


<b>Electronics Workbench</b> 801-111 Peter Street Toronto, ON M5V 2H1 (416) 977-5550			
Title: RFID Reader	Desc.: RFID Tag Reader		
Designed by: RHG	Document No: 0001	Revision: 1.0	
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```

/*
*****
*   RFID Card Reader & Display   *
*   =====                     *
*   By Roy H Guerra Jr.         *
*   1/2/16                      *
*****

This code programs the Arduino mini to read RFID Tags and display valid codes
on an LCD display.  There are also serial debug lines to read new RFID codes.

This is an example sketch to read the ID from an Addicore 13.56MHz RFID tag.
*/

// Declare Libraries
// -----

#include <AddicoreRFID.h>
#include <SPI.h>
#include <Wire.h>
#include <LCD.h>
#include <LiquidCrystal_I2C.h>

// Declare Defines, Pins & Variables
//-----
#define uchar unsigned char
#define uint  unsigned int
#define BACKLIGHT_PIN 3

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```
#define En_pin 2
#define Rw_pin 1
#define Rs_pin 0
#define D4_pin 4
#define D5_pin 5
#define D6_pin 6
#define D7_pin 7
#define LED_OFF 1
#define LED_ON 0
#define I2C_ADDR 0x3F
```

```
//4 bytes tag serial number, the first 5 bytes for the checksum byte
uchar serNumA[5];
uchar fifobytes;
uchar fifoValue;
```

```
AddicoreRFID myRFID; // create AddicoreRFID object to control the RFID module
```

```
// Set The Pins
// -----
const int chipSelectPin = 10;
const int NRSTPD = 5;
```

```
//Maximum length of the array
//-----
#define MAX_LEN 16
```

```
// Set up LCD Display
// -----
LiquidCrystal_I2C lcd(I2C_ADDR, En_pin, Rw_pin, Rs_pin, D4_pin, D5_pin, D6_pin, D7_pin);

// Start Main Program
// -----
void setup() {
  Serial.begin(9600); // RFID reader SOUT pin connected to Serial RX pin at 9600bps for
  debug

  SPI.begin(); // start the SPI library:

  pinMode(chipSelectPin, OUTPUT); // Set digital pin 10 as OUTPUT to connect it to the
  RFID /ENABLE pin
  digitalWrite(chipSelectPin, LOW); // Activate the RFID reader
  pinMode(NRSTPD, OUTPUT); // Set digital pin 10 , Not Reset and Power-down
  digitalWrite(NRSTPD, HIGH); // Set logic state High

  myRFID.AddicoreRFID_Init(); // Initialize RFID Library
  lcd.begin (16,2); // Initialize the lcd
  lcd.setBacklightPin(BACKLIGHT_PIN, POSITIVE); // Switch on the backlight
  lcd.setBacklight(LED_ON); // Turn on backlight
  lcd.backlight(); // Backlight ON if under program control
  // Print introduction Banner
  lcd.setCursor(0, 0); // Print on first line
  lcd.print("RFID Tag Reader"); // Print Text
  lcd.setCursor(0, 1); // Print on second line
```

```

    lcd.print("By Roy Guerra"); // Print Text
    delay(4000); // 4 second delay
    lcd.clear(); // Clear LCD display
}

void loop()
{
    lcd.setCursor(0, 0); // Print on first line
    lcd.print("Scan RFID Card"); // Print Text
    uchar i, tmp, checksum1; // Read RFID Lines
    uchar status;
        uchar str[MAX_LEN];
        uchar RC_size;
        uchar blockAddr; //Selection operation block address 0 to 63
        String mynum = "";
    str[1] = 0x4400;
    status = myRFID.AddicoreRFID_Request(PICC_REQIDL, str); //Find tags, return tag type
    if (status == MI_OK) {
        Serial.println("RFID tag detected");
        Serial.print(str[0],BIN);
        Serial.print(" , ");
        Serial.print(str[1],BIN);
        Serial.println(" ");
    }

    //Anti-collision, return tag serial number 4 bytes
    status = myRFID.AddicoreRFID_Anticoll(str);

```

```
if (status == MI_OK) {
  checksum1 = str[0] ^ str[1] ^ str[2] ^ str[3];
  Serial.println("The tag's number is : "); // Print Serial Messages
  Serial.print(str[0]);
  Serial.print(" , ");
  Serial.print(str[1]);
  Serial.print(" , ");
  Serial.print(str[2]);
  Serial.print(" , ");
  Serial.print(str[3]);
  Serial.print(" , ");
  Serial.print(str[4]);
  Serial.print(" , ");
  Serial.println(checksum1);
  // Check all pairs, but look for assignments
  if(str[0] == 84) {
    Serial.print("Hello Joanne!\n"); // Text for debug
    lcd.setCursor(0, 1); // Set cursor on second line
    lcd.print("Hello Joanne!"); // Print RFID Text
  } else if(str[0] == 244) { // Look for another tag ID
    Serial.print("Hello Roy!\n"); // Used for debug
    lcd.setCursor(0, 1); // Set cursor on second line
    lcd.print("Hello Roy!"); // Print RFID Text
  }
  else if(str[0] == 100) { // Look for another tag ID
    Serial.print("Hello Scooby!\n"); // Used for debug
    lcd.setCursor(0, 1); // Set cursor on second line
```

```
        lcd.print("Hello Scooby!"); // Print RFID Text
    }
    Serial.println();// Used for debug
    delay(1000); // Delay 1S
    lcd.clear(); // Clear LCD Display
}
myRFID.AddicoreRFID_Halt(); // RFID tag in hibernation
}
```