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J.C. Bose University of Science and Technology, YMCA,Faridabad

ECE 7th sem

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Group Project

Biometric Based Exam Gate Authentication System with SMS Alert

“Ensuring the integrity and security of exam and corporate environments”

Introduction to Project

A Biometric-based Exam Gate Authentication System with SMS Alert aims to enhance the security and efficiency of the exam-taking process by utilizing biometric technology and real-time communication.

Ensuring the integrity and security of exam environments is a paramount concern in educational institutions. To address this, we propose a Biometric-based Exam Gate Authentication System with SMS Alert. This innovative system leverages advanced biometric technology, such as fingerprints, facial recognition, and iris scans, to accurately authenticate exam takers at entry gates. The system's real-time authentication process not only enhances security by minimizing identity fraud but also expedites the check-in process, reducing waiting times. Upon successful authentication, candidates receive automated SMS alerts confirming their entry.

The system further offers real-time monitoring and alerts for suspicious activities, bolstering overall security. With an emphasis on user-friendliness, scalability, and compliance with privacy regulations, this system redefines exam gate management by seamlessly integrating biometrics and communication technology.

Introduction (Continued...)

Biometrics authentication plays a vital role in organizations, companies, colleges, and institutions. Security within the examination hall is one of the foremost repetitive issues. Maintaining attendance verification is a sophisticated and time-consuming process, this biometric will help in maintaining attendance and security in the examination hall. This advanced authentication system is made for identifying candidates and granting access to them.

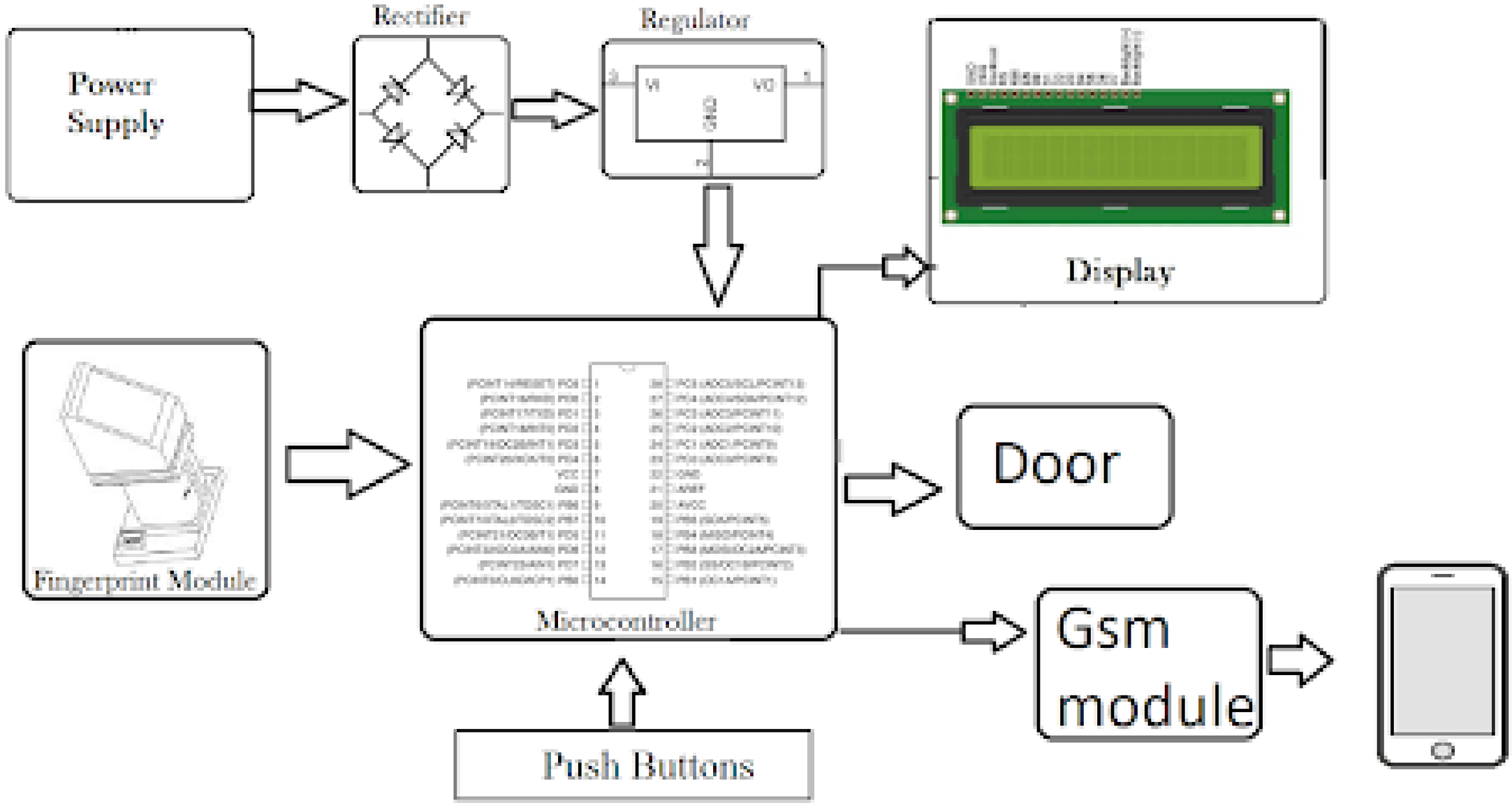
After turning on the system, the project will first initialize GSM. It will then ask the admin to call in order to register the number of the admin, After successful registration SMS feedback is given, and a user needs to enrol fingerprint of candidates. After enrolling fingerprint user can start the system, an authorized person can scan fingers the door opens and an SMS is sent to the admin notifying him about the candidate. And if the user is an unauthorized person and tries to access, the system doesn’t provide access and after a 3rd failed attempt an SMS is sent to the admin notifying him/ her about the same.

Why Biometric Based Authentication System Required?

Attendance is maintained in many fields to maintain records such as colleges, offices, schools, and also during exams. The manual way of taking attendance consume more time to take as well as to maintain records and there is the probability of making mistake. When the national level exams are conducted there is also a responsibility to maintain student security so that no outside, unauthorized person can enter the exam hall before or after exam. This system provides the authentication to only registered students to enter and SMS will be sent to registered mobile number only. So that the exact attendance of students can be maintained without any false record our mistake.

There can be a possibility that in the exam hall, two students of the same name can occur this will create confusion for the teacher or professor to know which student is whom if one of them is absent. Biometric Fingerprint is unique for everyone, which can give the perfect attendance for the student.

Block Diagram of Biometric-based Authentication System with SMS Alert



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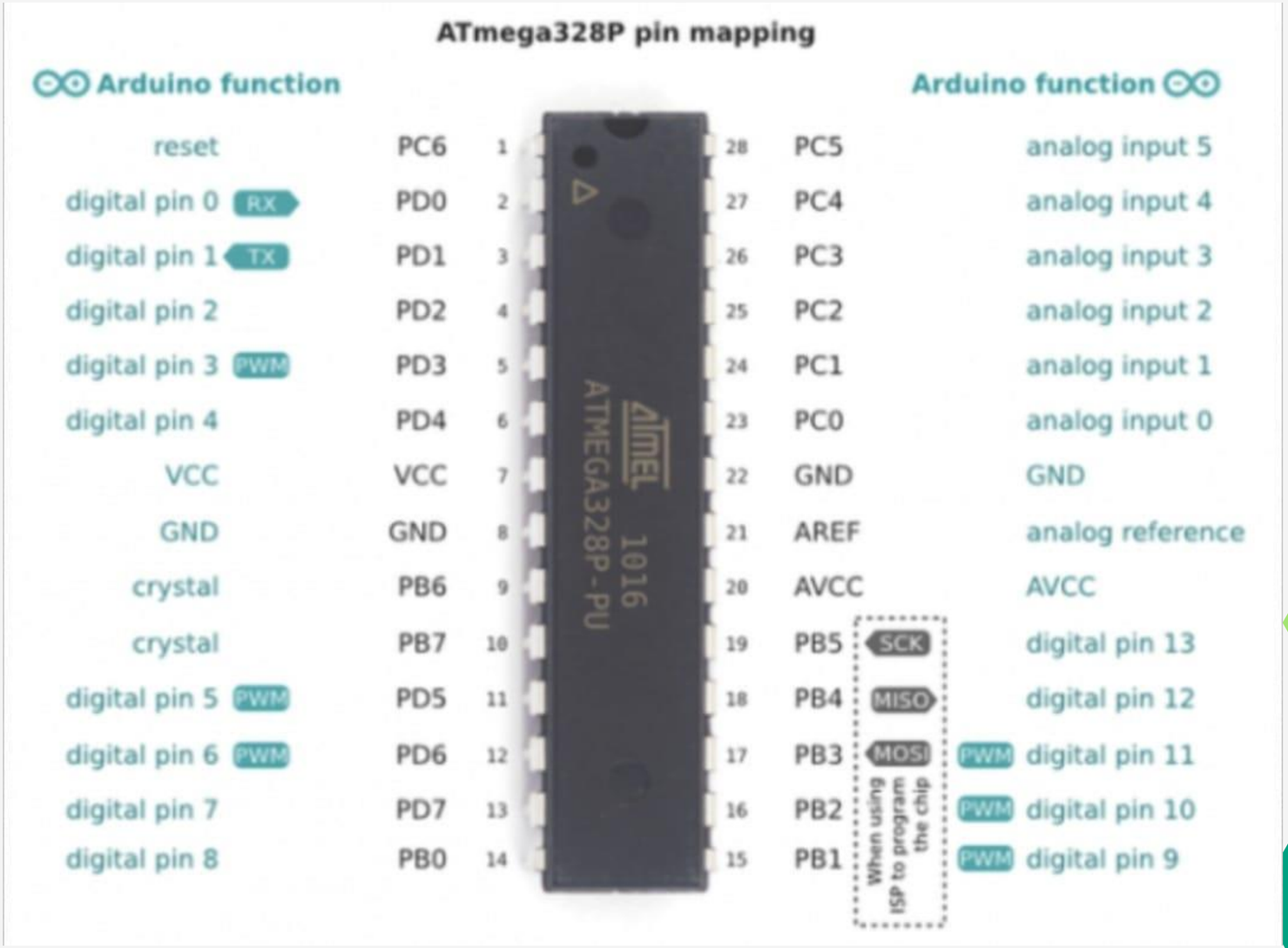

Components Used

- Atmega328p
- Adapter
- Regulator
- Transistors
- Cable and Connectors
- Crystal Oscillator
- Diode
- PCB and Breadboards
- LED
- Transformer/ Adapter
- Push Buttons
- IC
- IC Socket
- Fingerprint Module
- LCD
- L293D
- Resistor
- Capacitor
- Switches

Objectives

- **Secure Authentication:** Ensure that only authorized individuals are allowed to enter the exam premises by using biometric traits such as fingerprints, facial recognition, or iris scans. This prevents unauthorized access and impersonation.

- **Eliminate Identity Fraud:** Minimize the risk of identity fraud or cheating by verifying the identity of the exam takers through their unique biometric characteristics. This helps maintain the integrity of the exam process.

- **Efficient Check-In Process:** Streamline the check-in process for exam takers. Biometric authentication is typically faster than traditional methods like manual ID checks or presenting physical admit cards, reducing waiting times and congestion at the entry points.

- **Enhanced Security:** Increase the overall security of the exam premises by reducing the reliance on physical documents and IDs, which can be forged or manipulated.

- **Real-time Monitoring:** Monitor and track the entry and exit of exam takers in real time. This can help exam administrators ensure that candidates are adhering to the schedule and that there are no irregularities.

- **Alerts for Suspicious Activities:** Implement an intelligent system that can detect unusual or suspicious patterns, such as multiple authentication attempts or unauthorized access attempts. In such cases, the system can trigger immediate alerts to security personnel and administrators.

- **Automated SMS Alerts:** Send SMS alerts to exam takers upon successful authentication at the gate. This confirmation message can provide peace of mind to candidates and inform them that their entry has been logged.

- **Minimize Disruptions:** Prevent disruptions caused by exam takers forgetting or losing their admit cards by providing an alternative, secure method of authentication.

- **Reduced Administrative Load:** Automate the authentication process, which reduces the burden on administrative staff, allowing them to focus on other important tasks related to exam management and supervision.