#include <SPI.h>

#include <MFRC522.h>

#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 RELAY 3 //relay pin

#define BUZZER 2 //buzzer pin

#define ACCESS\_DELAY 2000

#define DENIED\_DELAY 1000

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

  pinMode(LED\_G, OUTPUT);

  pinMode(LED\_R, OUTPUT);

  pinMode(RELAY, OUTPUT);

  pinMode(BUZZER, OUTPUT);

  noTone(BUZZER);

  digitalWrite(RELAY, HIGH);

  Serial.println("Put your card to the reader...");

  Serial.println();

}

void loop()

{

  // Look for new cards

  if (mfrc522.PICC\_IsNewCardPresent())

  {

    // Select one of the cards

    if (mfrc522.PICC\_ReadCardSerial())

    {

      // Show UID on serial monitor

      Serial.print("UID tag :");

      String content = "";

      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();

      Serial.print("Message : ");

      content.toUpperCase();

      if (content.substring(1) == "43 38 08 15") //change here the UID of the card/cards that you want to give access

      {

        Serial.println("Authorized access");

        Serial.println();

        digitalWrite(RELAY, LOW);

        digitalWrite(LED\_G, HIGH);

        customTune();

        delay(ACCESS\_DELAY);

        digitalWrite(RELAY, HIGH);

        digitalWrite(LED\_G, LOW);

      }

      else

      {

        Serial.println(" Access denied");

        digitalWrite(LED\_R, HIGH);

        tone(BUZZER, 2000);

        delay(DENIED\_DELAY);

        digitalWrite(LED\_R, LOW);

        noTone(BUZZER);

      }

      // Reset card detection status

      mfrc522.PICC\_HaltA();

      mfrc522.PCD\_StopCrypto1();

    }

  }

}

void customTune() {

  tone(BUZZER, 2907); // C6

  delay(500);

  tone(BUZZER, 2175); // D6

  delay(500);

  tone(BUZZER, 2319); // E6

  delay(400);

  noTone(BUZZER);

}