Testing RFID with Arduino

It is easy for programmers to program Arduino with this RFID module, mainly because the communication is through UART interface. UART communication is really easy.

Well, let's begin.

Connect Arduino with RFID module

You could use any Arduino board, UNO or Mega. It's ok. Connect it as the following way:

Arduino		RFID module
GND	------------	GND
5V	------------	VCC
Pin 2	------------	TXD
Pin3	------------	RXD

Then connect your Arduino to PC with USB cable.

Uploading the code

Basically we use SoftwareSerial libarary (Integrated in Arduino 1.0) and Arduino hardware serial. You could click here to download the code.

All the commands are in HEX format. Arduino Serial Monitor can only deal with ACII character. The code converts character to Hex numbers, and then sends to the RFID module.

Here is the code:

```
#include <SoftwareSerial.h>
SoftwareSerial mySerial(2, 3); //pin2 Rx, pin3 Tx

int CMD[64]; // Here the Max command length is set as 64 bytes. For example,  Command "AB 02 01" is 3 bytes
int comlen =0;
int out_flag =0;

void setup()
{
Serial.begin(9600);
mySerial.listen();
Serial.println("Serial number will be displayed here if a card is detected by the module:\n");
// set the data rate for the SoftwareSerial port
mySerial.begin(9600);
delay(10);
mySerial.write(0x02); //Send the command to read RFID tag, please refer to the manual for more detail.
}
void loop() // run over and over
{

    while (Serial.available())
    {
      int a = SerialReadHexDigit();
      //Serial.println(a);
```

```
      if(a>=0){
      CMD[comlen] = a;
      comlen++;
      }
      delay(10);
    }

    for(int i=0; i<comlen; i+=2){
      int c = mySerial.write( CMD[i]*16 + CMD[i+1]); //Convert Hex Characters in to Hex number, and send it to RFID.
     }
    comlen =0;

    while (mySerial.available()) {
    byte C = mySerial.read();
    if (C<10) Serial.print("0");
    Serial.print(C ,HEX); //Display in HEX
    Serial.print(" ");
    out_flag =1;
    }
    if (out_flag >0) {
     Serial.println();
     out_flag = 0;
    }

}

/*******************************************************************************
The following function is to receive data and judge if it is HEX character. Hex characters
include 1,2,3,4,5,6,7,8,9,0,a,b,c,d,e,f,A,B,C,D,E,F
Any other characters sent with the command will be ignored.
******************************************************************************* /

int SerialReadHexDigit()
{
  byte c = (byte) Serial.read();
  if (c >= '0' && c <= '9') {
    return c - '0';
  } else if (c >= 'a' && c <= 'f') {
    return c - 'a' + 10;
  } else if (c >= 'A' && c <= 'F') {
    return c - 'A' + 10;
  } else {
    return -1;   // getting here is bad: it means the character was invalid
  }
}
```
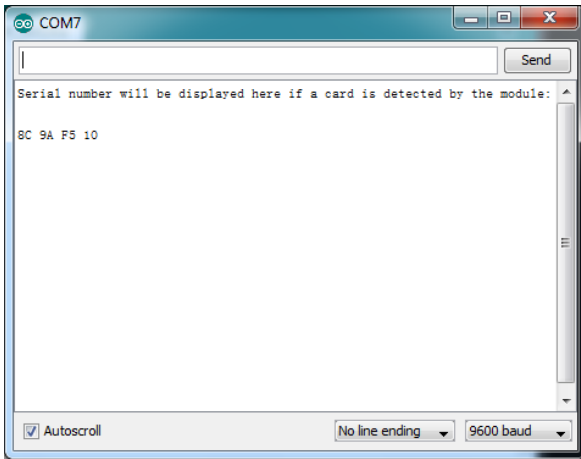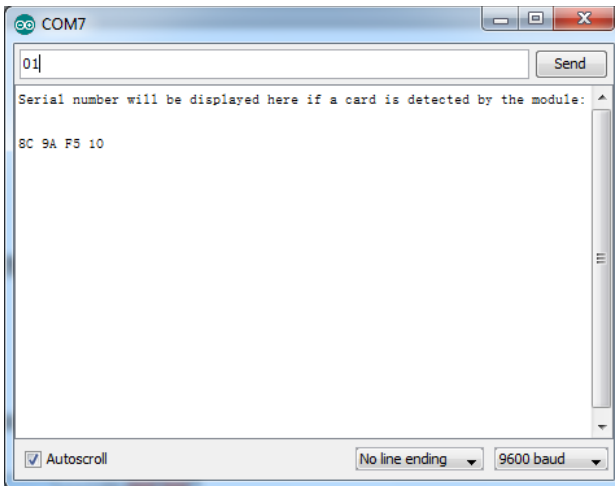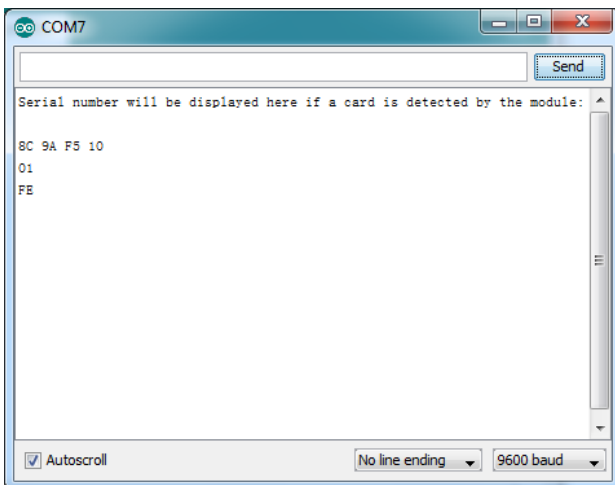
Result

In the setup(), we sent command to read RFID tag. So open the Serial monitor, you could put the RFID card on the module.

*You could send command in the Serial Monitor. Here we send command **01** to detect the card.*

Put the card on the module and then leave:

Please refer to the Manual for more information about the commands.

Disclaimer and Revisions

The information in this document may change without notice. If you got any problem, please email to service@elechouse.com.

You can visit www.elechouse.com for more information.

Revision History

Rev.	Date	Author	Description
A	Mar. 14th, 2012	Wilson	Initial version
B	Oct. 26th, 2012	Wilson	Enable send command through Arduino IDE