RFID ATTENDANCE SYSTEM

IOT

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RFID Based Attendance System

Description:

- In this project we will be using RFID CAT 1 type cards to mark the In and Out time of the person.
- The data will be stored in an excel file using some macros as according to our requirement we don't need a big database for now otherwise we can create a database in MYSQL or ORACLE.

Software:

Arduino IDE

Components Required:

- RFID CAT1 card (1 or 2)
- RFID- RC522 (RFID card reader)
- Arduino UNO

Wiring Schematics:

Arduino UNO	RFID-RC522
Pin10	SDA
Pin13	SCK
Pin11	MOSI
Pin12	MISO
---	IRQ
GND	GND
Pin9	RST
3.3V	3.3V

Code:

```
#include <SPI.h>

#include <MFRC522.h>


#define SS_PIN 10 //RX slave select

#define RST_PIN 9


MFRC522 mfrc522(SS_PIN, RST_PIN); // Create MFRC522 instance.


byte card_ID[4]; //card UID size 4byte

byte Name1[4]={0xD7,0x8A,0xDF,0x59};//first UID card

byte Name2[4]={0x3D,0x87,0x25,0xD9};//second UID card


int NumbCard[2];//the number of cards. in my case i have just two cards.

int j=0;

int statu[2];//the number of cards. in my case i have just two cards.

int s=0;


int const RedLed=6;

int const GreenLed=5;

int const Buzzer=8;


String Log;

String Name;//user name

long Number;//user number

int n ;//The number of card you want to detect (optional)


void setup() {


  Serial.begin(9600); // Initialize serial communications with the PC
```

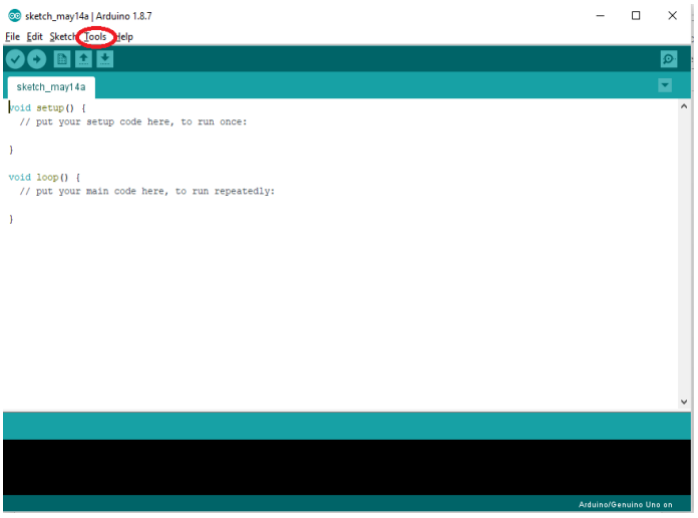
```
  SPI.begin();  // Init SPI bus
  mfrc522.PCD_Init(); // Init MFRC522 card


  Serial.println("CLEARSHEET");               // clears starting at row 1
  Serial.println("LABEL,Date,Name,Number,Time IN,Time OUT");// make four columns (Date,Time,[Name:"user name"]line 48 & 52,[Number:"user number"]line 49 & 53)


  pinMode(RedLed,OUTPUT);
  pinMode(GreenLed,OUTPUT);
  pinMode(Buzzer,OUTPUT);


  delay(200);
   }


void loop() {
  //look for new card
   if ( ! mfrc522.PICC_IsNewCardPresent()) {
  return;//got to start of loop if there is no card present
 }
 // Select one of the cards
 if ( ! mfrc522.PICC_ReadCardSerial()) {
  return;//if read card serial(0) returns 1, the uid struct contians the ID of the read card.
 }


 for (byte i = 0; i < mfrc522.uid.size; i++) {
    card_ID[i]=mfrc522.uid.uidByte[i];


      if(card_ID[i]==Name1[i]){
      Name="Muaz";//user name
      Number=123456;//user number
```

```
      j=0;
      s=0;
     }
     else if(card_ID[i]==Name2[i]){
      Name="Muaz Ata Ur Rehman";//user name
      Number=789101;//user number
      j=1;
      s=1;
     }
     else{
        digitalWrite(GreenLed,LOW);
        digitalWrite(RedLed,HIGH);
        goto cont;//go directly to line 71
    }
}
     if(NumbCard[j] == 1 && statu[s] == 0){
     statu[s]=1;
     Serial.print("DATA,DATE," + Name);//send the Name to excel
     Serial.print(",");
     Serial.print(Number); //send the Number to excel
     Serial.print(",");
     Serial.print("");
     Serial.print(",");
     Serial.println("TIME");

     }
     else if(NumbCard[j] == 0){
     NumbCard[j] = 1;
     n++;
     Serial.print("DATA,DATE," + Name);//send the Name to excel
```

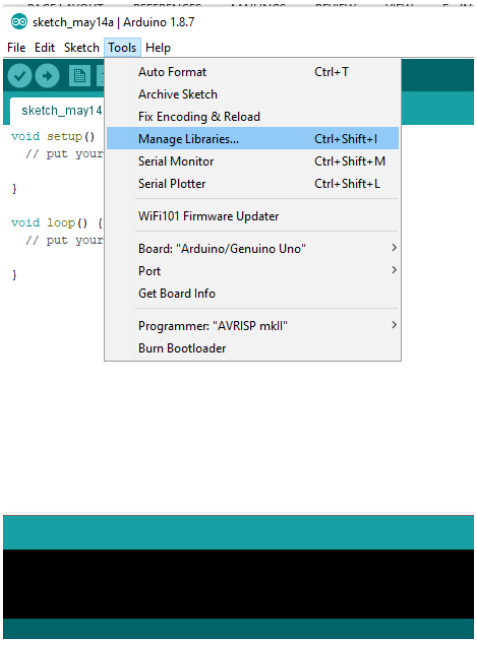
```
    Serial.print(",");
    Serial.print(Number); //send the Number to excel
    Serial.print(",");
    Serial.print("TIME");
    Serial.print(",");
    Serial.println("");
    digitalWrite(GreenLed,HIGH);
    digitalWrite(RedLed,LOW);
    digitalWrite(Buzzer,HIGH);
    delay(30);
    digitalWrite(Buzzer,LOW);
    }
    else if(statu[s] == 1){
   //Turn Red LED when the employee Already Left
   digitalWrite(RedLed,HIGH);
    }
    delay(1000);
cont:
delay(2000);
digitalWrite(GreenLed,LOW);
digitalWrite(RedLed,LOW);


//if you want to close the Excel when all card had detected and save Excel file in Names Folder. in my case i have just 2 card (optional)
/*if(n==2){
  Serial.println("SAVEWORKBOOKAS,Names/WorkNames");
  Serial.println("FORCEEXCELQUIT");
  }*/
}
```

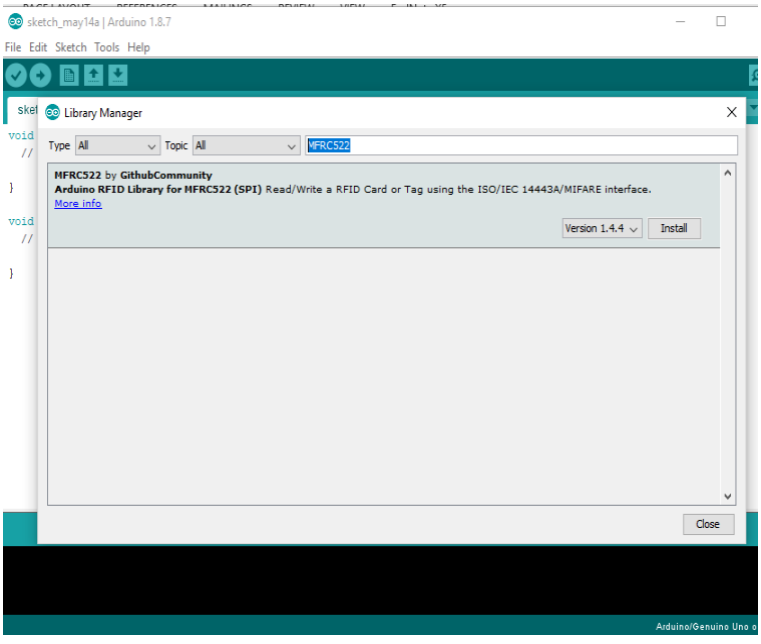
Procedure:

1. First thing first after setting up the hardware according to the above schematics open Arduino IDE, go to Tools

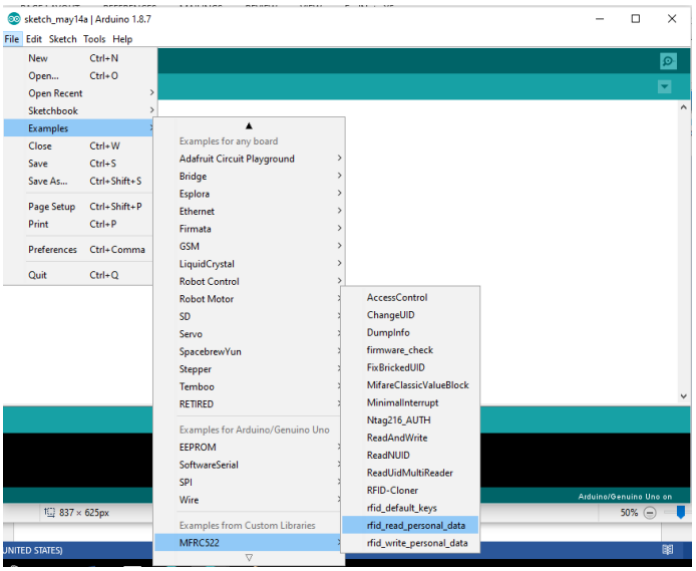


2. Then Manage Libraries and search MFRC522 and click on Install

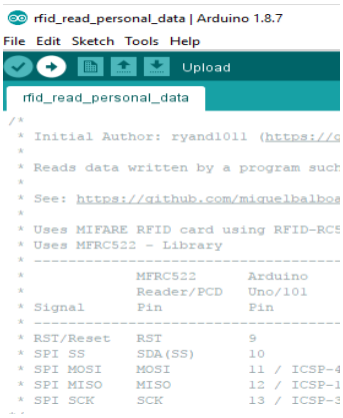


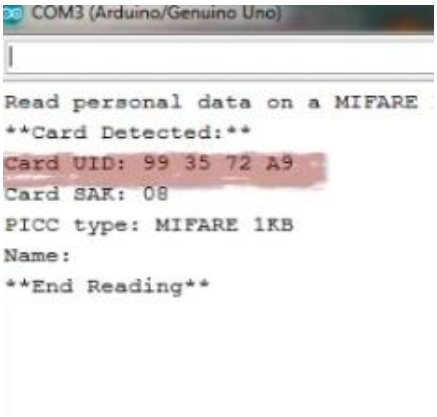


3. Now go to File, Examples , MFRC522 , rfid_read_personal_data



4. Upload this code to your Arduino and open serial Monitor from tools and scan the card. The reason we are doing this because we need the Hexa code id of the card because we need to use it in our attendance system code to register it.

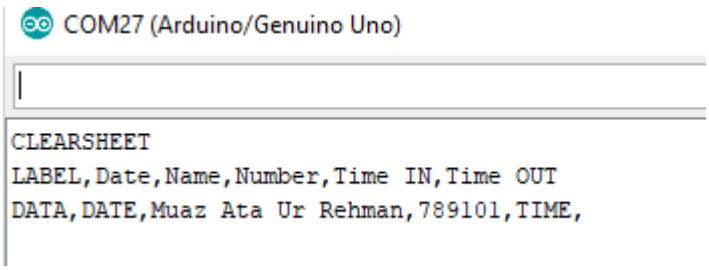




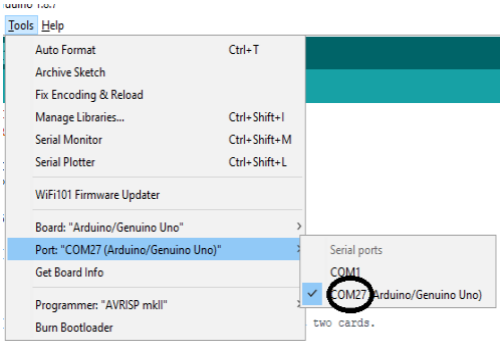
5. Now as we have the hexa code open the RFID_Excel.ino (Arduino file) and enter the hexa code in the following way as shown below (I have entered it in second UID you can enter in first too it is up to you). You can also enter Name and ID. Now upload this code to your Arduino and open Serial Monitor and scan your Card

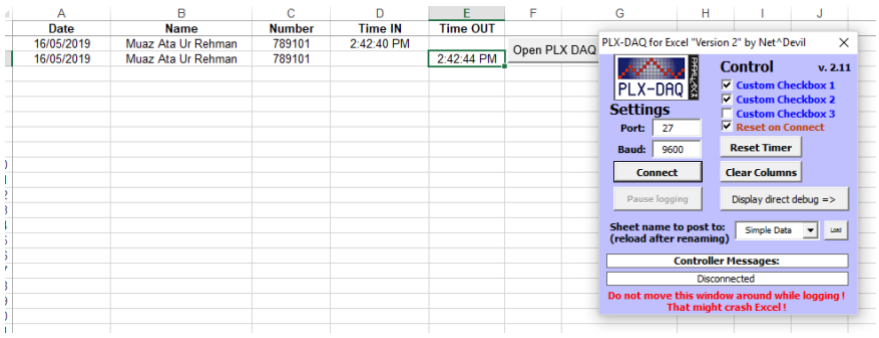
```
#define SS_PIN 10 //RX slave select
#define RST_PIN 9

MFRC522 mfrc522(SS_PIN, RST_PIN); // Create MFRC522 ins

byte card_ID[4]; //card UID size 4byte
byte Name1[4]={0xD7,0x8A,0xDF,0x59};//first UID card
byte Name2[4]={0x99,0x35,0x72,0xA9};//second UID card
```

```
for (byte i = 0; i < mfrc522.uid.size; i++) {
    card_ID[i]=mfrc522.uid.uidByte[i];

      if(card_ID[i]==Name1[i]){
      Name="Muaz Ata Ur Rehman";//user name
      Number=123456;//user number
      j=0;
      s=0;
```



6. If this works fine close the Arduino file now open your PLX-DAQ-v2.11 (Excel file). Select the port to which the Arduino is connected and select Baud to 9600 and Connect. Now scan the card. You will see it in this way.


Tools Help
Auto Format Ctrl+T
Archive Sketch
Fix Encoding & Reload
Manage Libraries... Ctrl+Shift+I
Serial Monitor Ctrl+Shift+M
Serial Plotter Ctrl+Shift+L
WiFi101 Firmware Updater
Board: "Arduino/Genuino Uno"
Port: "COM27 (Arduino/Genuino Uno)"
Get Board Info
Programmer: "AVRISP mkII"
Burn Bootloader
Serial ports
COM1
COM27 (Arduino/Genuino Uno)
two cards.


A B C D E F G H I J
Date Name Number Time IN Time OUT
16/05/2019 Muaz Ata Ur Rehman 789101 2:42:40 PM
16/05/2019 Muaz Ata Ur Rehman 789101 2:42:44 PM
Open PLX DAQ
PLX-DAQ for Excel "Version 2" by Net^Devil
PLX-DAQ
Control v. 2.11
Custom Checkbox 1
Custom Checkbox 2
Custom Checkbox 3
Reset on Connect
Settings
Port: 27
Baud: 9600
Reset Timer
Connect
Clear Columns
Pause logging
Display direct debug =>
Sheet name to post to: (reload after renaming)
Simple Data
Controller Messages:
Disconnected
Do not move this window around while logging ! That might crash Excel !