Smart Class Attendance Monitoring System

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Abstract:
Present attendance monitoring system run manually and on basis of paper. For a Institute every year admit approximately misplacement of attendance sheet, time consuming parents cannot get any information about attendance of their children user control, security, data sharing and many more. In this paper smart class attendance monitoring system above listed draw backs can be eliminated using biometric system with GSM technology biometric system recognize people's unique physiological characteristics. Biometric based attendance terminal are becoming increasingly popular in today's market because they read a person's unique finger print. Iris hand shape or face shape. They ensure that the person can't escape in or face shape. They ensure that the person can't escape in for one another and also preventing the person time theft. More than 500 students. Institute has more than 1400 students every year .Existing institute system is based on paper work and documentation. Current system is traditional system data of more than 1400 students is very difficult to maintain every year as number of students increases. There are many drawbacks of current attendance monitoring system. It has several downsides like misplacement of attendance sheet, time consuming parents cannot get any information about attendance of their children user control, security, data sharing and many more. In this paper smart class attendance monitoring system above listed draw backs can be eliminated using biometric system with Gsm technology biometric system recognize people's unique physiological characteristics. Biometric based attendance terminal are becoming increasingly popular in today's market because they read a person's unique finger print. Iris hand shape or face shape. They ensure that the person can't escape in or face shape. They ensure that the person can't escape in for one another and also preventing the person time theft

Keywords: GSM, Arduino, Biometric, system, LED display

I. INTRODUCTION:

In this paper project entitled student attendance monitoring system is to update student's attendance automatically and sent to the HOD of the corresponding department. It will display the class faculty lecturing the class and also send the alert message to the corresponding faculty member 10 minutes before the class.
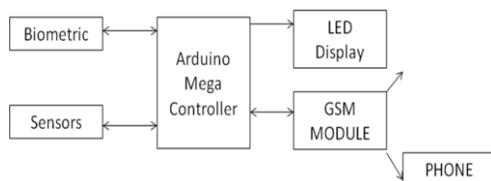

Figure.1. block diagram of class attendance monitoring system

Student entering into a class room places his finger on the biometric sensor. The digital output from sensor received by Arduino controller compares with digital data of various students already registered if mismatch occurs it gives invalid finger else the data is stored when all the students thumbs are received then we switch a button on biometric system immediately it will send message to the HOD that the number of students present today it will displace the name of the faculty member delivering the lecture. It alerts the next class faculty member before ten minutes GSM uses an inbuilt sim dual band GSM sim work with 9001/1800 MHz

II. HARDWARE IMPLEMENTATION

Here a digital pattern generated by the glove is directly given to ARDUINO MEGA 2560 controller. A firmware is inserted in Arduino such that each gesture is assigned a particular character as per the table shown in the methodology chapter. So, as per that code characters corresponding to the gesture are transmitted via RF transceiver

III. BACKGROUND OF THE SYSTEM

Arduino mega 2560

Arduino has been used in thousands of different projects and applications. It is the heart of our project The Arduino software is easy-to-use for beginners, yet flexible enough for advanced users. It runs on Mac, Windows, and Linux. Teachers and students use it to build low cost scientific instruments, to prove chemistry and physics principles, or to get started with programming and robotics. Designers and architects build interactive prototypes, musicians and artists use it for installations and to experiment with new musical instruments. Makers, of course, use it to build many of the projects exhibited at the Maker Faire, for example. Arduino is a key tool to learn new things. Anyone - children, hobbyists, artists, programmers - can start tinkering just following the step by step instructions of a kit, or sharing ideas online with other members of the Arduino community.
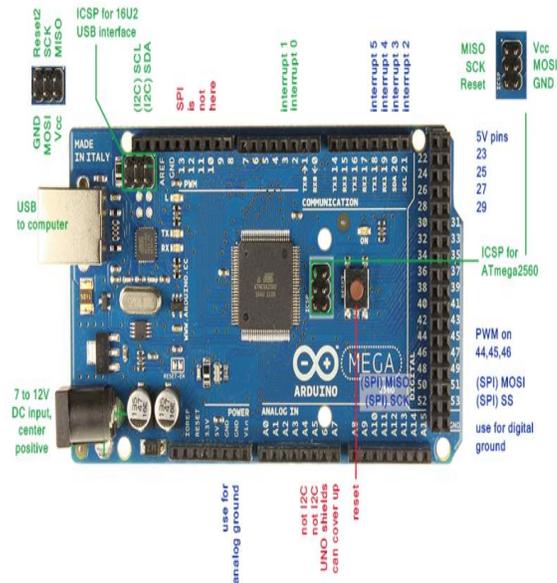
Figure. 2. Arduino Mega 2560

Memory

The Atmega 2560 has 256 KB of flash memory for storing code (of which 8 KB is used for the boot loader), for example code for the "thumb1" is 10111, "thumb2" 01111, for 10110 "thumb3", etc.., 8 KB of SRAM and 4 KB of EEPROM (which can be read and written with the EEPROM library).

Gsm module

GSM SIM 900A GSM is built with Dual Band GSM SIM900A, works on frequencies 900/ 1800 MHz the Modem is coming with RS232 interface, which allows you connect PC as well as microcontroller with RS232 Chip (MAX232). The baud rate is configurable from 9600-115200 through AT command. The GSM shield by Arduino is used to send/ receive messages and make/receive call just like a mobile phone by using a SIM card by a network provider. We can do this by plugging the GSM shield into the Arduino board and then plugging in a SIM card from an operator that offers GPRS coverage. The shield employs the use of a radio modem by SIM Comm. We can communicate easily with the shield using the AT commands.
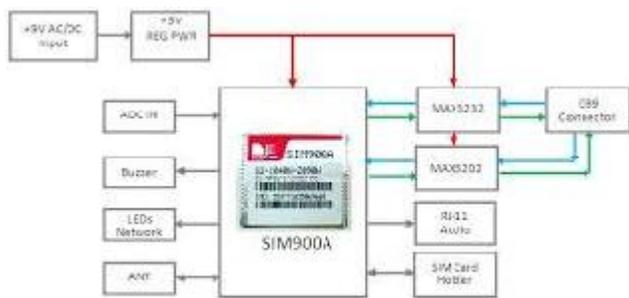

Figure. 3. Gsm sim900a

A **GSM Module** is basically a GSM Modem (like SIM 900) connected to a PCB with different types of output taken from the board – say TTL Output (for Arduino, 8051 and other microcontrollers) and RS232 Output to interface directly with a PC (personal computer). The board will also have pins or provisions to attach mic and speaker, to take out +5V or other values of power and ground connections. These types of provisions vary with different modules.
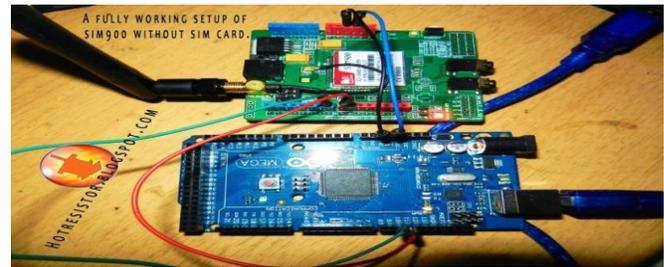

Figure. 4.Interfacing of Gsm with Aruino Mega 2560

Lots of varieties of GSM modem and GSM Modules are available in the market to choose from. For our project of connecting a gsm modem or module to arduino and hence send and receive voice call using arduino – it's always good to choose an arduino compatible GSM Module – that is a GSM module with TTL Output provisions.

Biometric System

It has many features: easy restructure, powerful functions, compatible with PC, and multiple-functions in one module: Fingerprint enrollment, image process, characters acquisition, fingerprint template creation, fingerprint template storage, fingerprint compare (1: 1, 1: N), fingerprint delete. This module can work with different devices based on UAWRT such as PC, SCM and so on. Only easy circuits and fingerprint module can enhance your product into fingerprint authentication power. It is widely used by electronics business, information security, access control, identity authentication and other security industry.
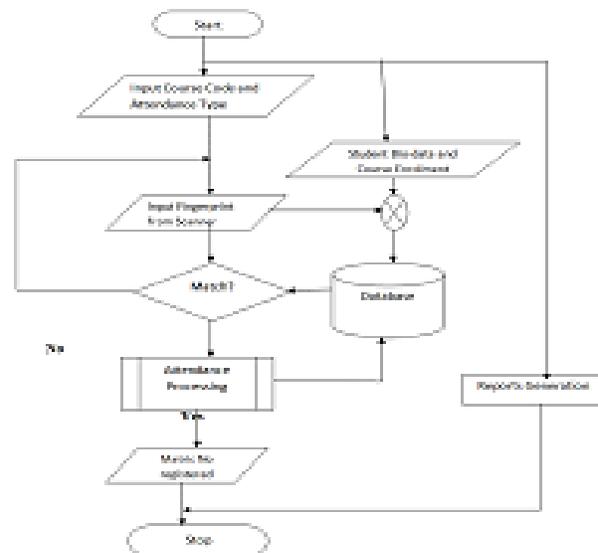
IV. Flow Chart

Figure. 5.Flow chart of class attendance monitoring system.

V. NEED OF WORK:

In this paper student attendance monitoring system biometric system is used with combination of GSM technology for

updating the student's attendance details. Till now which we have developed for the class gives information to HOD here communication indirectly through mobiles is made possible. Today every office using biometric system for their employees so colleges also used this system to update the student's attendance and it also sends the message to the corresponding parent that his children went to college.

VI. SOFTWARE REQUIREMENTS

Arduino software:

The Arduino microcontroller is an easy to use yet powerful single board computer that has gained considerable traction in the hobby and professional market. The Arduino is open-source, which means hardware is reasonably priced and development software is free. This guide is for students in ME 2011, or students anywhere who are confronting the Arduino for the first time. For advanced Arduino users, prowl the web; there are lots of resources. The Arduino project was started in Italy to develop low cost hardware for   interaction design.

VII. CONCLUSION:

Class attendance monitoring using biometric system preventing the student time theft. This project was meant to be a protype to check the feasibility of attendance of a class room with this project no of students attended in the class is sent to corresponding Head of the department students attendance monitoring our main aim is to make the by using mobile phones.

VIII. FUTURE SCOPE

The project that we have chosen is not limited only to this application but also extended to of greater use if it is remodeled using more complex equipment more sensors can be employed to make the complex system robust. A handy and portable hardware device with built in translating system GSM technology for passing attendance details to the head of the department can be made anywhere with less effort.

IX. REFERRENCES

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