

This version uses a hardware switch to activate, and a random number generator to emulate RFID Tags with wrong and right codes.

UPDATE: New code with password and menu system in its infancy.

Hardware

Picture of 0-1 hardware can be seen [here](#)

Behaviour

When the Arduino detects a high input on pin 2 (rfidIn - see [#Code](#)), a random number is generated between 0 and 100. If this number is less than or equal to 50, then the Arduino assumes this is a valid card and opens the lock (an LED in this case) and turns on the green LED for 3 seconds. If this number is more than 50, then the Arduino assumes this is an invalid card and just turns on the red LED for 3 seconds.

Serial Output

This is a sample serial output from the Arduino

```
Serial Connection Innitiated
Welcome to HACMan Security
-----
Access Denied
Number:51

Access Granted
Number:49

Access Granted
Number:5

Access Denied
Number:72

Access Denied
Number:76
```

Code

[Previous Sub-Versions](#)

```
/*  RFID Door Control
    by Thomas Bloor - aka. TBSliver
```

Version: 0-11

This version has only a very basic functionality
which is done using LED's, a hardware switch, and
a random number generator.
This version also includes extras for the serial menu.
*/

```
char menuInput[36];

int redPin = 5;
int yellowPin = 4;
int greenPin = 3;
int lockPin = 6;
int rfidIn = 2;

void setup() {
  pinMode(redPin, OUTPUT);
  pinMode(yellowPin, OUTPUT);
  pinMode(greenPin, OUTPUT);
  pinMode(lockPin, OUTPUT);
  pinMode(rfidIn, INPUT); //change to serial input for RFID reader

  Serial.begin(9600); //Serial output to comp at 9600bps
  Serial.println("Serial Connection Innitiated");
  Serial.println("Welcome to HACMan Security");
  Serial.println("Please type menu to enter the menu");
  Serial.println("-----");

  randomSeed(analogRead(0));

  //startup LED pattern
  digitalWrite(redPin, HIGH);
  digitalWrite(yellowPin, HIGH);
  digitalWrite(greenPin, HIGH);
  delay(500);
  digitalWrite(redPin, LOW);
  digitalWrite(yellowPin, LOW);
  digitalWrite(greenPin, LOW);
  delay(250);
  digitalWrite(yellowPin, HIGH);
}

void loop() {
  int val=0,randNumber=0;

  val = digitalRead(rfidIn); //will be replaced with serial in

  if(val==1){
```

```
delay(500); //debounce
randNumber = random(100); //only to get a non-unlock element

if(randNumber<=50){ //insert search pattern here
  Serial.println("Access Granted");
  Serial.print("Number:");
  Serial.println(randNumber);
  Serial.println("");
  digitalWrite(greenPin, HIGH);
  digitalWrite(lockPin, HIGH);
  delay(3000);
  digitalWrite(greenPin, LOW);
  digitalWrite(lockPin, LOW);
}
else{
  Serial.println("Access Denied");
  Serial.print("Number: ");
  Serial.println(randNumber);
  Serial.println("");
  digitalWrite(redPin, HIGH);
  delay(3000);
  digitalWrite(redPin, LOW);
}
}
}
if(readSerial()==1){
  if(!strcmp(menuInput, "menu")){
    digitalWrite(redPin, HIGH);
    digitalWrite(greenPin, HIGH);
    menu();
    digitalWrite(redPin, LOW);
    digitalWrite(greenPin, LOW);
  }
  else {
    Serial.println("Did not understand command.");
    Serial.print("You entered: ");
    Serial.println(menuInput);
    Serial.println("type in menu to get to the menu");
    Serial.println("");
  }
}
}

void menu(){
  boolean exit = 0, pass = 0;
  int tries=3;
  Serial.println("Welcome to the Menu System");
  Serial.println("\r\nPlease enter password to continue");
  while(pass==0 && tries > 0){
    if(readSerial()==1){
      if(!strcmp(menuInput, "pass")){
```

```
        pass = 1;
        Serial.println("Password correct");
    }
    else {
        Serial.print("Password incorrect, ");
        Serial.print(tries);
        Serial.println(" attempts left");
        tries--;
    }
}

}

if(tries==0){
    Serial.println("All attempts used, exiting menu");
}
}

int readSerial(){
    int i=0,serialNo=0;
    if(Serial.available() > 0) {
        delay(100);
        serialNo = Serial.available();

        for(i=0; i<serialNo; i++) {
            menuInput[i] = Serial.read();
        }
        menuInput[serialNo] = '\0';
        return 1;
    }
    else {
        return 0;
    }
}
```

Category:Madlab projects

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