//Viral Science

//RFID Card Reader Pat McMahon 26/8/2020

//A044

#include <SPI.h>

#include <MFRC522.h>

#include <Servo.h>

#define SS\_PIN 10

#define RST\_PIN 9

#define LED\_G 4 //define green LED pin

#define LED\_R 5 //define red LED

#define BUZZER 2 //buzzer pin

MFRC522 mfrc522(SS\_PIN, RST\_PIN); // Create MFRC522 instance.

Servo myServo; //define servo name

void setup()

{

 Serial.begin(9600); // Initiate a serial communication

 SPI.begin(); // Initiate SPI bus

 mfrc522.PCD\_Init(); // Initiate MFRC522

 myServo.attach(3); //servo pin

 myServo.write(0); //servo start position

 pinMode(LED\_G, OUTPUT);

 pinMode(LED\_R, OUTPUT);

 pinMode(BUZZER, OUTPUT);

 noTone(BUZZER);

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

 Serial.println();

}

void loop()

{

 // Look for new cards

 if ( ! mfrc522.PICC\_IsNewCardPresent())

 {

 return;

 }

 // 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();

 Serial.print("Message : ");

 content.toUpperCase();

 if (content.substring(1) == "83 23 38 BB") //change here the UID of the card/cards that you want to give access

 {

 Serial.println("Authorized access");

 Serial.println();

 delay(500);

 digitalWrite(LED\_G, HIGH);

 tone(BUZZER, 500);

 delay(300);

 noTone(BUZZER);

 myServo.write(180);

 delay(5000);

 myServo.write(0);

 digitalWrite(LED\_G, LOW);

 }

 else {

 Serial.println(" Access denied");

 digitalWrite(LED\_R, HIGH);

 tone(BUZZER, 300);

 delay(1000);

 digitalWrite(LED\_R, LOW);

 noTone(BUZZER);

 }

}