HACKHUB 2022

Slash Coder

Theme:
Open Innovation

Project Title:
Smart ID-Card Generator and Attendance System

The Problem It Solves:

- It basically avoids fake attendance of the students marked by their friends or colleagues.
- To maintain and regulate the smooth and actual flow of attendance and good attentiveness in class this software is generated.
- Basically, it solves the Attendance Issue in Online as well as Offline Mode.

Working Of the Project:

 # For Online System:
It Generates the Digital ID-Card with the QR-Code with a unique ID for each student.

This ID Card will be given to students.

The Scanner will detect the QR Code for the attendance, After the detection of the QR Code the unique id get scanned and Get stored in the Docx File.

After the scanning of ID, the Face Capturing window will pop out for the FACE DETECTION to approve the student.
After the capturing of the Image, this image gets stored in that Docx File.

This file goes to the Database section to cross-check the data of students from MongoDB's data.
After the verification is approved the student will be let in the class and his attendance is marked present automatically.

Here the print button is also provided for teachers to download the sheet for manual checking of attendance.

For Offline System:
For offline mode, we have created an RFID System to detect the unique id for the student.
Basically, the entry area of the campus contains the sensor for detection of ID Card after the scanning of id and approval by checking in the database the student will be marked Present.

#Other Use of ID Card:
ONLINE

- It can be used to take entry in the Exams portal.
- It can be used to take entry in any confidential meets.

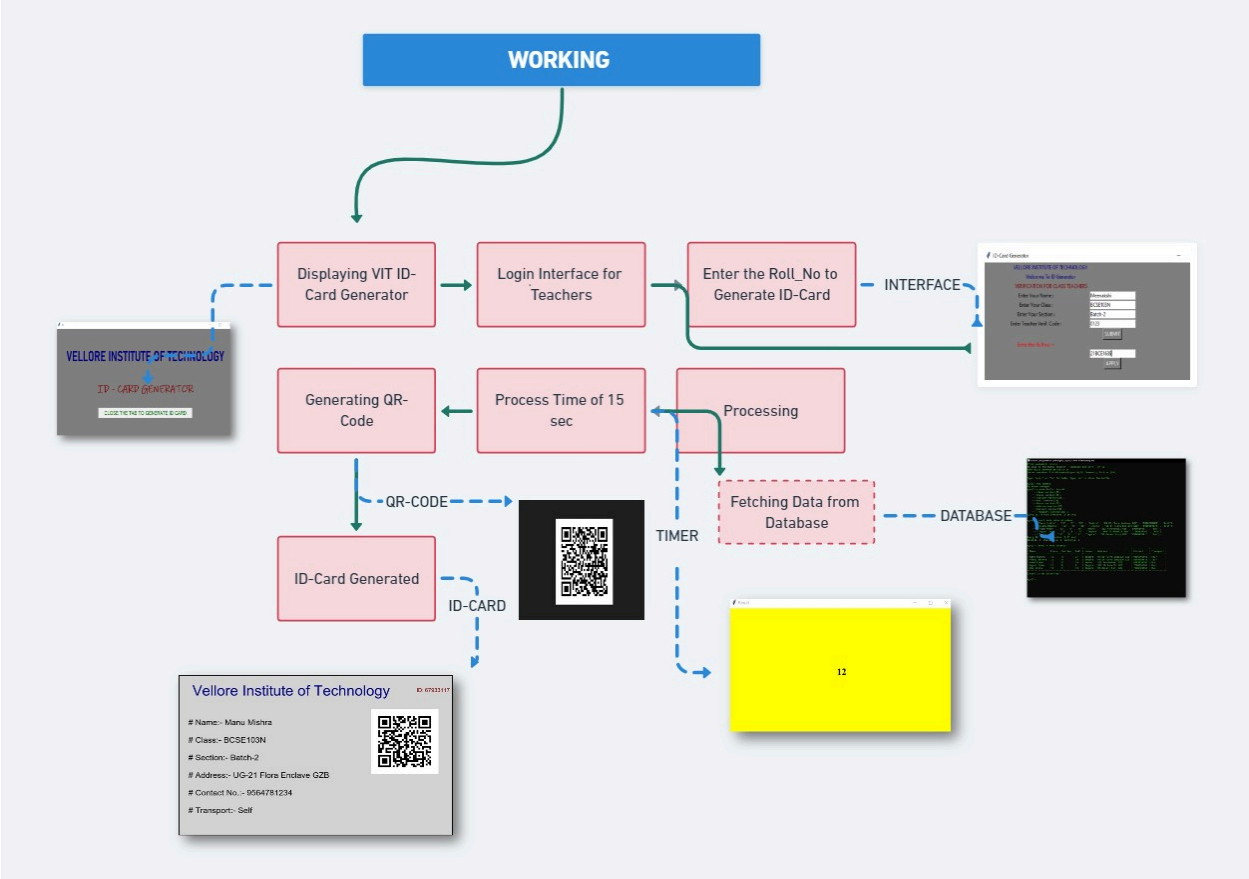
OFFLINE

- RFID Sensor can also be placed at different locations on campus to enter the specific region and keep a track of students and his activities used to scan the id to
- ID can be scanned for libraries, canteens, parking, other stalls, and section.

#Demonstration:

ONLINE

Working of ID Card Generator



Generated ID Card

Vellore Institute of Technology

ID: 67933117

Name:- Manu Mishra

Class:- BCSE103N

Section:- Batch-2

Address:- UG-21 Flora Enclave GZB

Contact No.:- 9564781234

Transport:- Self

Vellore Institute of Technology

ID: 82342540

Name:- Tavishi Rastogi

Class:- BCSE103N

Section:- Batch-2

Address:- Raj Nagar

Contact No.:- 9874563215

Transport:- Bus

Vellore Institute of Technology

ID: 28446496

Name:- Christo Joby Antony

Class:- BCSE103N

Section:- Batch-2

Address:- Dwarka House 51 Delhi

Contact No.:- 9865234512

Transport:- Bus

Vellore Institute of Technology

ID: 78297446

Name:- Kruthik Ballari

Class:- BCSE103N

Section:- Batch-2

Address:- Plot-51 Vasant kunj GUJ

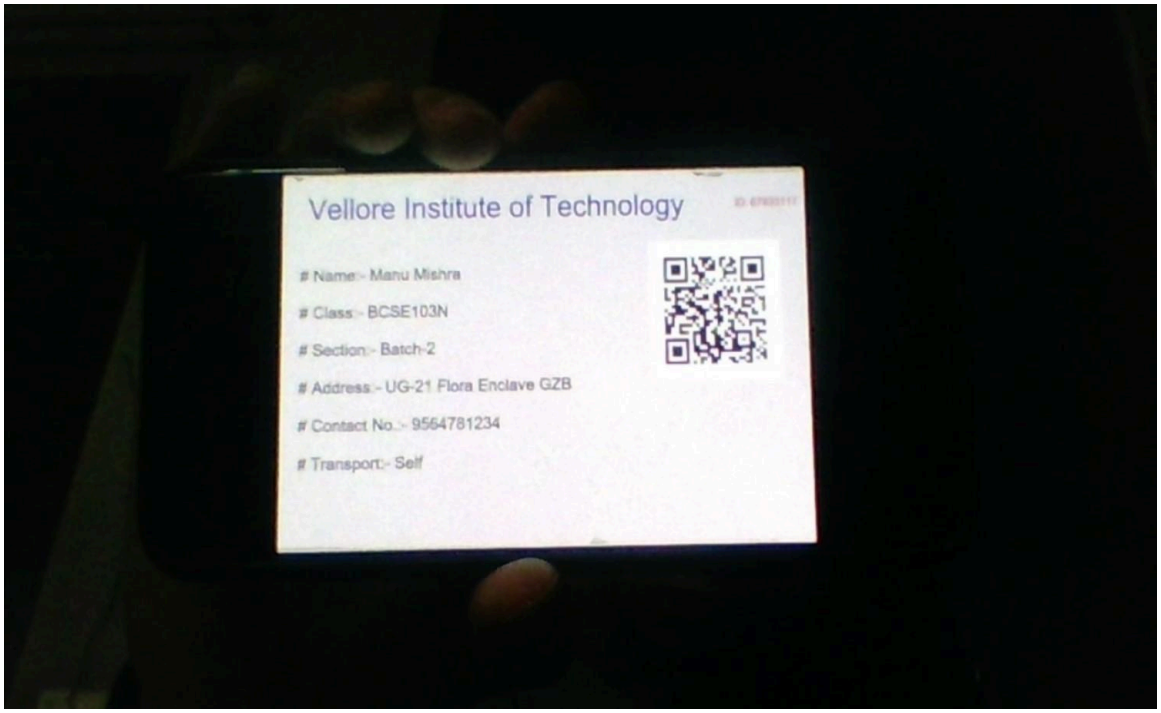
Contact No.:- 7894561234

Transport:- Self

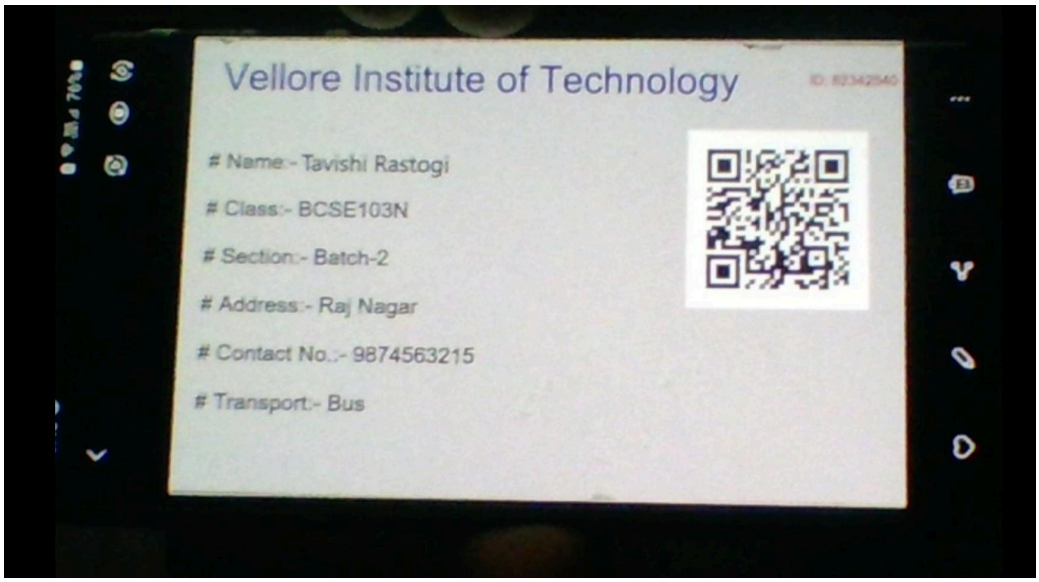
Scanning Process Of QR Code:

Each student will scan their QR Code when the scanner screen pops up

STUDENT-1



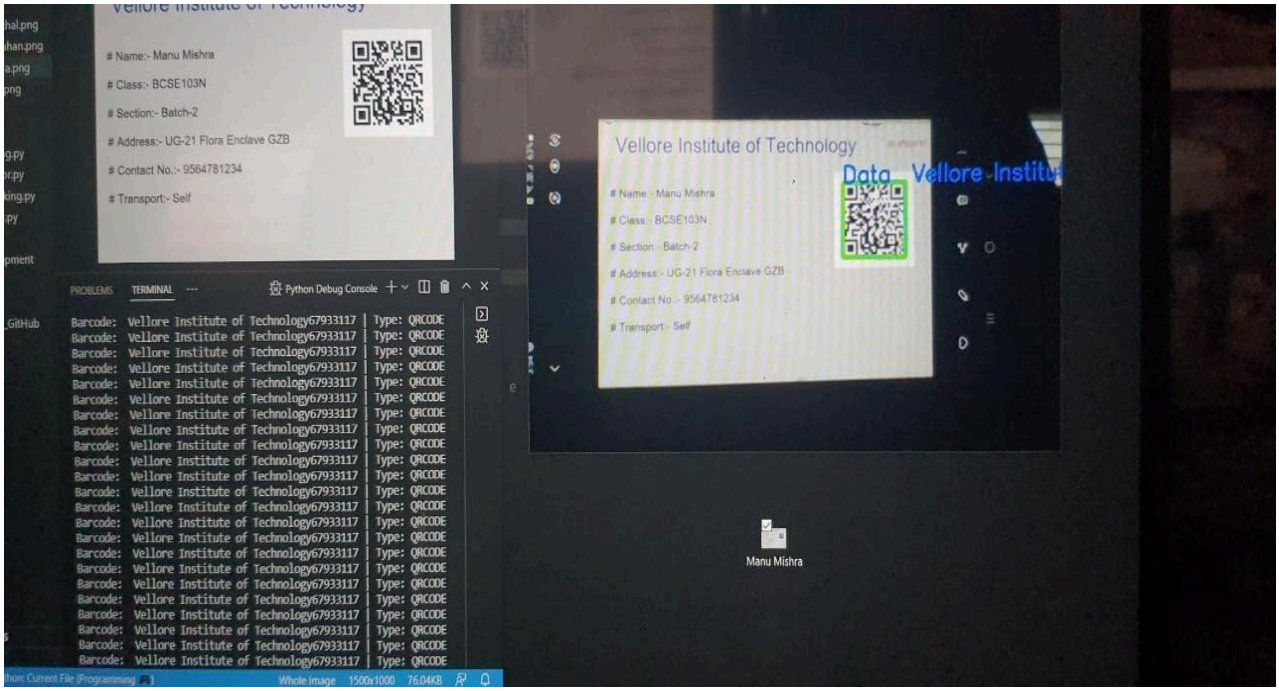
STUDENT-2



STUDENT-3

STUDENT-4

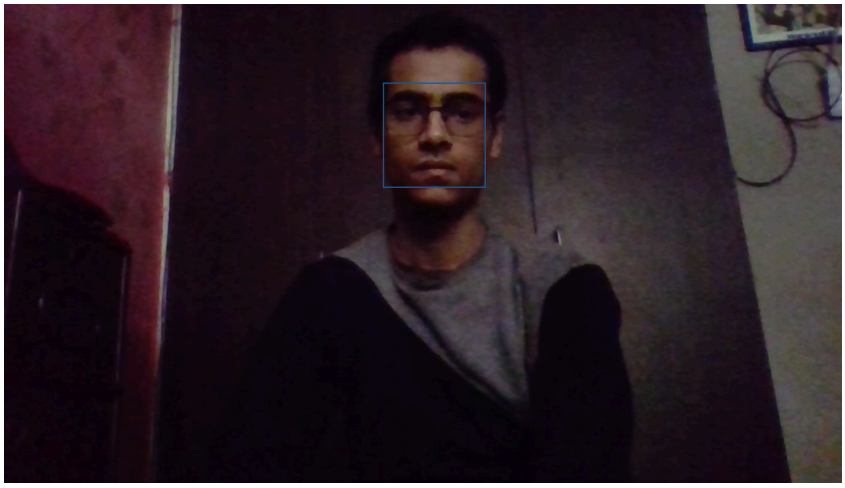
Scanning Of QR-CODE, after the scanning, is done these records get stored in a file to match with the database

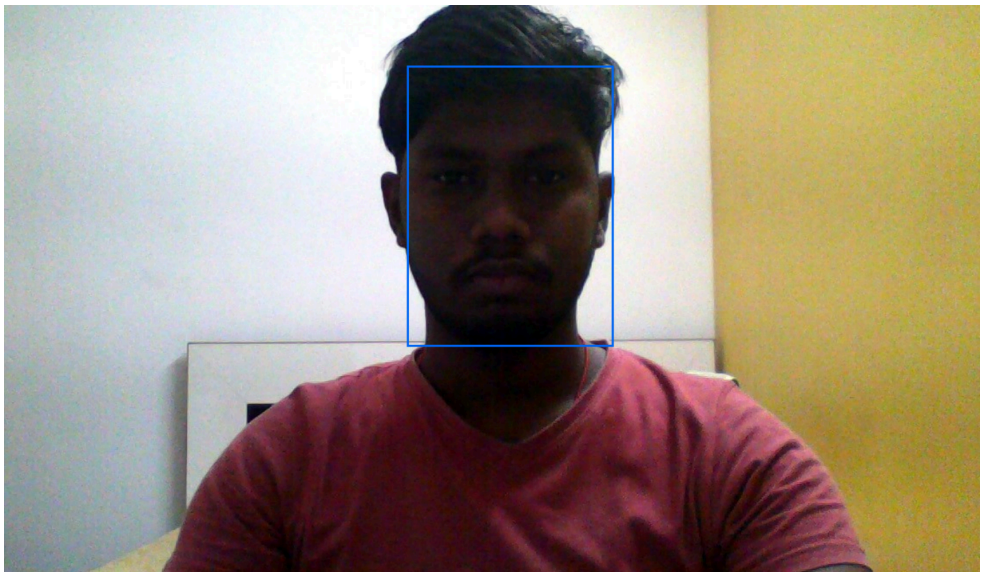


Now here comes the face recognition system, to check Whether the student is actual and provides proxy attendance.

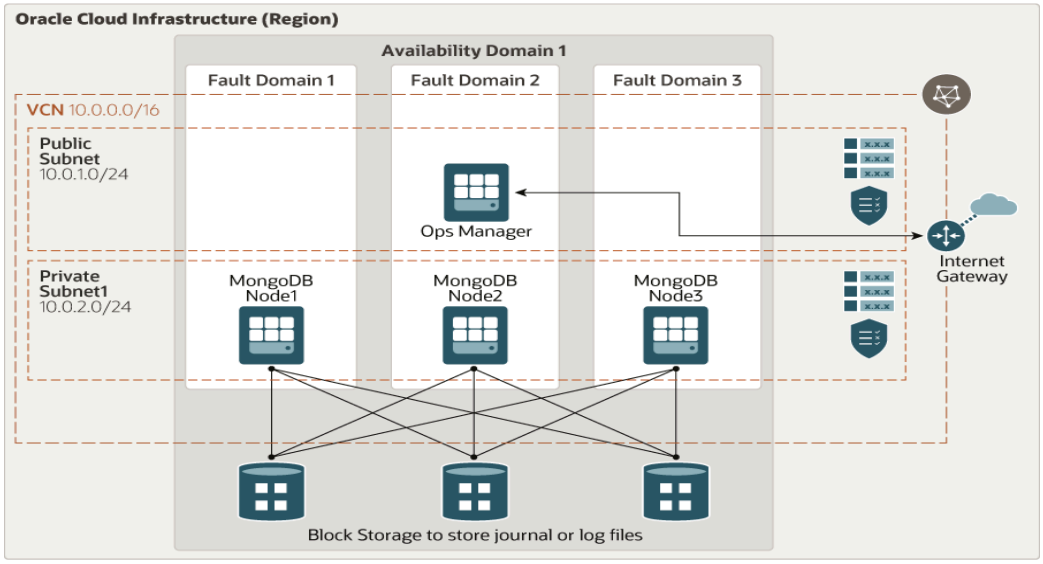
Now the face recognition system captures the image of the student and stores it in a file to check after with the database.

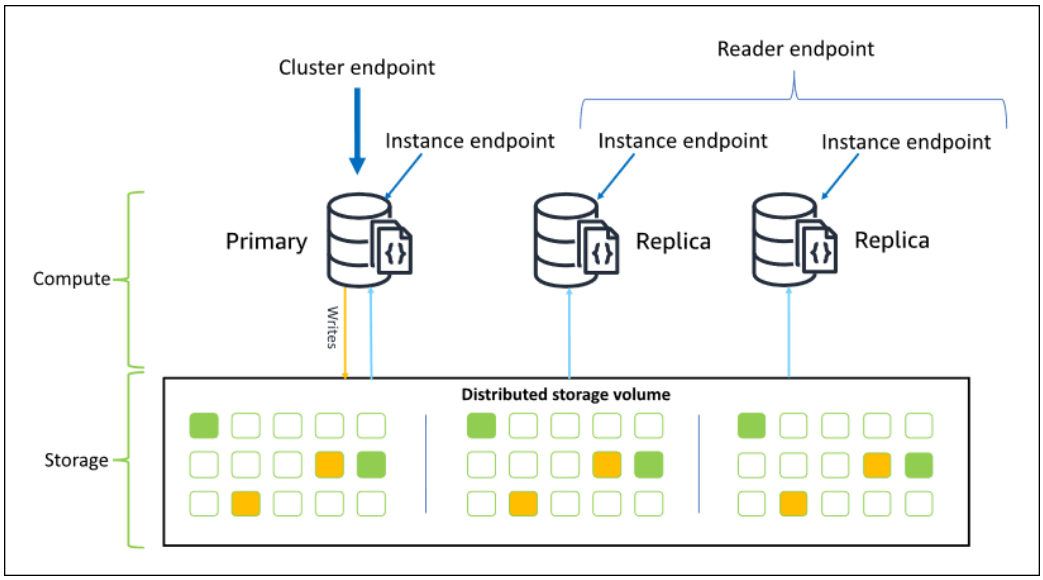
Captured Image of Students:



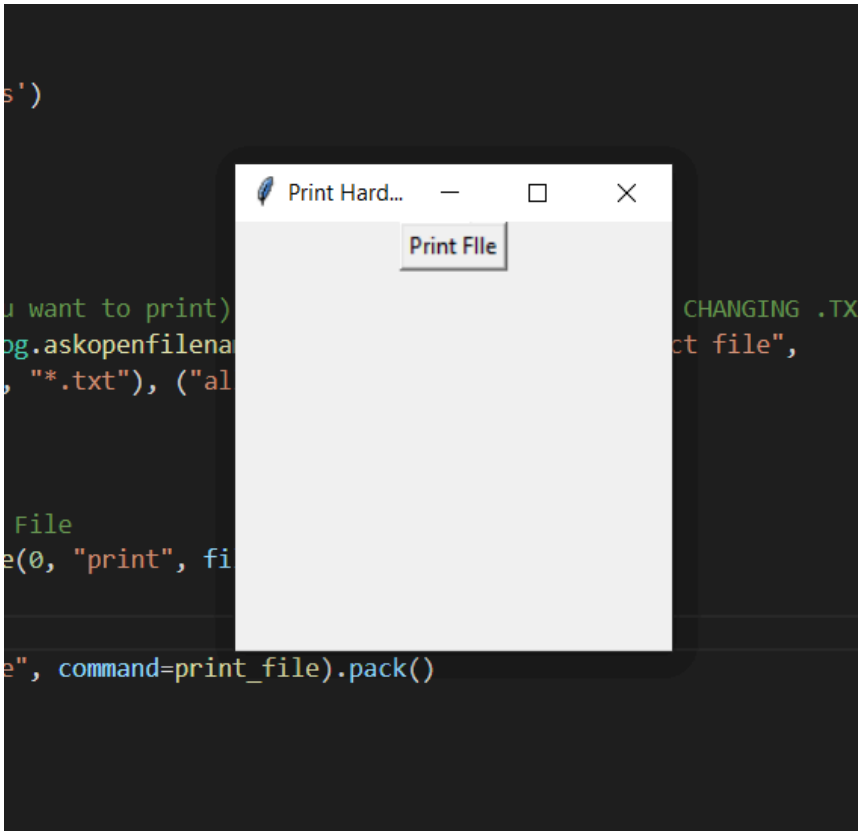


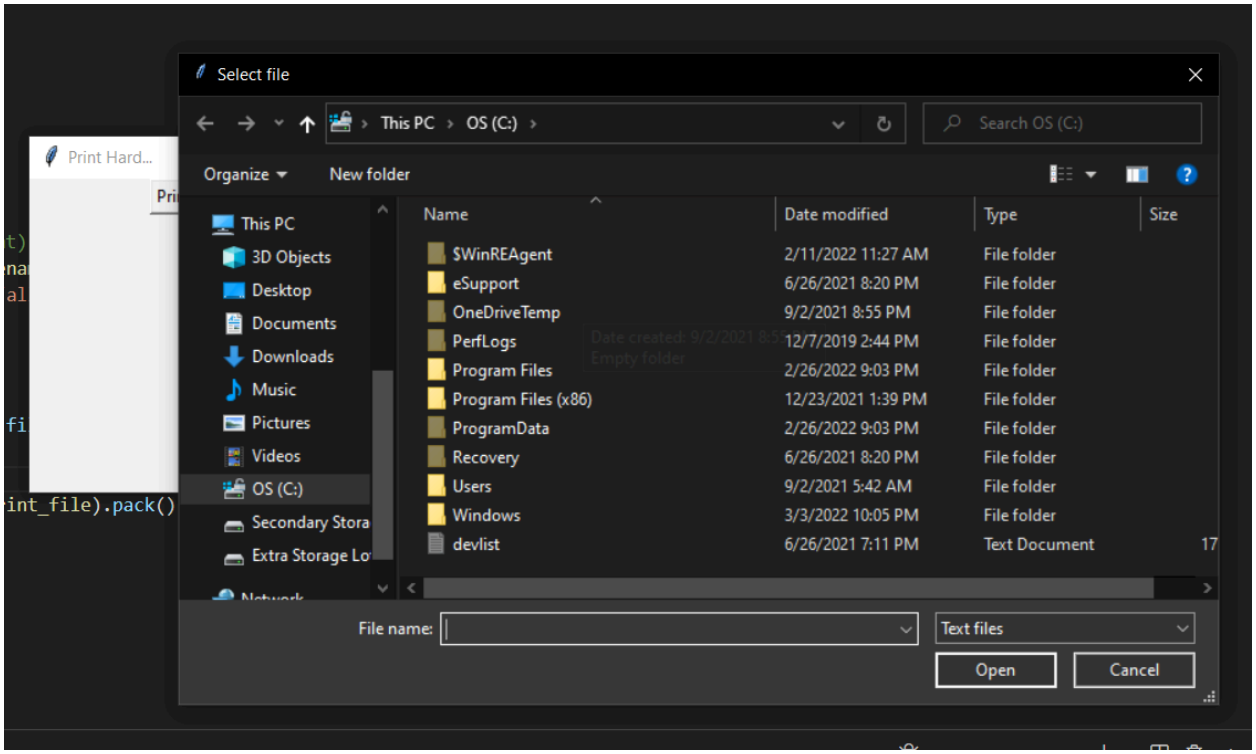
After the files get stored this file goes to the database to check whether the students are authorized or not.





Then here comes the print option that allows teachers to print the attendance sheet to check it manually or to keep it safe for their record.





Code Files:

https://drive.google.com/drive/folders/1iiLi_s_ZmsLLVmSksGW3FYU6UlKIK5Xp?usp=sharing

Record:

Attendance_Img.docx

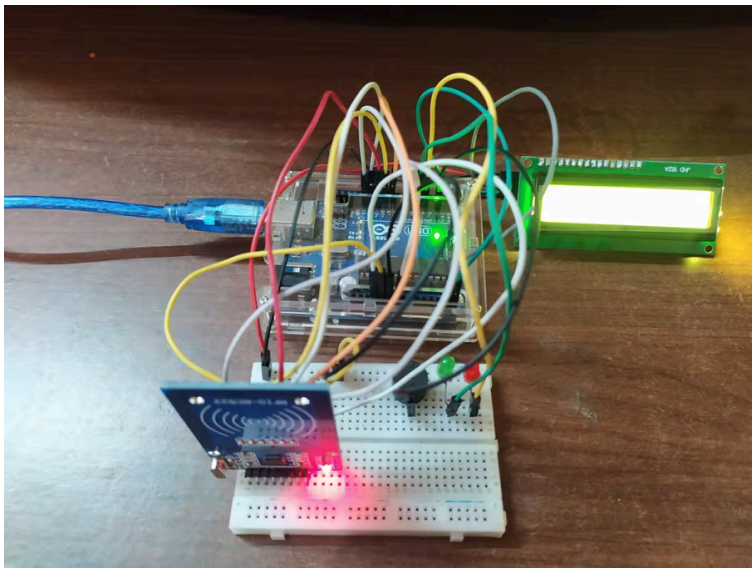
Attendance.docx

Video:

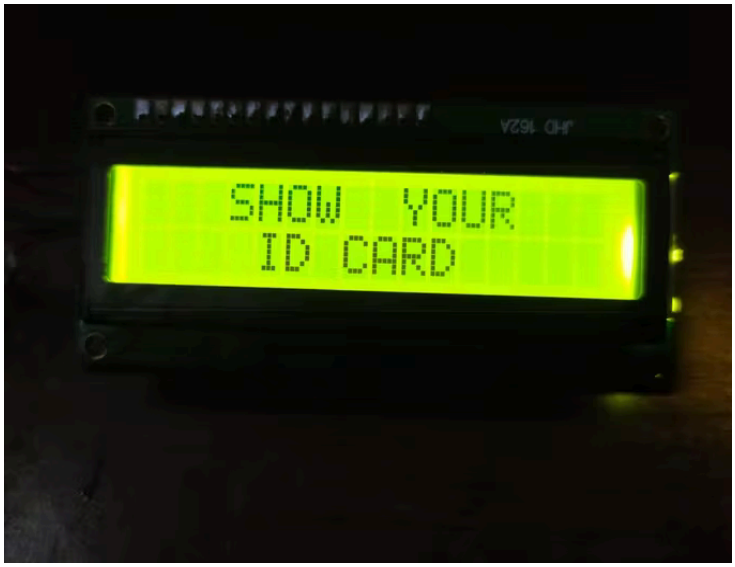
https://drive.google.com/file/d/1d9v643IctX16EITXF2wf2a2YPyL42FzT/view?usp=sharing

OFFLINE

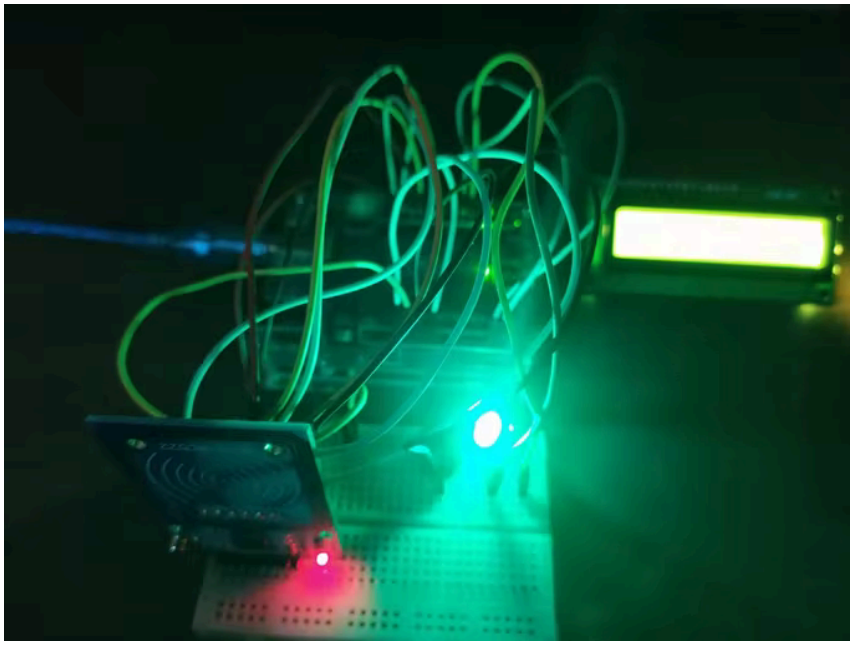
Complete step and device for RFID Scanning



Asking Students for their ID

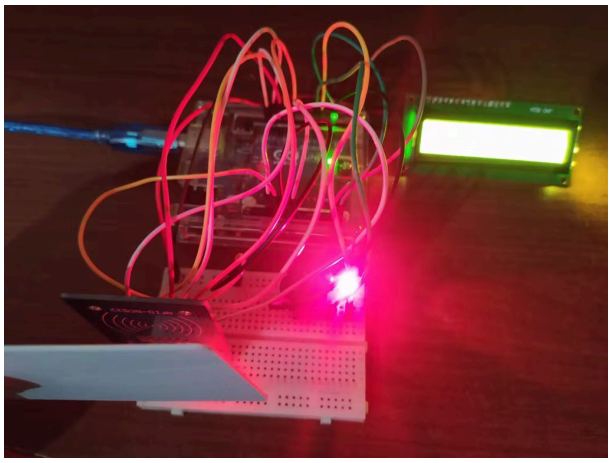


If a student is authorized then it will show Greenlight.



After fetching and matching data with the Database. It displays that the student is present

If the student is not authorized it will show a Red signal.



If authorization is not approved it Displays Unauthorized access.

#Code and Circuit Diagram:

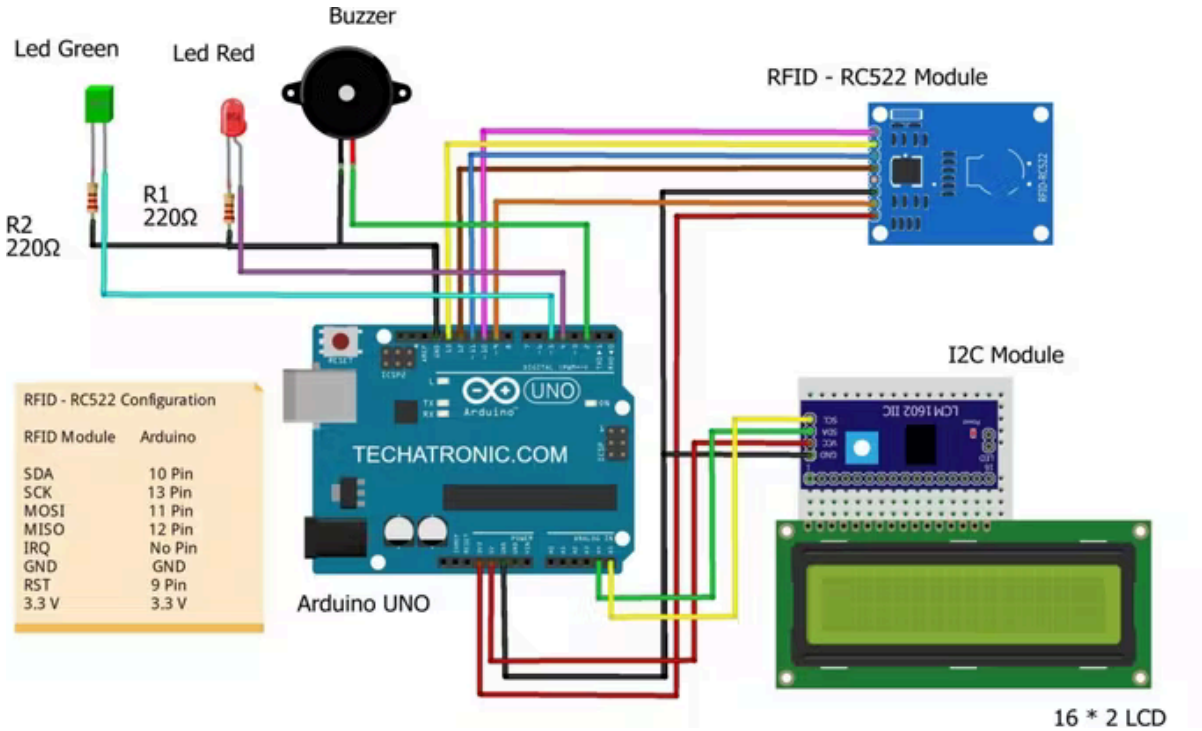
ONLINE

Codes:
https://drive.google.com/drive/folders/1iiLi_s_ZmsLLVmSksGW3FYU6UlKIK5Xp?usp=sharing

Video:
https://drive.google.com/drive/folders/1blw7PqeIZC79kjFyyrr6tjd9y4BCpPOR?usp=sharing

OFFLINE

- Circuit:



```
Arduino 5-volts pin   -> VCC of the I2c module

Arduino GND pin       -> GND of the I2C module

Arduino analog-4 pin  -> SDA of the I2C module

Arduino analog-5 pin  -> SCL of the I2C module

Arduino digital-2 pin -> positive leg of buzzer

Arduino digital-4 pin -> positive leg of red LED

Arduino digital-5 pin -> positive leg of green LED
```

- Code:

```
#include <SPI.h>
#include <MFRC522.h>
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
// Set the LCD address to 0x27 for a 16 chars and 2 line display
LiquidCrystal_I2C lcd(0x27, 16, 2);
#define SS_PIN 10
#define RST_PIN 9
#define LED_G 5 //define green LED pin
#define LED_R 4 //define red LED pin
#define BUZZER 2 //buzzer pin
MFRC522 mfrc522(SS_PIN, RST_PIN);  // Create MFRC522 instance.
void setup()
{
Serial.begin(9600);  // Initiate a serial communication
SPI.begin();   // Initiate SPI bus
mfrc522.PCD_Init();  // Initiate MFRC522
```

```
lcd.begin();
lcd.backlight(); // Turn on the blacklight and print a message.
pinMode(LED_G, OUTPUT);
pinMode(LED_R, OUTPUT);
pinMode(BUZZER, OUTPUT);
noTone(BUZZER);
}
void loop()
{
// Look for new cards
if ( ! mfrc522.PICC_IsNewCardPresent())
{
lcd.setCursor(3,0);
lcd.print("SHOW YOUR");
lcd.setCursor(4,1);
lcd.print("ID CARD");
return;
}
else{
lcd.clear();
}
// Select one of the cards
if ( ! mfrc522.PICC_ReadCardSerial())
{
return;
}
//Show UID on serial monitor
Serial.print("UID tag :");
String content= "";
byte letter;
for (byte i = 0; i < mfrc522.uid.size; i++)
{
Serial.print(mfrc522.uid.uidByte[i] < 0x10 ? " 0" : " ");
Serial.print(mfrc522.uid.uidByte[i], HEX);
content.concat(String(mfrc522.uid.uidByte[i] < 0x10 ? " 0" : "
"));
content.concat(String(mfrc522.uid.uidByte[i], HEX));
}
Serial.println();
content.toUpperCase();
```

```
if (content.substring(1) == "36 B1 03 32") //change here the UID
of the card/cards that you want to give access
{
lcd.print("STUDENT 01");
lcd.setCursor(0,1);
lcd.print("PRESENT");
digitalWrite(LED_G, HIGH);
tone(BUZZER, 500);
delay(300);
noTone(BUZZER);
delay(3000);
digitalWrite(LED_G, LOW);
lcd.clear();
}
else if (content.substring(1) == "81 93 40 43") //change here
the UID of the card/cards that you want to give access
{
lcd.print("STUDENT 02");
lcd.setCursor(0,1);
lcd.print("PRESENT");
digitalWrite(LED_G, HIGH);
tone(BUZZER, 500);
delay(300);
noTone(BUZZER);
delay(3000);
digitalWrite(LED_G, LOW);
lcd.clear();
}
else if (content.substring(1) == "91 69 3E 43") //change here
the UID of the card/cards that you want to give access
{
lcd.print("STUDENT 03");
lcd.setCursor(0,1);
lcd.print("PRESENT");
digitalWrite(LED_G, HIGH);
tone(BUZZER, 500);
delay(300);
noTone(BUZZER);
delay(3000);
digitalWrite(LED_G, LOW);
lcd.clear();
```

```
}
else  {
lcd.print("UNAUTHORIZE");
lcd.setCursor(0,1);
lcd.print("ACCESS");
digitalWrite(LED_R, HIGH);
tone(BUZZER, 300);
delay(2000);
digitalWrite(LED_R, LOW);
noTone(BUZZER);
lcd.clear();
}
}
```

Link of Code File:

RFID.pdf

#GITHUB LINK:
https://github.com/manumishra12/Smart_Attendance_System_Slash_Coders

#Team Members:

1. **Manu Mishra**
2. **Tavishi Rastogi**
3. **Kruthik Ballari**
4. **Christo Joby Antony**