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Exam Hall Authentication Using Finger print

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Abstract- *This paper presents the development and implementation of the "Fingerprint Based Exam Hall Authentication". Authentication is the act of providing an assertion, such as the identity of a computer system user. In contact with identification, the act of indicating a person identity. Authentication is the process of verifying that identity. It might involve validating personal identity and also other identity. For the examination we use the biometric authentication. It is a security process that relies on theunique biological characteristics of an individual to verify that he is who he says he is. Biometric authentication technology compares a biometric data capture to stored confirmed authentic data in a database*

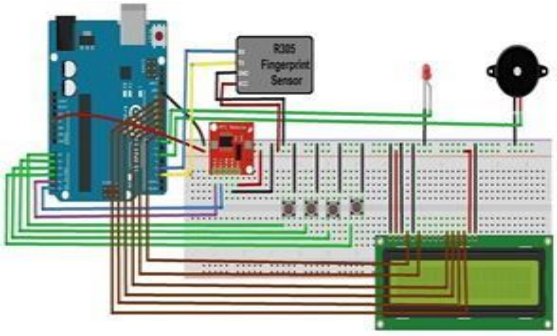
Keywords- fingerprint sensor, RTC module, arduino uno, breadboard, pushbutton, connecting wires,LCD Display, led, ardunino programming cable

I. INTRODUCTION

The importance of exam hall authentication and how fingerprint technology can enhance security and eliminate impersonation. the fingerprint is authorized the microcontroller now sends a signal to a motor driver. The motor driver now operates a motor to open a gate. This ensures only authorized users are allowed to enter the examination section and unauthorized users are not allowed to enter without any human intervention. They are an attractive alternative because to their improved accuracy, ease, security, durability, and cost-effectiveness.

II. CONSTRUCTION

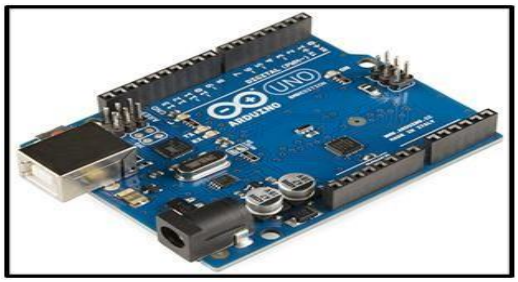
The creation of an Anti Sleep Alarm for Driver using Arduino entails a number of procedures and elements, such as:



A. Hardware Technology:

1. Arduino uno:

The Arduino Uno is an open-source microcontroller board designed for beginners and hobbyists. It is equipped with digital and analog input/output pins that allow users to connect various sensors and actuators to the board. This enables users to build interactive projects, like robots, temperature monitors, and light shows. The board is programmed using the user-friendly Arduino IDE software and can be powered by a USB cable or battery, making it convenient for portable projects. Released in 2010, the Arduino Uno is the successor of the Arduino Duemilanove and remains the most popular board in the Arduino family due to its ease of use, affordability, and vast community support.

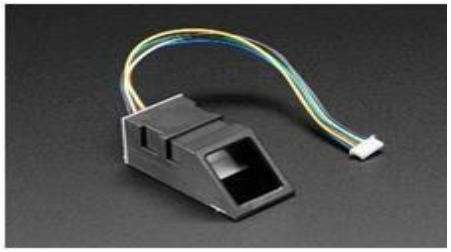


2. **RTC Module:**

RTC module t is used for many applications like wireless headset, game controllers, wireless mouse, wireless keyboard, and many more consumer applications. It has range up to <100m which depends upon transmitter and receiver, atmosphere, geographic & urban conditions. It is IEEE 802.15.1 standardized protocol, through which one can build wireless Personal Area Network (PAN).It uses frequency-hopping spread spectrum (FHSS) radio technology to send data over air it uses serial communication to communication with devices it communicates with microcontroller using serial port (USART).

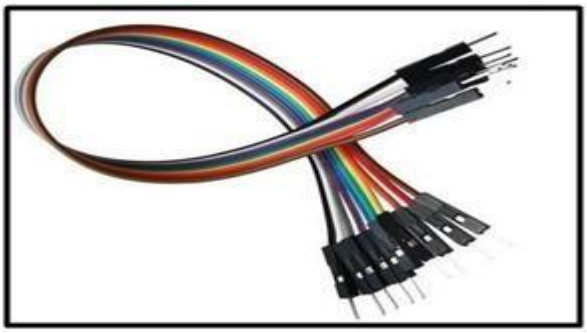
3. Finger print sensor

Fingerprint scanner uses a light sensitive microchip to supply a digital image. The working principle of the fingerprint sensor mainly depends on the processing. Fingerprint processing mainly includes two elements namely enrolment and matching. In fingerprint enrolling, every user requires to put the finger twice. We can store the pictures in fingerprint module. fingerprint sensor, also known as a fingerprint reader or fingerprint scanner, is a biometric security technology that is used to authenticate and identify individuals based on their unique fingerprint patterns



4. **Jumper Wires:**

Jump wires, also known as DuPont wires, are electrical wires with connectors on each end that enable the creation of circuits without soldering. They are frequently used on breadboards, which have slots specifically designed to receive these connectors. Different connector types exist, including solid tips for breadboards and crocodile clips for temporary connections to various components. Additionally, jump wires come in various sizes and colors, aiding in distinguishing different signals within a circuit.



5. **Arduino Programming Cable:**

An Arduino programming cable connects your computer to your Arduino board, letting you upload code and power your projects. It's a USB cable with a standard Type-A connector for your computer and a Type-B (or C on newer boards) connector for your Arduino. While any matching USB cable technically works, consider cable length, quality, and features when choosing one. You can find them online or at electronics stores Here are some quick tips: handle with care, unplug safely.

6. Push Button:-

A push button switch is a mechanical device used to control an electrical circuit in which the operator manually presses a button to actuate an internal switching mechanism. They come in a variety of shapes, sizes, and configurations, depending on the design requirements. A push-button (also spelled pushbutton) or simply button is a simple switch mechanism to control some aspect of a machine or a process. Buttons are typically made out of hard material, usually plastic or metal. [1] The surface is usually flat or shaped to accommodate the human finger or hand, so as to be easily depressed or pushed. Buttons are most often biased switches, although many un-biased buttons (due to their physical nature) still require a spring to return to their un-pushed state. Terms for the "pushing" of a button include pressing, depressing, mashing, slapping, hitting, and punching

7. **LCD Display**

LCD (Liquid Crystal Display) is a type of flat panel display which uses liquid crystals in its primary form of

operation. LEDs have a large and varying set of use cases for consumers and businesses, as they can be commonly found in smart phones, televisions, computer monitors and instrument panels.

LCDs were a big leap in terms of the technology they replaced, which include light-emitting diode (LED) and gas-plasma displays. LCDs allowed displays to be much thinner than cathode ray tube (CRT) technology. LCDs consume much less power than LED and gas-display displays because they work on the principle of blocking light rather than emitting it. Where and LED emits light, the liquid crystals in an LCD produces an image using a backlight. As LCDs have replaced older display technologies, LCDs have begun being replaced by new display technologies such as OLEDs.

8. Bread Board

A bread board,solder less bread board,or protoboard is a construction base used to build semi- permanent prototypes of electronic circuits. Unlike a perf board or strip board, breadboards do not require soldering or destruction of tracks and are hence reusable. For this reason, breadboards are also popular with students and in technological education.A variety of electronic systems may be prototyped by using bread boards, from small analog and digital circuits to complete central processing units (CPUs).Compared to more permanent circuit connection methods, modern breadboards have high parasitic capacitance, relatively high resistance, and less reliable connections, which are subject to jostle and physical degradation. Signaling is limited to about 10 MHz, and not everything works properly even well below that frequency

B. Software Technology:

Arduino IDE:

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, atext console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino hardware to upload programs and communicate with them.

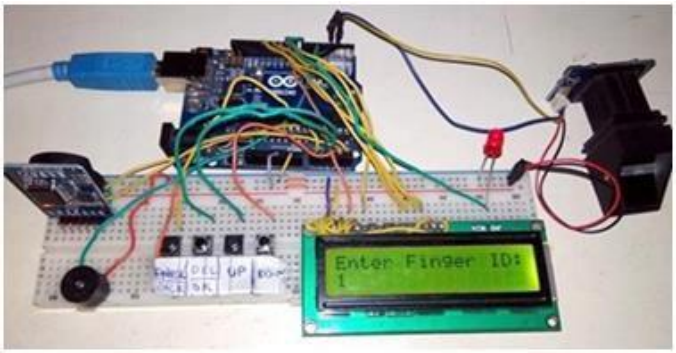
Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension .ino. The editor has features for cutting/pasting and for searching/replacing text. The message area gives feedback while saving and exporting and also displays errors. The console displays text output by the Arduino Software (IDE), including complete error messages and other information. The bottom righth and corner of the window displays the configured board and serial port. The toolbar buttons allow you to verify and upload programs, create, open, and save sketches, and open the serial monitor.

The Arduino Software (IDE) uses the concept of a sketchbook: a standard place to store your programs (or sketches). The sketches in your sketchbook can be opened from the File > Sketchbook menu or from the Open button on the toolbar.The first time you run the Arduino software, it will automatically create a directory for your sketchbook. You can view or change the location of the sketchbook location from with the Preferences dialog.

III. RESULT,CONCLUSION AND FUTURE SCOPE

Result:

While building an Exam Hall Authentication Using Fingerprint can be an educational project for learning about



Conclusion:

An exam hall authentication using fingerprint The fingerprint system was developed in two practical modes; the registration mode and verification mode The registration mode was designed to scan the fingerprint and ID number which were properly and correctly saved into the database of the system. The authentication mode was designed to confirm the eligibility of candidate for examination. The system designed works basically on three criteria. These are the image acquisition stage which involves capturing the image (fingerprint) via the R307 fingerprint module. The feature stage is the second stage which involves extracting the important minutiae for the purpose of the matching stage which is the authentication state. The matching stage then tends to compare the template image based on 25% threshold value set for the operation of the system.

The system will successfully identify and verify the registered understudy finger print and stored the verified understudy so that the lecturer can retrieve the list of all under studies that was verified to take an examination. The system gives the time when the understudy was verified. In other words, the system generates a report in real time using the understudy fingerprint to avoid or prevent impersonation.

Future Scope:

A project to build exam hall authentication using fingerprint Further research can be carried out to have more than one biometric technique like a fingerprint and facial recognition and also in very large scale organization, that the memory card cannot contain all the data. the hard data can be used

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