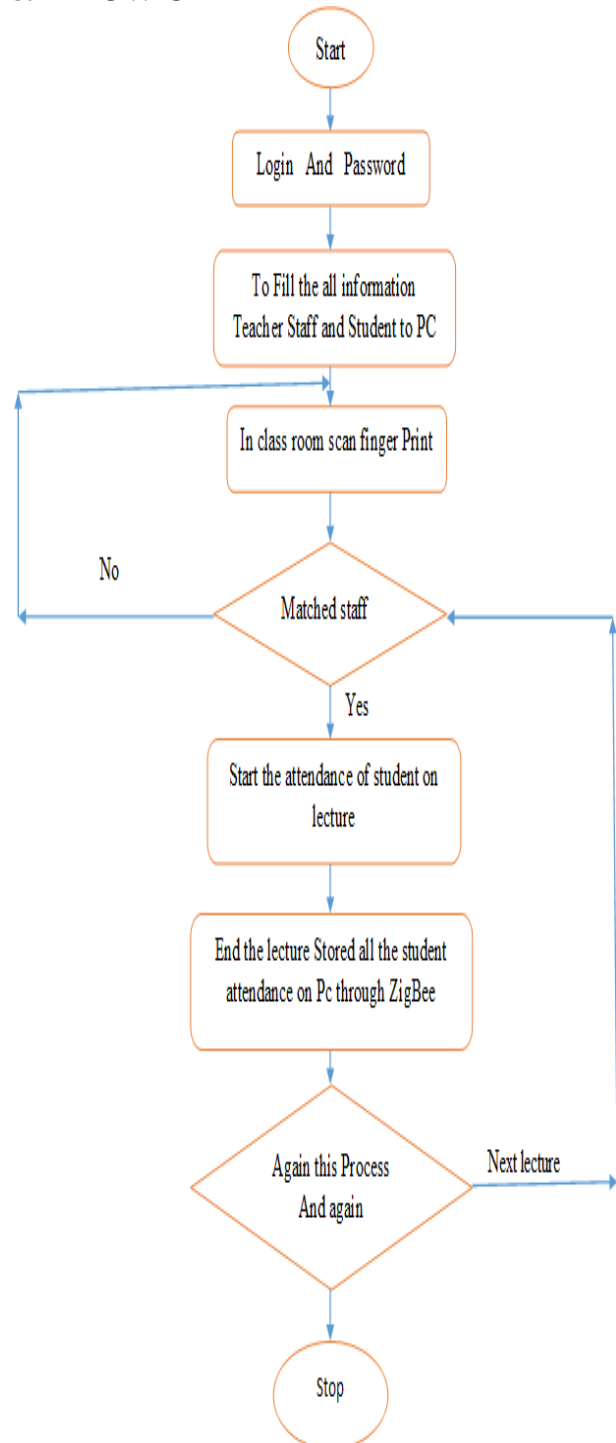


Fig 8 Flow chart

8.1 Application

- Fingerprint based attendance management system project can be using by following are the employees, staff or workers in various industries like Automobile industries, manufacturing industries, Software development companies.
- Attendance system in office or commercial places For Security.
- The attendance system use for school, college.

- The software developing company.

9. CONCLUSION

The main implementation of educational rules and minimizes each time and energy in checkmatinggroup action to lectures and alternative activities by each students and lecturers in developing countries. it'll additionally offer a decent basis for appraisingboth the scholars and workers. For this transportable system, a modularfingerprint shouldbe used instead. Also, the biometric knowledge ofworkers and students ought to be captured on employment or admission to make sure that uniform an accurate knowledge is employed for all purpose for the period of employment or study.

10. REFERENCE

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