#include <SoftwareSerial.h>

#include <Wire.h>//Include libraries: SoftwareSerial & Wire

SoftwareSerial BT(11,12); //Define PIN11 & PIN12 as RX and TX pins

//RGB LED Pins

int PIN\_RED = 3;

int PIN\_GREEN = 5;

int PIN\_BLUE = 6;

//RED LED at Pin 13

int RED\_LED = 13;

String RGB = ""; //store RGB code from BT

String RGB\_Previous = "255.255.255)"; //preserve previous RGB color for LED switch on/off, default White

String ON = "ON"; //Check if ON command is received

String OFF = "OFF"; //Check if OFF command is received

boolean RGB\_Completed = false;

void setup() {

 Serial.begin(9600); //Arduino serial port baud rate：9600

 BT.begin(9600);//My HC-05 module default baud rate is 9600

 RGB.reserve(30);

 pinMode(RED\_LED, OUTPUT);

 //Set pin13 as output for LED,

 // this LED is on Arduino mini pro, not the RGB LED

}

void loop() {

 // put your main code here, to run repeatedly:

 //Read each character from Serial Port(Bluetooth)

 while(BT.available()){

 char ReadChar = (char)BT.read();

 // Right parentheses ) indicates complet of the string

 if(ReadChar == ')'){

 RGB\_Completed = true;

 }else{

 RGB += ReadChar;

 }

 }

 //When a command code is received completely with ')' ending character

 if(RGB\_Completed){

 //Print out debug info at Serial output window

 Serial.print("RGB:");

 Serial.print(RGB);

 Serial.print(" PreRGB:");

 Serial.println(RGB\_Previous);

 if(RGB==ON){

 digitalWrite(13,HIGH);

 RGB = RGB\_Previous; //We only receive 'ON', so get previous RGB color back to turn LED on

 Light\_RGB\_LED();

 }else if(RGB==OFF){

 digitalWrite(13,LOW);

 RGB = "0.0.0)"; //Send OFF string to turn light off

 Light\_RGB\_LED();

 }else{

 //Turn the color according the color code from Bluetooth Serial Port

 Light\_RGB\_LED();

 RGB\_Previous = RGB;

 }

 //Reset RGB String

 RGB = "";

 RGB\_Completed = false;

 } //end if of check if RGB completed

} // end of loop

void Light\_RGB\_LED(){

 int SP1 = RGB.indexOf('.');

 int SP2 = RGB.indexOf('.', SP1+1);

 int SP3 = RGB.indexOf('.', SP2+1);

 String R = RGB.substring(0, SP1);

 String G = RGB.substring(SP1+1, SP2);

 String B = RGB.substring(SP2+1, SP3);

 //Print out debug info at Serial output window

 Serial.print("R=");

 Serial.println( constrain(R.toInt(),0,255));

 Serial.print("G=");

 Serial.println(constrain(G.toInt(),0,255));

 Serial.print("B=");

 Serial.println( constrain(B.toInt(),0,255));

 //Light up the LED with color code

//\*\*2014-09-21

//Because these RGB LED are common cathode (Common negative)

//So we need to take 255 to plus R,G,B value to get correct RGB color code

 analogWrite(PIN\_RED, (255+R.toInt()));

 analogWrite(PIN\_GREEN, (255+G.toInt()));

 analogWrite(PIN\_BLUE, (255+B.toInt()));

}