

Smart Exam Hall Security System: Fingerprint Verification and SMS Alert

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ABSTRACT - Everywhere security is a top priority. A verification system should control and closely watch entry into institutions, exam centers, companies, or even estates. The manual paper-based clearance process is fundamentally flawed, thus the unethical approach connected to the exam is a major one that requires the academic sphere's stakeholders to seek other ways of validating students for exams. The process of validating a student for an exam has an apparent flaw like the presentation of forged clearance cards, impersonation etc. A consistent and effective system is then created to solve the problems of the conventional technique. The system will generate an attendance report by means of fingerprint biometrics to verify the understudy.

Keywords- Authentication, Fingerprint, Impersonation, ID number, other personal data.

1.INTRODUCTION: The purpose of this project is to use fingerprint identification to authenticate the identity of a private and therefore the main aim of this project is to differentiate between a licensed person (student) and an imposter before entering the examination hall. Here we proposed a fingerprint-based exam hall authentication system. The system is meant to permit only users verified by their fingerprint scan and doesn't allow nonverified users. Our system consists of a fingerprint scanner connected to a microcontroller circuit. In registration mode, the system allows to register user's information and save their identity with respective ID numbers within the system memory. After registration the person must scan his/her finger with the help of the scanner. The microcontroller checks the person's fingerprint. If the fingerprint is valid the motor driver sends a message to open a door and display the

room and bench number on the LCD. This ensures only authorized users are allowed to enter the examination section and unauthorized users aren't allowed to enter the room and also send the SMS to the parents about their child entry into exam hall.

2.LITERATURESURVEY:

[1] A design and implementation of a wireless iris recognition attendance management system:

The project aims to design and implement a wireless iris recognition attendance management system. The system will use iris recognition technology to identify individuals and mark their attendance. The system will be wireless, allowing for easy deployment and use.

[2] Smart attendance using real-time face recognition:

The project aims to design and implement a smart attendance system using real-time face recognition. The system will use face recognition technology to identify individuals and mark their attendance. The management of attendance can be a great burden on the teachers if it is done by hand.

[3] Automation of Time and Attendance using RFID Systems:

This paper presents a novel concept to improve upon the processes in the university environment using RFID technology. A system is implemented for the automation of time and attendance using RFID systems. The students and faculty members are provided with RFID devices/tags. When these tags pass through the reader-generated interrogation field, they transmit information back to the reader, thereby identifying them.

[4] Iris Biometric Recognition for Person Identification

in Security Systems Method:

Security is an important aspect of our daily life

whichever system we consider security plays a vital role. The biometric person identification technique based on the pattern of the human iris is well suited to be applied to access control and provides strong e-security. Security systems have realized the value of biometrics for two basic purposes: to verify or identify users.

[5] Property security using a facial-based door lock system: The system uses facial recognition technology to secure properties. The system consists of a facial recognition camera, a door lock, and a control unit. In recent years, it is important to own a reliable security system that can secure our assets as well as protect our privacy. The traditional security system needs an individual to use a key, identification(ID)card, or password to access an area such as a home or workplace.

[6]Automated Attendance Management System Based On Face Recognition Algorithms:

This paper proposes an automated attendance management system. This system, which is based on face detection and recognition algorithms, automatically detects the student when he enters the classroom and marks the attendance by recognizing him. The system architecture and algorithms used in each stage are described in this paper. Different real-time scenarios are considered to evaluate the performance of various face recognition systems. This paper also proposes the techniques to be used in order to handle threats like spoofing.

3. PROPOSED METHODOLOGY:

In our system we use a micro-controller Arduino Uno R3 that Processes fingerprint data and controls the system, Finger print module Captures and verifies fingerprints for authentication, the GSM module Sends SMS alerts to parents, we use a servomotor for gate opening, and we have also integrated LCD and Buzzer to alert student.

3.1 BLOCK DIAGRAM:

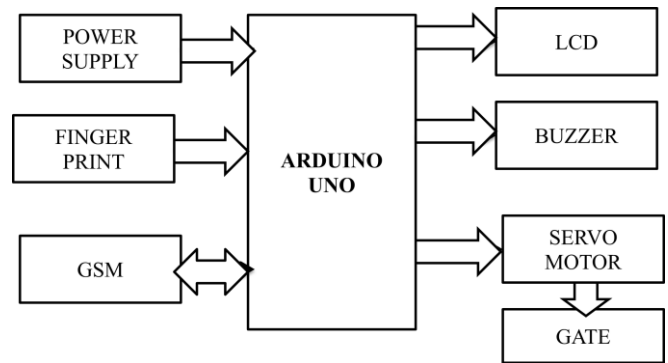


FIG 1:BLOCK DIAGRAM

a.ARDUINO UNO R3 MICROCONTROLLER:

The Arduino Uno R3 is a microcontroller board based on the ATmega328P microcontroller. It processes fingerprint data, controls the system, and interacts with other components.

b.FINGERPRINT MODULE:

A fingerprint module is a sensor that captures and verifies fingerprints. It captures fingerprint images, processes them, and compares them with stored templates.

c.GSM MODULE:

A GSM (Global System for Mobile Communications) module is a cellular module that enables communication over cellular networks. It sends SMS alerts to parents about their child's entry.

d.LCD:

An LCD (Liquid Crystal Display) display is a visual output device that shows the student bench and room number. It displays student information and alert messages.

e.BUZZER:

A buzzer is an audio signaling device that produces a sound when an electric current is applied. It alerts students of authentication results or issues.

f.SERVO MOTOR:

A servo motor is an electric motor that provides precise control over its rotation. It controls the exam hall's electronic locks or other devices.

3.2 FLOW DIAGRAM OF THE SYSTEM

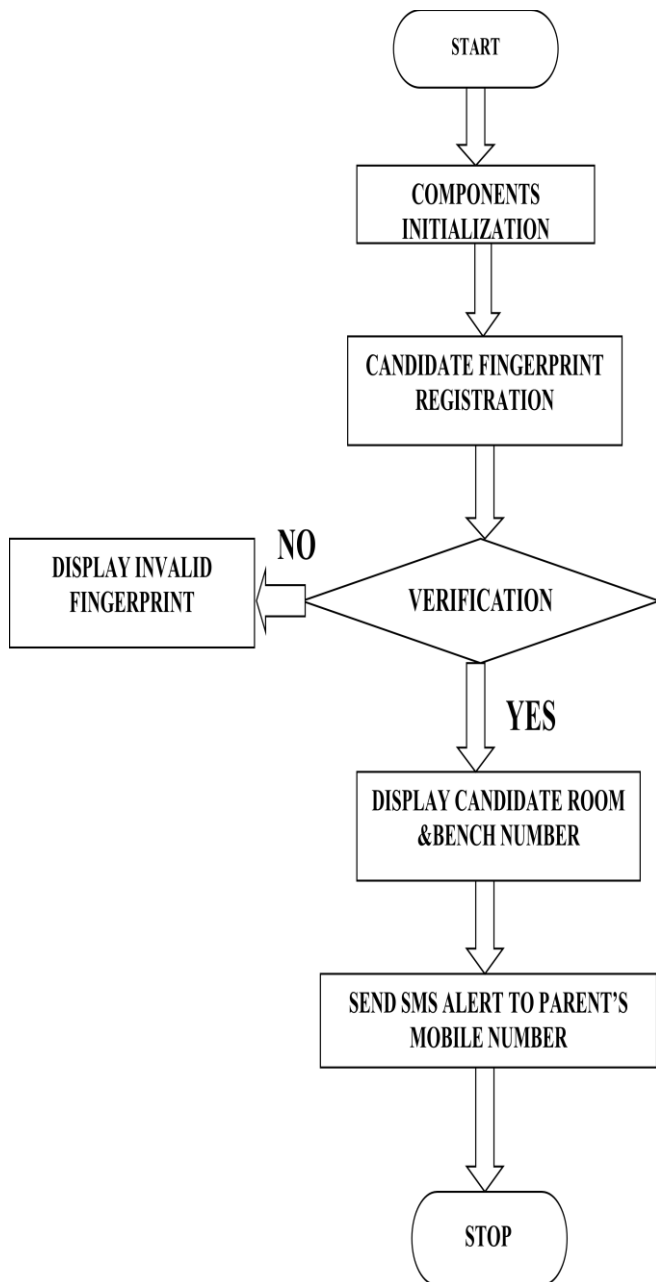


FIG 2:Flow chart of proposed system

4. RESULTS:

The fingerprints of the one that has enrolled and stored fingerprint within the fingerprint module. A person puts the finger on the fingerprint module sensor, firstly sensor will enroll the finger within the database of the module and store this end in the module and the sensor will match this result which is enrolled during this sensor with the assistance of the microcontroller and when it matches the result then the microcontroller will give the instruction to the motor and will open the gate.

HARDWARE IMPLEMENTATION:

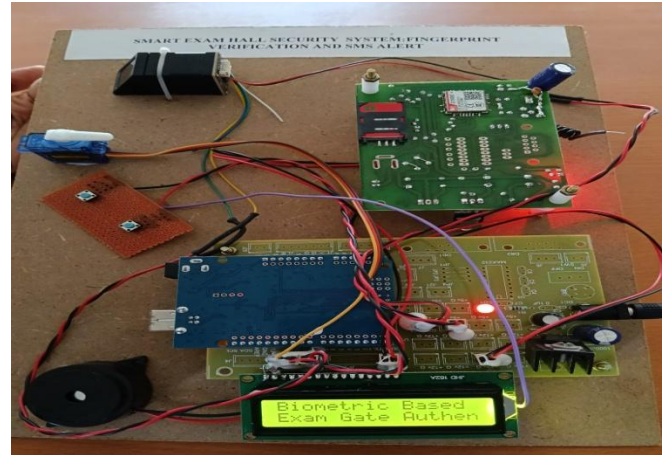


FIG 3:Registration Mode

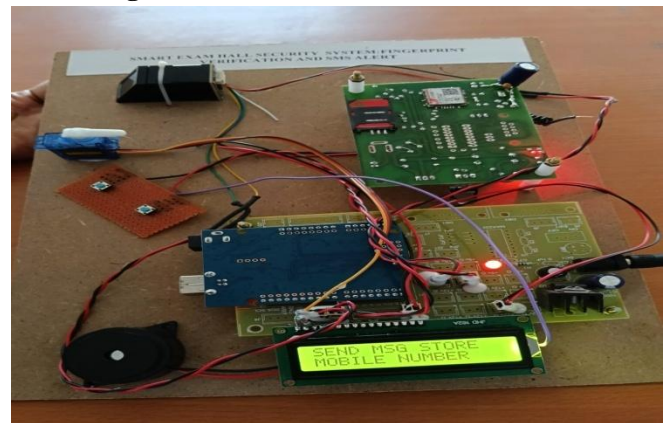


FIG:3.1 Verification mode

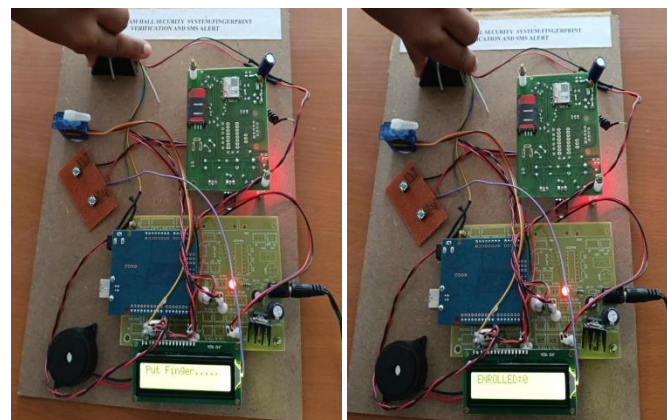
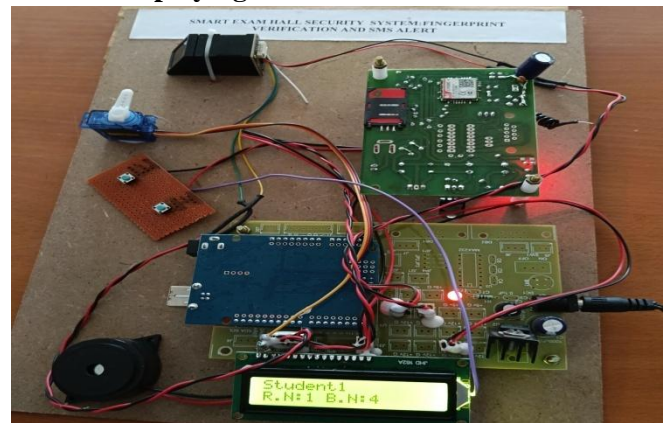


FIG:3.2 Displaying Room And Bench Number



5. CONCLUSION:

In this paper a Biometric Model for Examination impersonation and Biometric Access may be a better substitute for the utilization of cards in verifying users 'identity Experience has shown the porosity of Identity cards in uniquely identifying individuals within the face of sophisticated Forgery technology. The naturalness of the use of fingerprints makes it a reliable access control technique. The very fact that a user not must carry identity cards and other documents for identification explains the convenience of use. The Exam hall authentication system uses fingerprints. The implemented minutiae extraction is far more accurate and faster than our previous feature extraction. In our proposed system accurately verify the fingerprint is valid user or not. If you are a valid user then it allows attending the exam else not allowed. This experimental result shows the proposed method is suitable for all authentication-based applications and also robust.

6. FUTURE SCOPE:

- Biometric access using both fingerprints and blood flow detection to avoid cloning of fingers using plastics as described above.
- Fingerprint-based ATM project.
- Fingerprint-based student attendance using GSM, this is to eliminate manual attendance that any student can sign for the other student.

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