XBEE Tutorial

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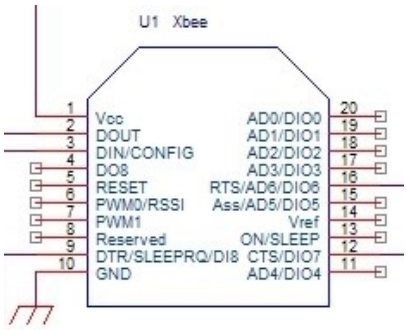
Arduino Test Program For XBee

The combination of Arduino and XBee is a very popular option for a electronics project. People can use it to remote control a robot. Here demonstrates the test program on Arduino for communicating with XBee.

[Arduino XBee Communication Test Program]

A simple program (with the great help from NewSoftSerial to make it happen) on Arduino. This program can collect signals from XBee , then transfer them back to Serial Port which connected to a PC.

The original official softserial library of Arduino , can only use the default pins (Rx pin0 and Tx pin1) for serial communication. That's only one set for Arduino duemilanove , while the other IO pins are doing nothing over there. In reality , you will need more than one UART interface for Arduino to communicate with other microcontroller unit in the same time. Except XBee , if you wanna talk to your PC , GPS module , HVAC sensor module , mouse , or keyboard , in the same time , you can not do it with the official library. That's why we need to use an external library like NewSoftSerial.



NewSoftSerial allows you talk to other device which comes with UART. You can assign any two pins , one for rx and the other for tx , from D/AO number 0 to 13 plus D/AI 0 to 5. And the transfer rate can reach up to 57600 bps. It is a very powerful and convenient tool !

The usage of NewSoftSerial is quite similar as the official one , see the source code below.

```
#include <NewSoftSerial.h>
// For the electronic wiring , you should :
// Connect pinRx to the Pin2 of XBee(Tx , Dout)
// Connect pinTx to the Pin3 of XBee(Rx , Din)

// Define the pins on Arduino for XBee comminication
uint8_t pinRx = 2 , pinTx = 4; // the pin on Arduino
long BaudRate = 57600 , sysTick = 0;
char GotChar;
// Initialize NewSoftSerial
NewSoftSerial mySerial( pinRx , pinTx );
```

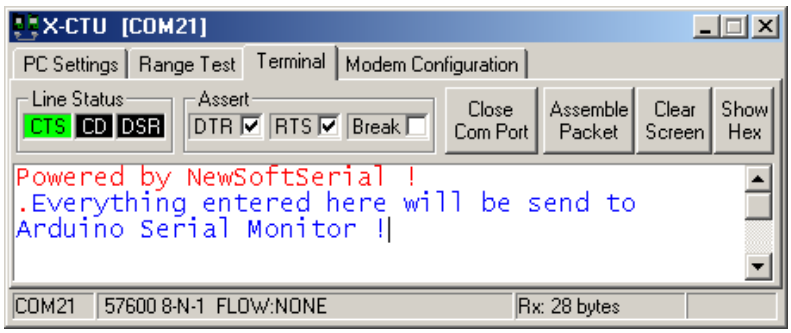
```
void setup()
{ // You shall see these messages in Arduino Serial Monitor
// This part is the official library , it will be used for talking to
// PC serial port
  Serial.begin(BaudRate);
  Serial.println("XBee Communication Test Start !");
  Serial.print("BaudRate:");
  Serial.println(BaudRate);
  Serial.print("NewSoftSerial Rx Pin#");
  Serial.println(pinRx,DEC);
  Serial.print("NewSoftSerial Tx Pin#");
  Serial.println(pinTx,DEC);

  // This part is the NewSoftSerial for talking to XBee
  mySerial.begin(BaudRate);
  mySerial.println("Powered by NewSoftSerial !");
}

void loop()
{
  sysTick++ ; // a system timer
/* //for debug
  Serial.print("Xbee Timer :");
  Serial.println(sysTick);
  mySerial.print("Xbee Timer :");
  mySerial.println(sysTick);
*/
// Monitor Rx from PC , if the data is available then read
// it to "GotChar".    Then ask XBee send the data out
// wirelessly.
  if ( Serial.available() ) {
     GotChar = Serial.read();
     mySerial.print(GotChar);
  }
// Monitor data from XBee , if the data is available then
// read it to "GotChar".    Then send it back to PC.
  if ( mySerial.available() ) {
     GotChar = mySerial.read();
     Serial.print(GotChar,BYTE);
  }
}
```

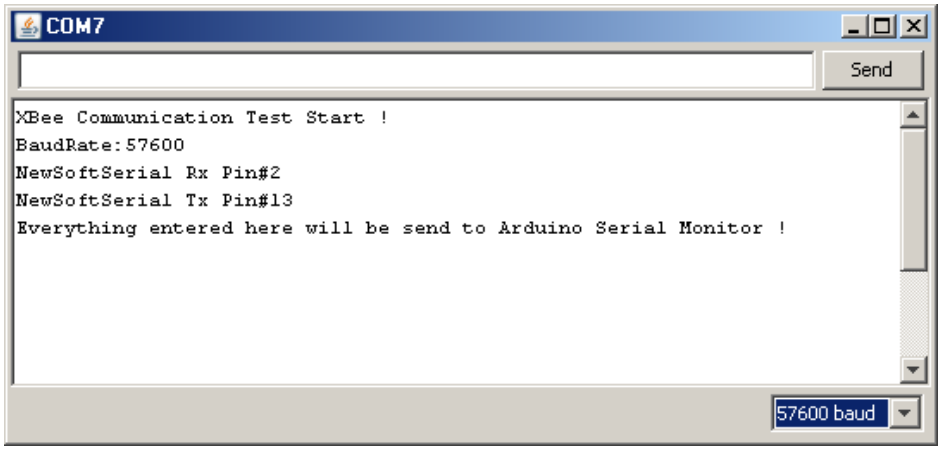
Note : Remember connect Vcc of XBee to 3.3V of Arduino , and GND to GND

[Test Result]



From X-CTU Terminal window. The text in red color are generated by the program code. The blue one are typed in , and they will be sent to Arduino Serial Monitor through XBee.

From Arduino Sketch Book



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