

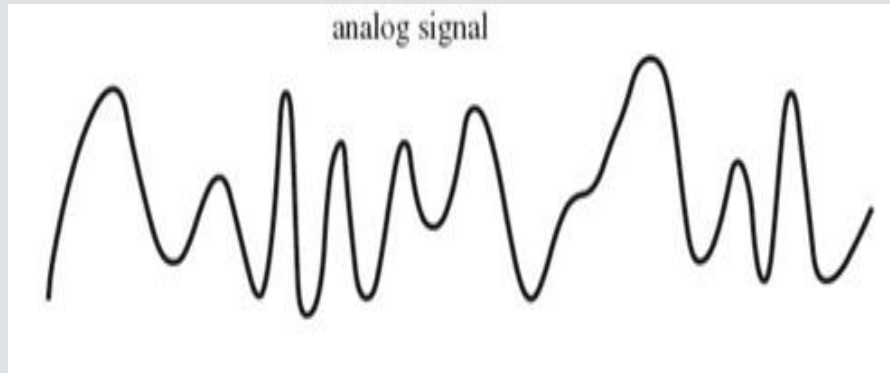


NIT MEGHALAYA

# SERIAL COMMUNICATION BETWEEN PC AND STM KIT

# Why we need to print pc?

- Sensors data are depend on the connection as well as on the noise.



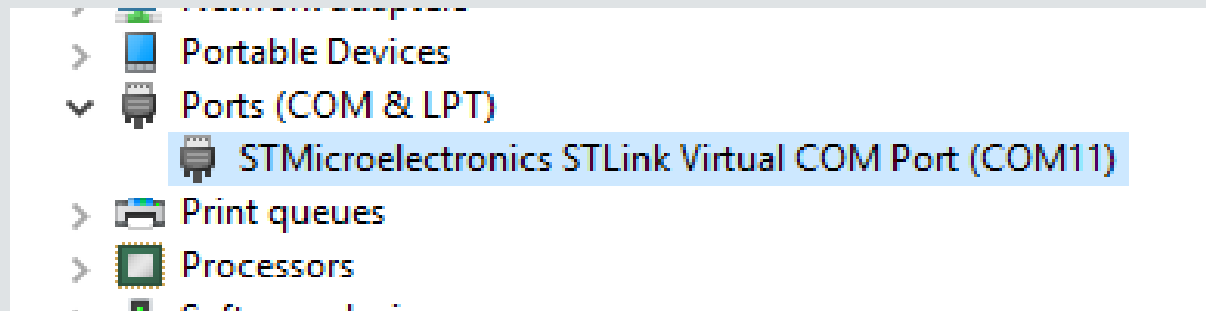
- Thus we check the value of sensors.
- The best way to check the value is to print the sensor value in PC.

# Before using STM kit

- Before using the STM kit we need to install STM driver.
- You can download the STM driver from.
  - <http://www.st.com/en/development-tools/stsw-link009.html#getsoftware-scroll>
- For downloading the driver you need your e-mail.
- After verifying the email Zip file will Download.
- Extract Zip file and install **dpinst\_x86.exe** for 32 bit machine.

# After Installing Driver

- Step1 - Connect the STM32 kit.
- Step2 - Go to device manager.
- Step3 - Go to Ports (COM & LPT)
- Step4 - Check which port number is used by STM kit.
- Here **COM11** is used by the kit.



# PC and STM kit serial connection

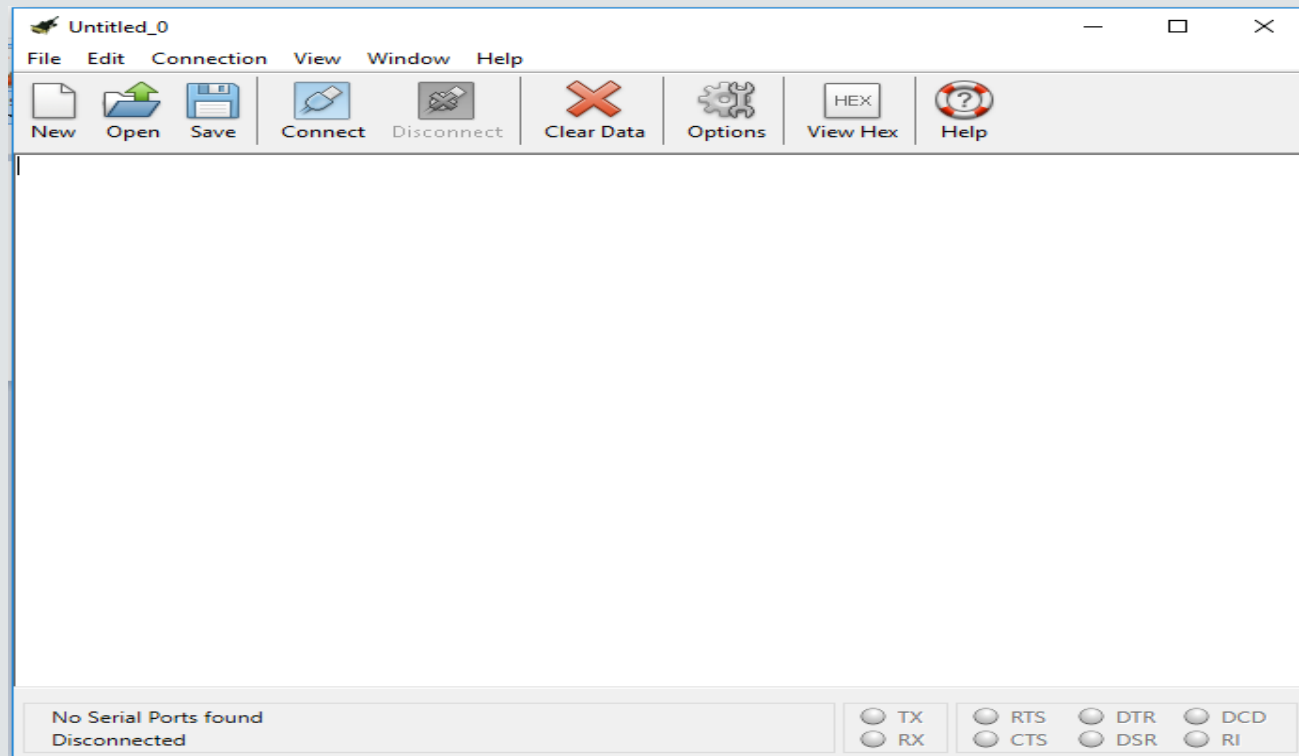
- Software Tools that enables the serial communication are termed as HyperTerminal Tool. Eg. CoolTerm, TeraTerm.
- Ensure that you have a HyperTerminal installed on your computer.
- HyperTerminal is a program that you can use to connect to other computers, devices and host computers.
- HyperTerminal connections are made using a modem, null modem cable (VGA cable), USB cable, or an Ethernet connection.

# CoolTerm

- In our programs we will be using CoolTerm.
- You can download it from [http://download.cnet.com/CoolTerm/3000-2383\\_4-10915882.html](http://download.cnet.com/CoolTerm/3000-2383_4-10915882.html)
- Or <http://coolterm.en.lo4d.com/>
- After extracting the file you will get CoolTerm.exe file.

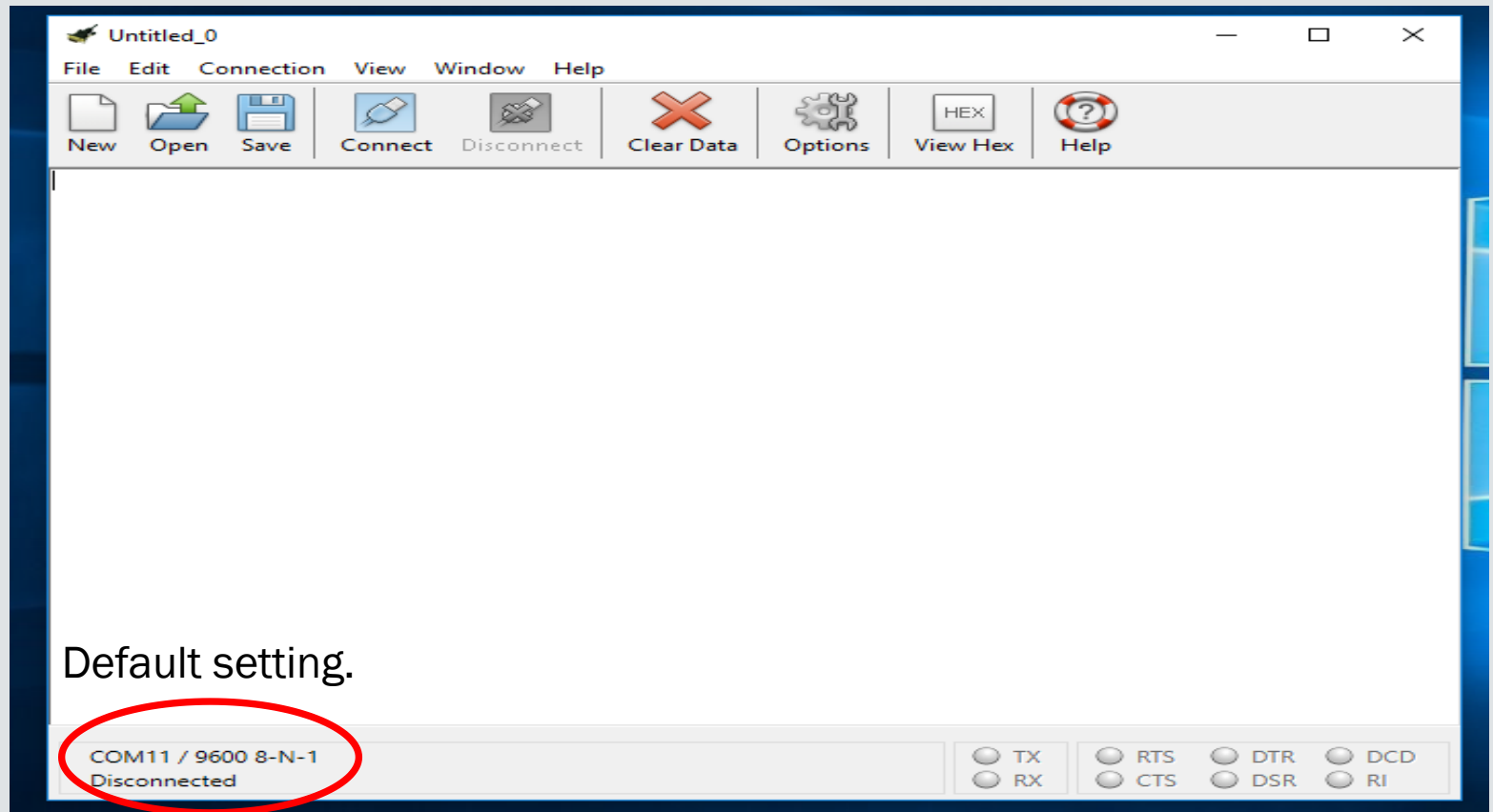
# CoolTerm

- CoolTerm.exe is used for serial connection between PC and STM kit.



# Connection

Press the connect button for connect.



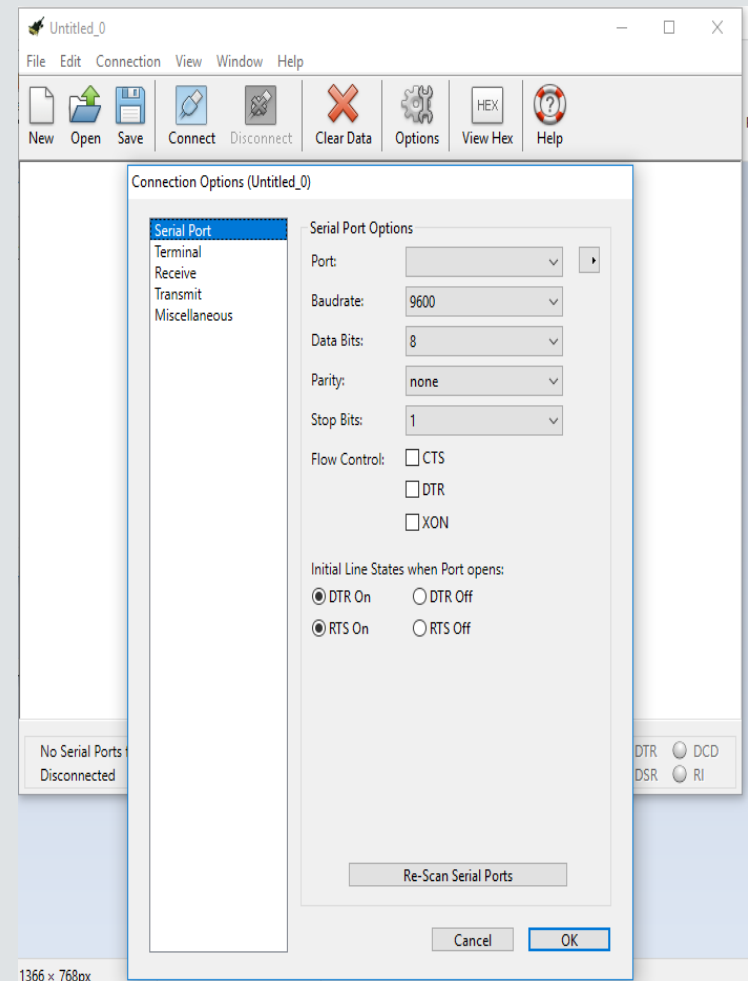


# Codes to be include to c/cpp program

- For using the CoolTerm or other HyperTerminal software. First we need to create connection in our program for serial communication.
- Create connection using:
  - `Serial pc(USBTX, USBRX);`
  - `pc` is the function name.
- Print data using the following print statement.
  - `pc.printf("-----");`

# Connection b/w CoolTerm and STM kit.

- Step1 - Open CoolTerm.exe file.
- Step2 - Click on setting.
- Step3 - Choose the port no that is used by STM kit then press ok.
- Step4 - Press connect button.
- Now STM kit is connected with CoolTerm.



# Example

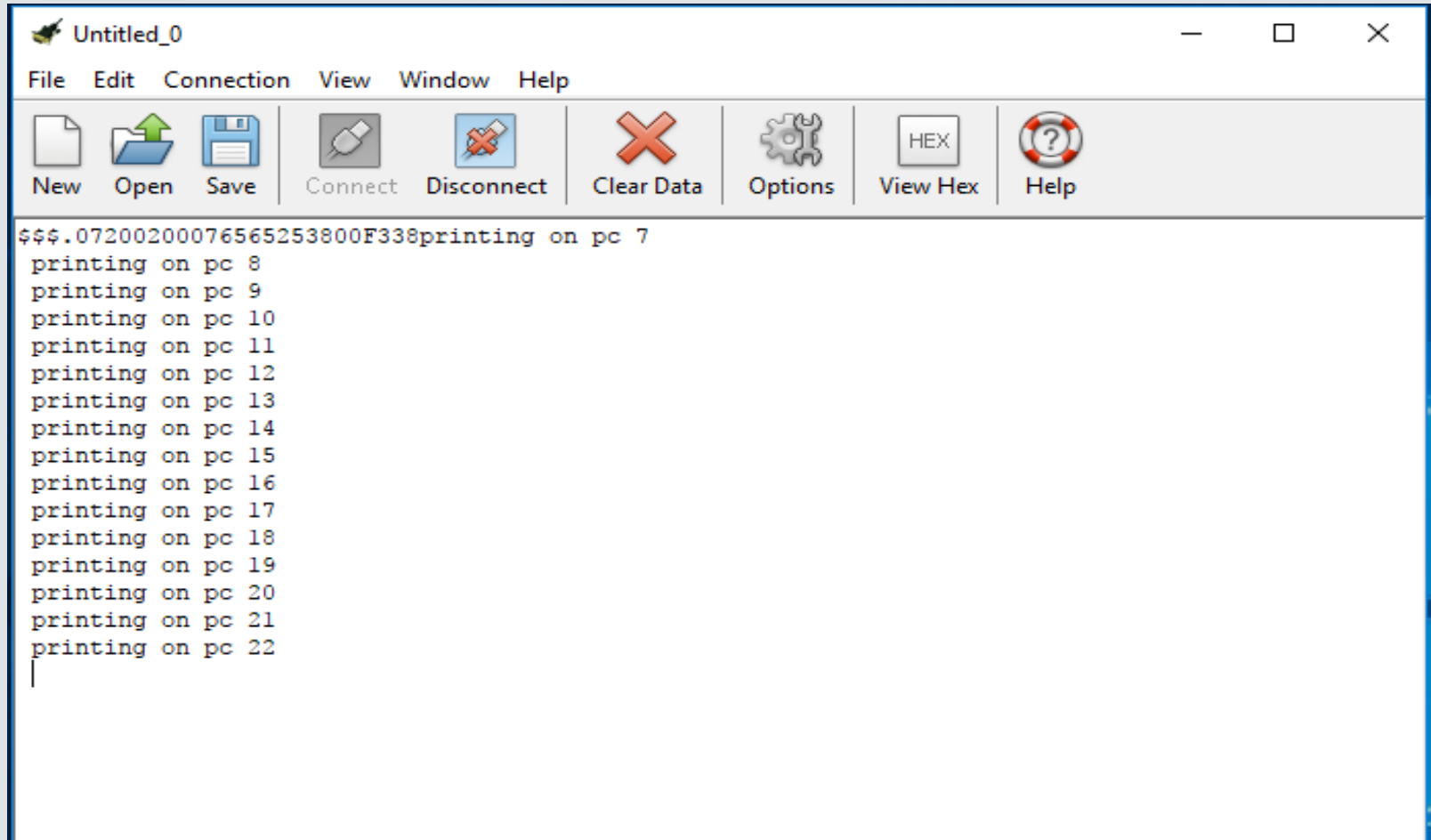
```
#include "mbed.h"

Serial pc(USBTX, USBRX);

int i=0;

int main(){
    while(1) {
        pc.printf("printing on pc %d \n ", i++);
        wait(1.0); //wait for i second
    }
}
```

# Output on CoolTerm



The screenshot shows the CoolTerm application window titled "Untitled\_0". The menu bar includes "File", "Edit", "Connection", "View", "Window", and "Help". The toolbar contains icons for "New", "Open", "Save", "Connect", "Disconnect", "Clear Data", "Options", "View Hex", and "Help". The main text area displays the following output:

```
$$$$.07200200076565253800F338printing on pc 7  
printing on pc 8  
printing on pc 9  
printing on pc 10  
printing on pc 11  
printing on pc 12  
printing on pc 13  
printing on pc 14  
printing on pc 15  
printing on pc 16  
printing on pc 17  
printing on pc 18  
printing on pc 19  
printing on pc 20  
printing on pc 21  
printing on pc 22  
|
```

# Printing the sensor value

```
#include "mbed.h"
```

```
AnalogIn sensor(A1);
```

```
Serial pc(USBTX, USBRX);
```

```
int main(){
```

```
    float val;
```

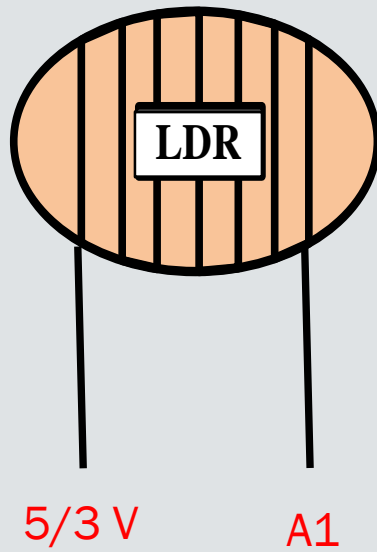
```
    while(1) {
```

```
        val = sensor.read(); // read the analog input (0-1)
```

```
        val = val * 5000; // change the value range (0-5000)
```

```
        pc.printf("sensor value %d \n" val)
```

```
        wait(0.5) // wait for 500 ms;} }
```



# Thank you

