ExamSecure: Smart Card-Based Hall Authentication System

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#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>

#define SCREEN_WIDTH 128  // OLED display width, in pixels
#define SCREEN_HEIGHT 64  // OLED display height, in pixels

// Declaration for an SSD1306 display connected to I2C (SDA, SCL pins)
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, -1);

#define Buz 13
#define ledr 11
#define ledg 12
int count = 0;
char input[13];
int i = 0, k = 0;

unsigned long lastTime = 0;
unsigned long timerDelay = 30000;

void setup() {
  Serial.begin(9600);
  pinMode(Buz, OUTPUT);
 pinMode(ledr, OUTPUT);
  pinMode(ledg, OUTPUT);
 delay(200);
 if (!display.begin(SSD1306_SWITCHCAPVCC, 0x3C)) {
    Serial.println(F("SSD1306 allocation failed"));
    for (;;);
 }
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  delay(1000);
  display.clearDisplay();
 display.setTextSize(1);
 display.setTextColor(WHITE);
  display.setCursor(0, 0);
  display.println("ExamSecure: Smart Card-Based Hall Authentication System");
display.display();
  delay(2000);
 digitalWrite(Buz, LOW);
 digitalWrite(ledr, LOW);
  digitalWrite(ledg, LOW);
}

void loop() {
  unsigned int x, i1 = 0, cmp1 = 0, cmp2 = 0, cmp3 = 0, cmp4 = 0, cmp5 = 0;
 char rec[13], card1[13] = "5500C12AA01E", card2[13] = "5500816F56ED", card3[13] =
"55008176C567";
  char card4[13] = "550081CE647E", card5[13] = "550081D3ACAB"; // NEW TAGS
  cmp1 = cmp2 = cmp3 = cmp4 = cmp5 = 0;
 delay(1000);

 display.clearDisplay();
 display.setTextSize(1);
 display.setTextColor(WHITE);
  display.setCursor(0, 0);
 display.println("WAITING FOR CARD SWIPE");
  display.display();
 for (count = 0; count < 12; count++) {
    while (!Serial.available());
   input[count] = Serial.read();
   Serial.print(input[count]);
```

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}
input[12] = 0;
 display.setTextSize(1);
display.setTextColor(WHITE);
 display.setCursor(0, 20);
 display.println(input);
display.display();
delay(2000);
int card = 0;
 if (strncmp(card1, input, 12) == 0) card = 1;
 if (strncmp(card2, input, 12) == 0) card = 2;
if (strncmp(card3, input, 12) == 0) card = 3;
 if (strncmp(card4, input, 12) == 0) card = 4;  // NEW
 if (strncmp(card5, input, 12) == 0) card = 5;  // NEW

  display.setTextSize(1);
display.setTextColor(WHITE);
display.setCursor(0, 20);
  display.println("card:");
  display.println((int)card);
display.display();

if (card == 1) {
    digitalWrite(ledg, HIGH);
    digitalWrite(ledr, LOW);
    display.setCursor(0, 30);
    display.println("Location: Room 1");
    display.display();
    delay(2000);
} else if (card == 2) {
    digitalWrite(ledg, HIGH);
```

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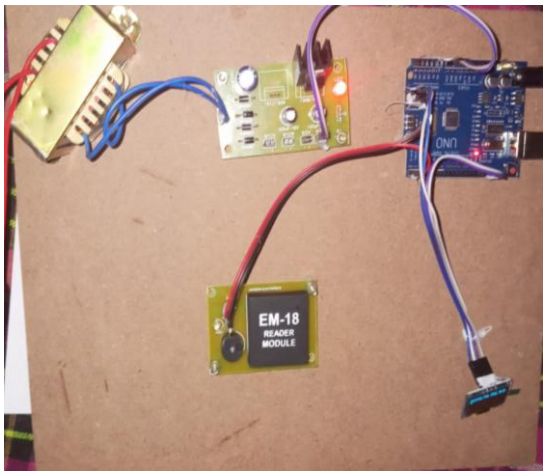
    digitalWrite(ledr, LOW);
    display.setCursor(0, 40);
    display.println("Location: Room 2");
    display.display();
    delay(2000);
  } else if (card == 3) {
    digitalWrite(ledg, LOW);
    digitalWrite(ledr, HIGH);
    digitalWrite(Buz, HIGH);
    display.setCursor(0, 50);
    display.println("Location: Room 3");
    display.display();
    delay(2000);
    digitalWrite(Buz, LOW);
  } else if (card == 4) {
    digitalWrite(ledg, HIGH);
    digitalWrite(ledr, LOW);
    display.setCursor(0, 50);
    display.println("Location: Lab 1");
    display.display();
    delay(2000);
 } else if (card == 5) {
    digitalWrite(ledg, HIGH);
    digitalWrite(ledr, LOW);
    display.setCursor(0, 50);
   display.println("Location: Lab 2");
    display.display();
    delay(2000);
   }
}
```

OUTPUT SCREEN SHOTS



Project kit