

## FINGERPRINT BASED ATTENDANCE SYSTEM BY USING GSM

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### Abstract:

*In today's world regularity of student attendance is concerned in the administration of Educational Institutions. Overall academic performance is affected by the student's attendance because poor attendance leads students in detention list. Student's attendances are taken manually by using attendance sheet given by the faculty members in the classroom, which is a time-consuming event. Furthermore, it is very difficult to verify one by one student in a large classroom whether the authenticated students are responding or not [1]. The proposed system describes a method for Student's Attendance System which will integrate with the fingerprint technology. This project proposes the system in that various fingerprints of students will be gutted through the fingerprint module. The fingerprints will be mapped against the data set for authentication of student attendance. The student whose fingerprint matches the most with the data set is marked present for the particular lecture. As well as this paper demonstrates how fingerprint recognition can be used for an efficient attendance system to automatically record the presence of an enrolled individual within the respective venue. Also, it maintains a log file to keep records of the entry of every individual with respect to subjects and also generate a report of attendance. This project also provides the design method of fingerprint-based student attendance with help of GSM.*

*Keywords---Fingerprint detection, Fingerprint recognition, GSM*

One of the most common and traditional way of tracing the student attendance was impose the student to sign over the students register carried over by the educator

Which has its own flaw and some of them were that keeping the hard copy of the student's attendance at the educator desk may get lost or passing it over all the class rooms of the department may make it wear and tear by which we may lose the track of the student attendance

And one of the major drawbacks was that the proxies can also be registered in the name of other student even which also has an effect on the student's attendance percentage

Which may influence the student's attendance percentage, by which student encounter the hardship during the performance in examination.

In the point of view of the student's well-being, we have included in our project a Fingerprint Based Attendance System along with the GSM, as re-equipping the old microcontrollers (E.g:8051, ARM 7) with new Arduino UNO Rev3 for the quick and accurate response from the

### I.INTRODUCTION

Microcontrollers processor, and also throughput of the System is increased in an effective manner.

An advantage of utilizing the GSM in the System Hardware was as a course of action for the student's leave for the educational institution An SMS (Short Message Service) can triggered to the corresponding parent of the respective student So the parent can be aware of the student's presence at the college (or) over the educational institution.

## II. SYSTEM HARDWARE

### 1.ARDUINO:

Arduino UNO is a microcontroller board based on the **ATmega328P**. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with an AC-to-DC adapter or battery to get started.

### 2.FINGERPRINT SENSOR

In the System we can either use R305/R307 as a Fingerprint sensor for continuously capturing the fingerprint biometric of the distinctive student.

And those optical fingerprints scan the digital image of the impression of the finger left over the scanner and transform the ridges and valleys into the binary sequence i.e., either 1 or 0 and makes it simpler for the DSP (Digital Signal Processor) to work over them. And it is connected to the UART port of the microcontroller.

### 3.GSM Module 800L

In the system hardware, The GSM Plays one of the unique and important roles which fulfil the desired objective of the System. GSM mainly used for triggering and transferring the Short Message Service (SMS) to corresponding parent in case of absence of the student to the educational Institution.

### 4.MAX232:

For the quick and rapid transmission of the information from the GSM Module of the system to the network or service provider the MAX232 is utilized.

### 5.LCD DISPLAY:

We use a traditional Display used for the prototypes which is a 16\*2 Segment display for convenience of the Client. And entire information required for the client to know of can displayed over the LCD.

### 6. Power Supply:

For the working of the entire system a regulated and an uninterrupted power supply was provided. In order to regulate the power supply, we maintain a regulator namely 7805/7812 in the system to provide a constant voltage of +12V or -12V to the board.

### Block Diagram:

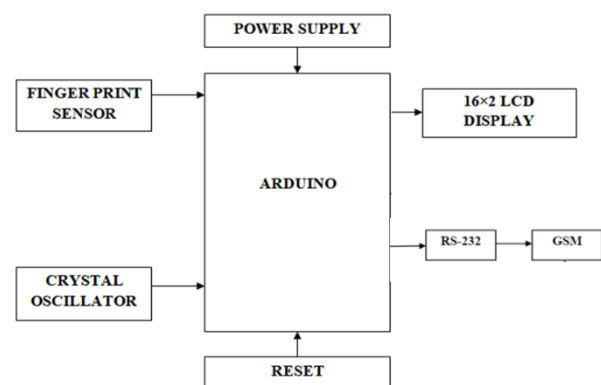


FIG: BLOCK DIAGRAM OF FINGERPRINT BASED

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### III. WORKING

The entire system is processed and handled using a processor named Arduino which connects rest of the components of the system by using its ports and pins available on it.

The Attendance system involves two major steps to be considered:

- 1) Enrolling the Fingerprint Impression
- 2) Identification of the Fingerprint impression

During the enrolling, Whenever the student leaves over the fingerprint impression over the optical fingerprint sensor, it records the impression over its memory and process into digital form i.e., into the binary sequence in the same manner we gather over all the fingerprint impressions from the educational institution

While during the identification of the impression, when the student places the fingerprint over the sensor it identifies the fingerprint and cross-check them with the existing fingerprint impressions over the memory.

If any of the impression matches the current fingerprint it projects the result over the LCD display that it exists at a particular ID along with the name.

If none of the impressions match with current fingerprint impression it projects over the LCD as "An Unauthorized Person" or "An unidentified Person"

After the system gathers all the fingerprint impressions of the educational institution at the end of the present session, the authorized person namely called as admin

places the finger over the sensor, when the system identifies the fingerprint impression of the Admin or Some official of the educational institution to whom has access over the system.

It ends processing of the fingerprint impression and triggers the Short Message Services (SMS) to the Parent/Guardian of the corresponding student and also keep a trace of attendance of the student.

### IV. RESULTS

As we conclude to the results, as an end result of system the student information is present over the LCD Display and also an SMS is displayed over the corresponding parent mobile

### V. CONCLUSION

The main intent of the entire system is to keep a track over the student's attendance and to avoid mal practices while evaluating student's regularity and it also withstand the students to avoid the classes and it also constantly intimate the student's parents where abouts of the corresponding student, and also about the irregularity of the student. Even though there are many more methods available for identifying the student's identity biometric has been one of the most efficient techniques in delivering the essential results

### VI. REFERENCES

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