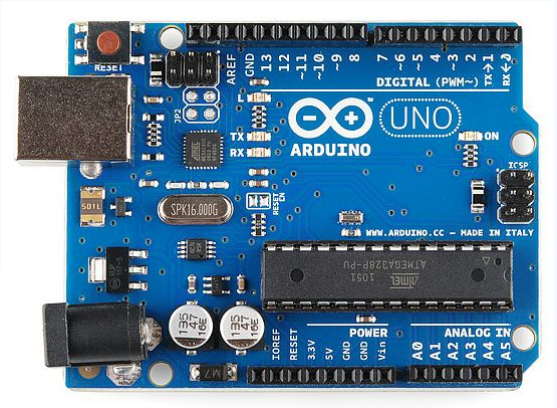
Programming the Arduino II



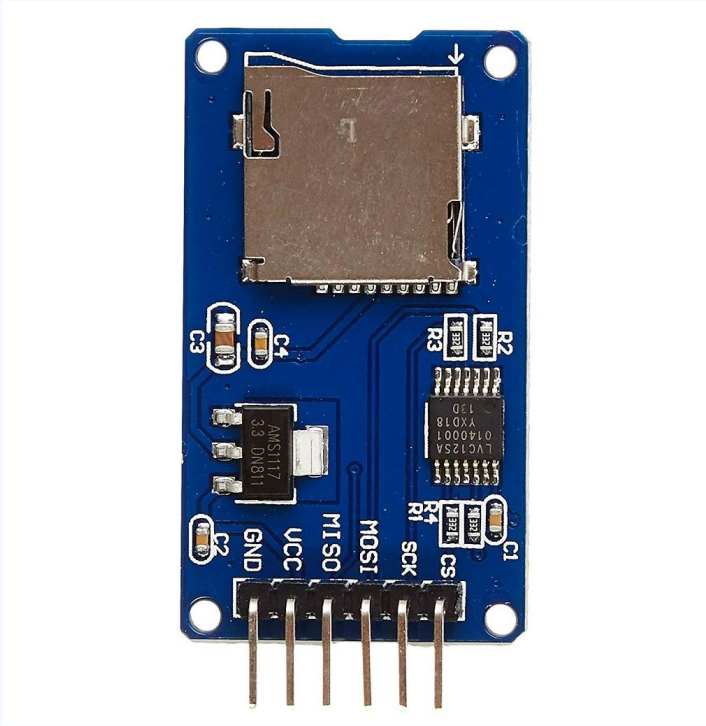
Quick Recap!

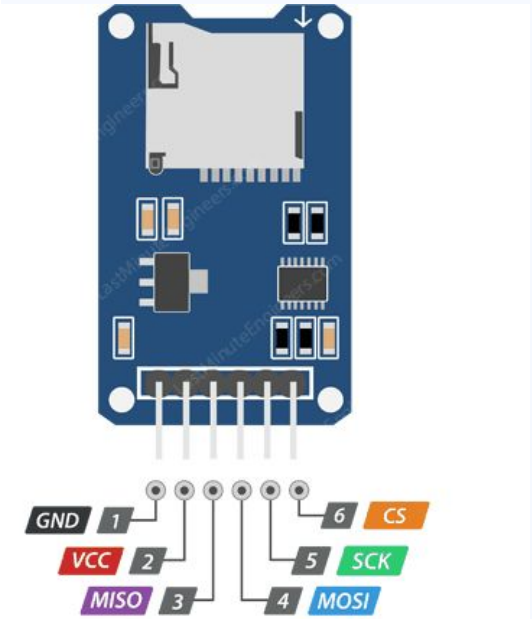
- ➔ Program to get pressure, temperature and altitude
- ➔ Store the data in SD card

Our mission?

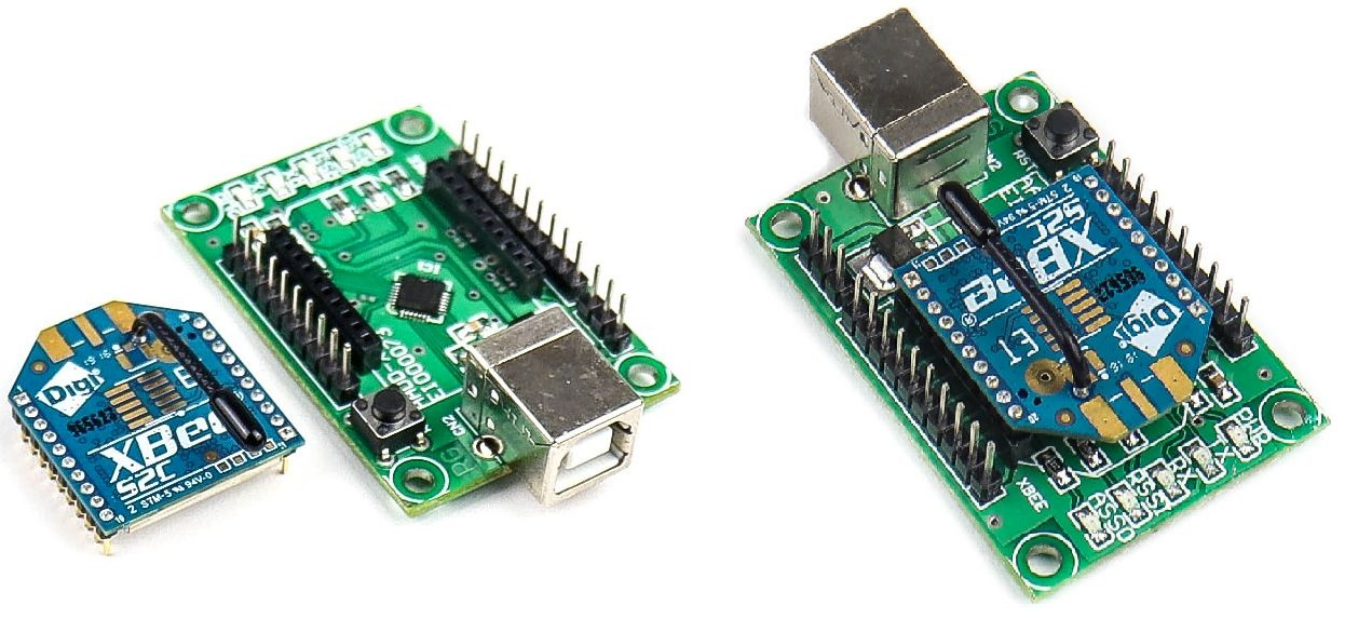
- Get weather data from sensor
- Store the data in SD card
- ***Send the data to ground station***

SD Card Module

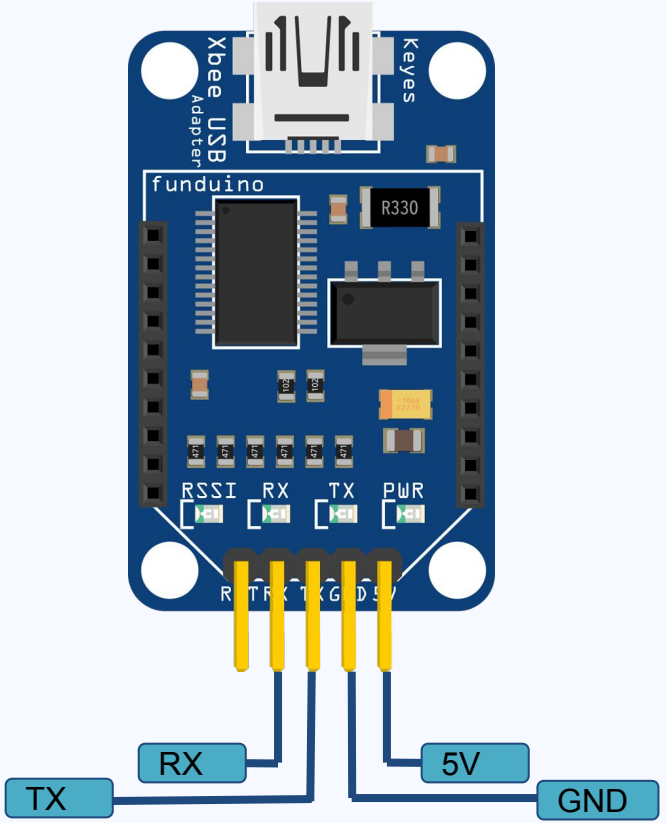




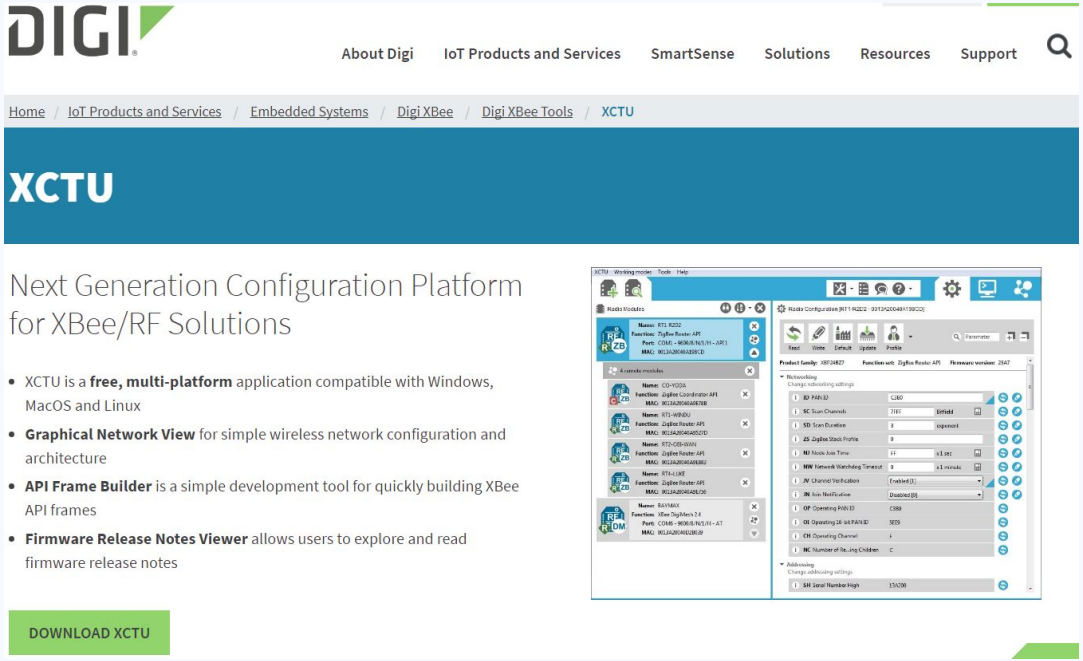
XBee and XBee adapter




Keyes
Xbee USB
Adapter
RSSI
RX
TX
PWR
RST
5V


Xbee USB
Adapter
Keyes
funduino
R330
RSSI
RX
TX
PWR
RX
5V
TX
GND

Configuring XBee using XCTU



https://www.digi.com/products/embedded-systems/digi-xbee/digi-xbee-tools/xctu

Utilities

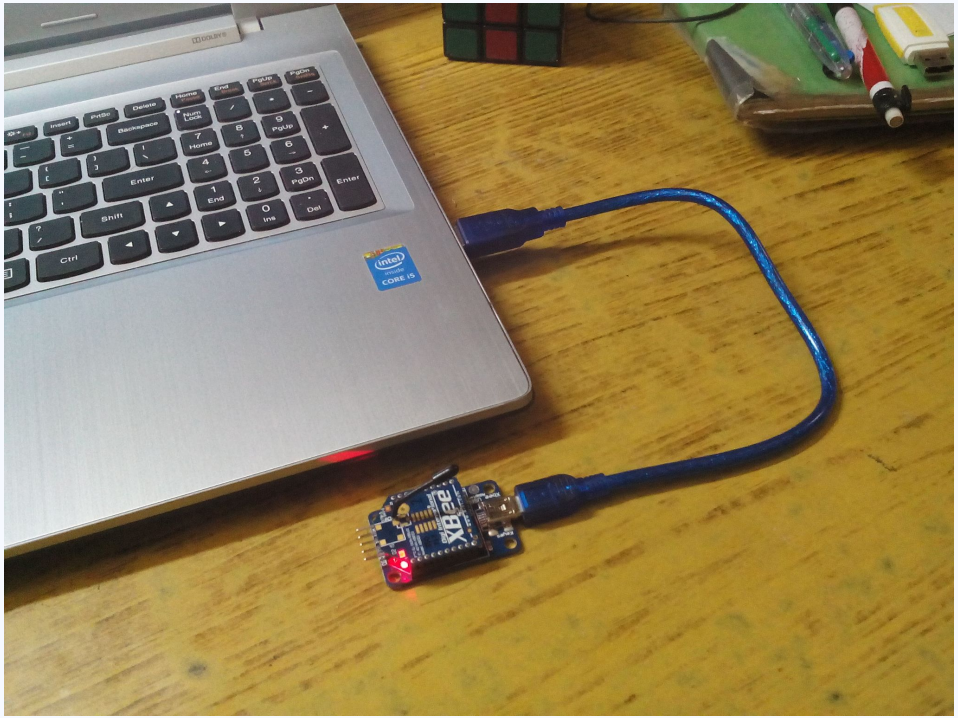
Download XCTU

- XCTU v. 6.5.6 Windows x86/x64
- XCTU v. 6.5.6 MacOS X
- XCTU v. 6.5.6 Linux x64
- XCTU v. 6.5.6 Linux x86
- XCTU License Agreement
- XCTU v. 6.5.6 Release Notes

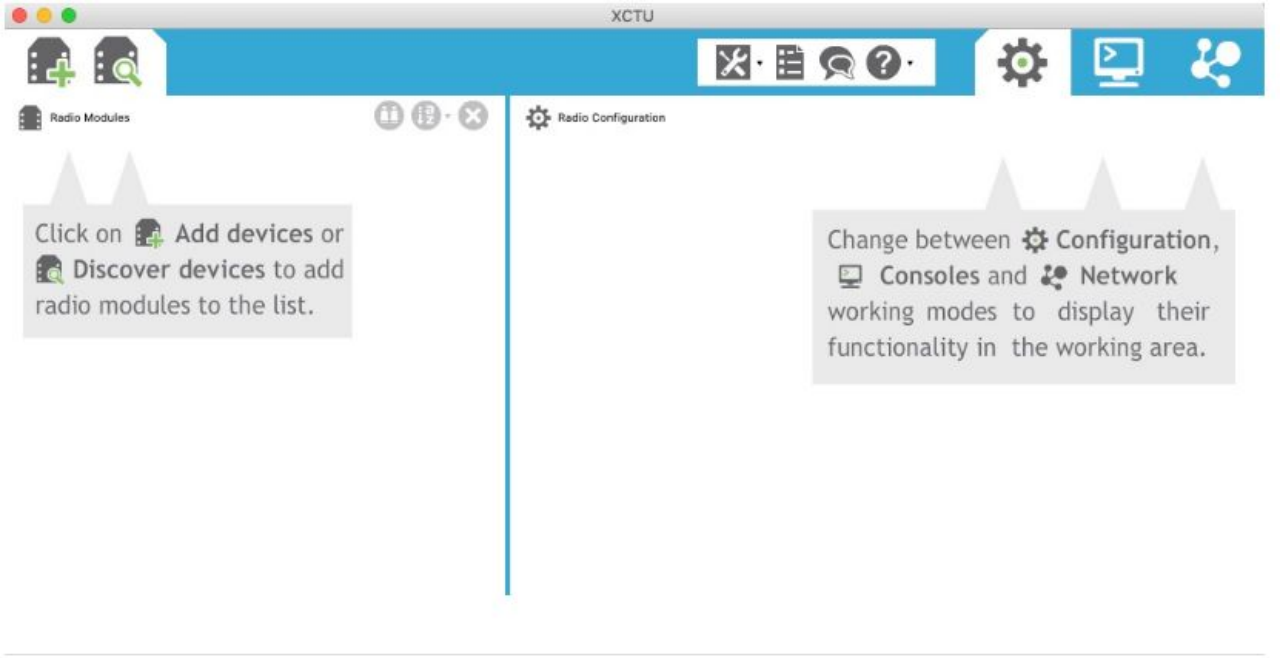
Download Legacy XCTU

- XCTU ver. 5.2.8.6 installer
  Last old-gen version of XCTU: Contains features from previous versions, plus adds support for XBee Wi-Fi modules, Compatible with Windows 2000, XP, 2003, Vista, 7. Does not support the Digi XLR PRO.
- XCTU 32-bit ver. 5.2.8.6 installer release notes
- XCTU ver. 5.1.0.0 installer
  This older version of X-CTU is required for XStream Ethernet RF modems, as well as XCite RF modules and modems. X-CTU 5.1.0.0 is compatible with Windows 2000, XP, 2003 only.

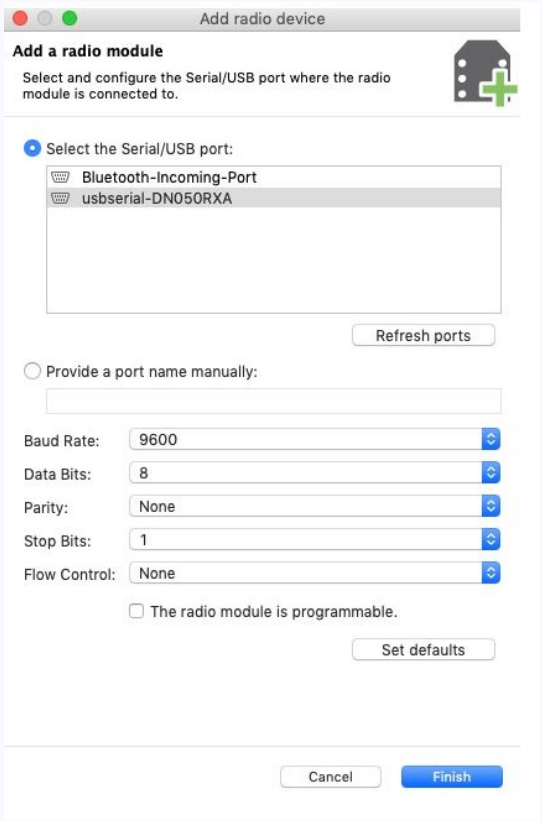
Step 1: Connected XBee to Laptop using adapter and USB cable.



Step 2: Open XCTU and click on Discover devices button

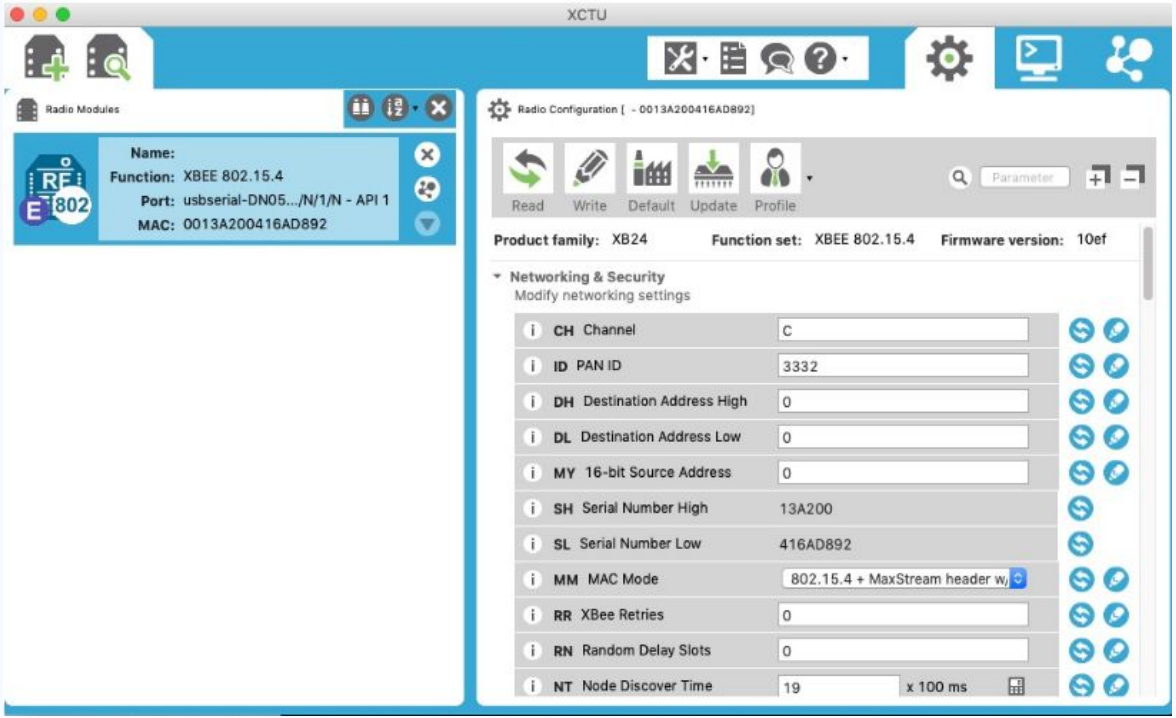


Step 3: Click Finish button



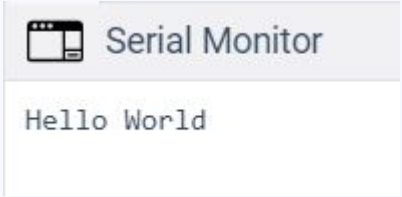
Step 4: Configure the XBee and click Write button

Channel = C
PAN ID = 3332
DH = 0
DL = 0
MY = 0



★ Very Important

```
void setup()
{
  Serial.begin(9600);
  Serial.println("Hello World");
}
```



What does this code do?

→ It will show “Hello World” on serial monitor.

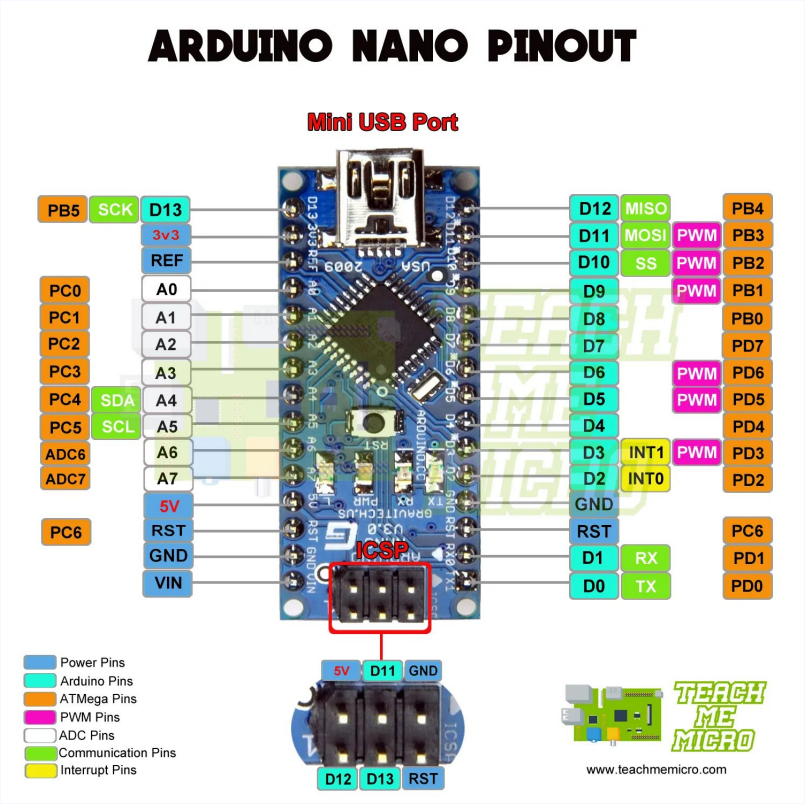
→ Serial monitor is basically your computer/laptop to which arduino board is connected to.

→ That code tells arduino to send the text “Hello World” to your laptop.

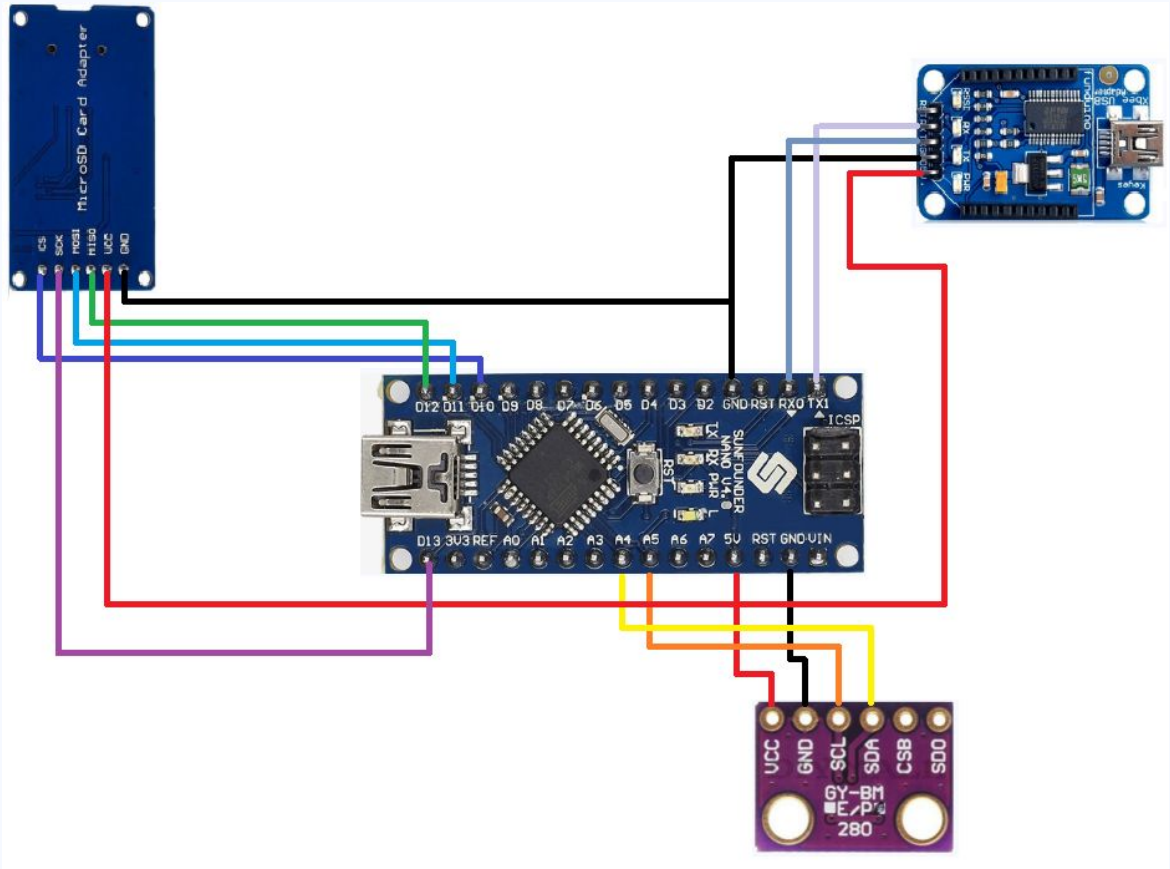
→ Arduino uses UART protocol to communicate with laptop.

→ Arduino uses pin 0 and 1 i.e RX and TX for UART

→ If we connect XBee to RX and TX i.e UART pins of arduino, then can not communicate with serial monitor of computer/laptop.



- I2C
  - A4 - SDA
  - A5 - SCL
- SPI
  - CS/SS - D10
  - MOSI - D11
  - MISO - D12
  - SCK - D13
- UART
  - TX - D0
  - RX - D1



RED - 5V

BLACK - Ground