

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Experiment 3.3

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Subject Name: IOT Lab

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Aim: Study the Implementation of Zigbee Protocol using Raspberry Pi/Arduino.

Introduction

XBee wireless transceivers provide a quick, easy way to add wireless communication to any system. This page will outline how to set up two XBee Pro Series 2 transceivers for communication with each other.

Hardware

2 XBee Pro S2 Transceiver

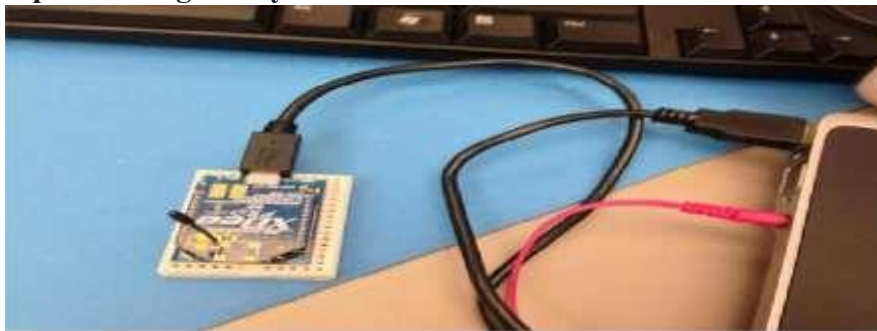
2 UART to USB adapter board

1 USB Cord

XBee Wireless Communication Setup

Step 1: Download X-CTU Software

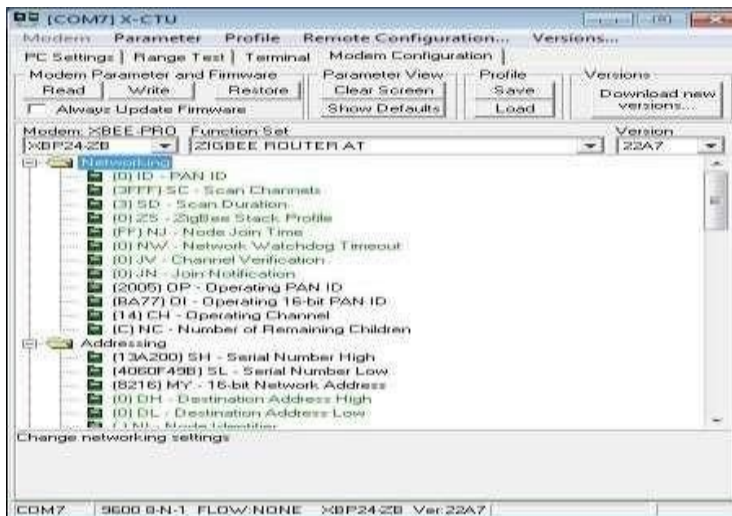
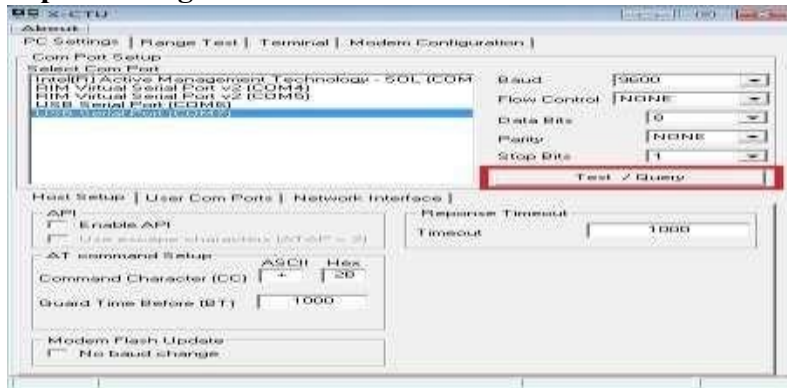
Step 2: Put together your XBee breakout board



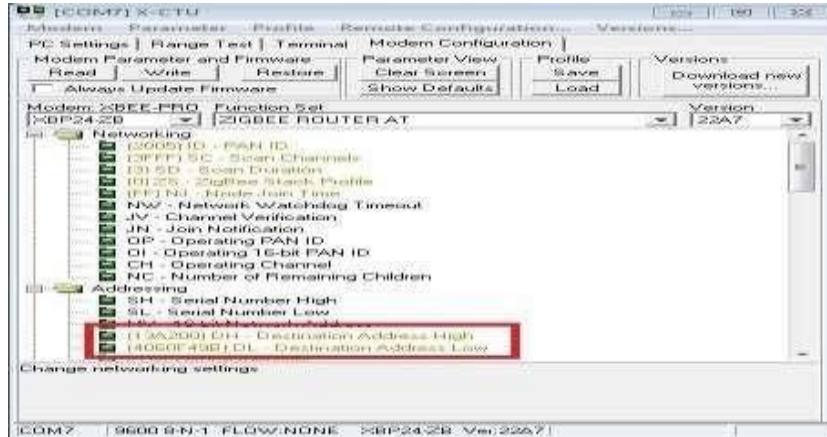


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Step 3: Configure 1st XBee as a coordinator



Step 4: Configure 2nd XBee as Router



Step 5: Test the configuration



Code

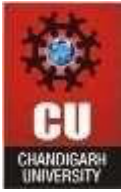
The code is quite straightforward. If you are using a board other than Arduino Uno, all digital pins may not support Software Serial.

On the transmitting side, the code will be –

```
#include <SoftwareSerial.h>
SoftwareSerial xbeeSerial(2,3); //RX, TX

void setup() {
    Serial.begin(9600); xbeeSerial.begin(9600); }

void loop() { if(Serial.available()
    > 0){ char input =
    Serial.read();
    xbeeSerial.print(input);
    }
}
```



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As you can see, whatever the user on the Serial Monitor sends is sent to the XBee module, and it will be received on the receiving side. The code for the receiving side is – #include <SoftwareSerial.h>

```
SoftwareSerial xbeeSerial(2,3); //RX, TX
```

```
void setup() {  
    Serial.begin(9600); xbeeSerial.begin(9600);  
}
```

```
void loop() { if(xbeeSerial.available() >  
    0){ char input = xbeeSerial.read();  
    Serial.print(input);  
    }  
}
```