Robot Communication over Serial Terminal

The Robot works in simple command response structure. The robot communicates with host PC or embedded kit using wired or wireless interface. The host computer acts as a master and robot acts as a slave. The communication is always initiated by host device.

We are using "RealTerm" Serial Terminal software for communication between PC and robot. To demonstrate communication over serial terminal, we will transmit one simple command string to read present battery voltage of robot. Command and its response is explained in following tables.

Command to read battery voltage of robot:

Command: Host to Robot
Length: 6 bytes

Header			Command	Sub-Command/Data	Checksum
'N'	'E'	'X'	0x20	0x00	1 byte

Response: Robot to Host
Length: 4 bytes

Header	Command	Data	Checksum
'S' or 'F'	0x20	Battery Voltage	1 byte

RealTerm terminal software installation

Step 1: Double click on Realterm application.exe file, this will pop up installation window as shown below. Click "**Next**".

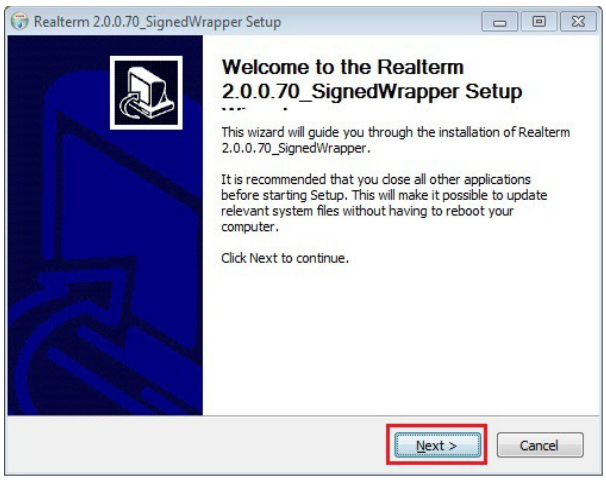

Figure 1

Step 2: Click "Next".

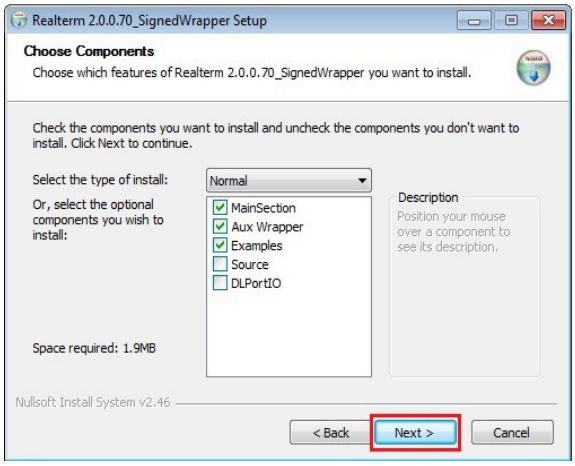

Figure 2

Step 3: Choose Install Location folder and click "Next".

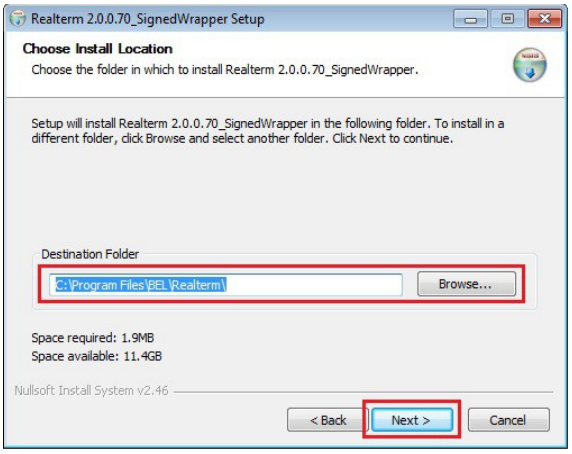

Figure 3

Step 4: Click "Install".

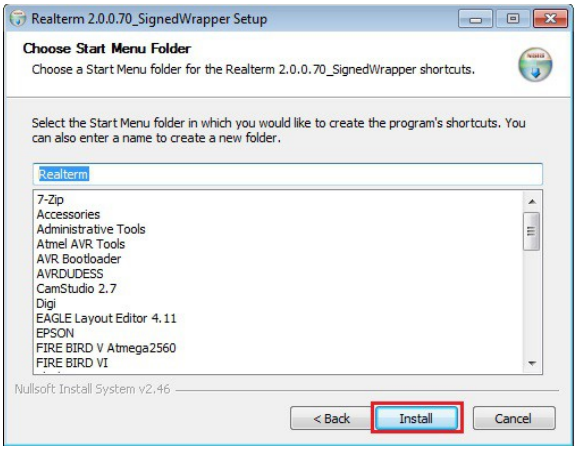

Figure 4

Step 4: This will initialize installation.

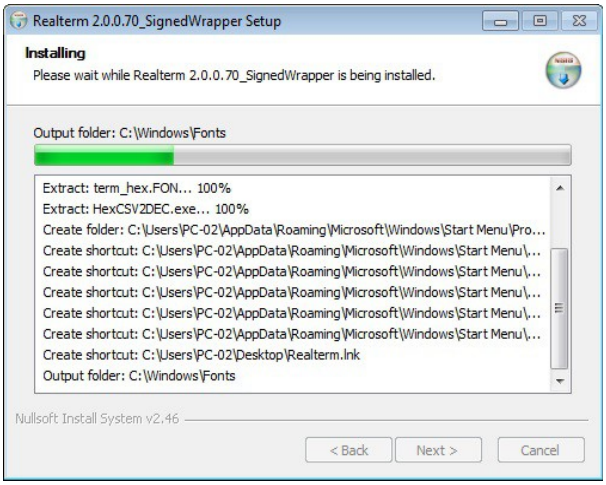

Figure 5

Step 5: Click “Finish” to complete the installation process.

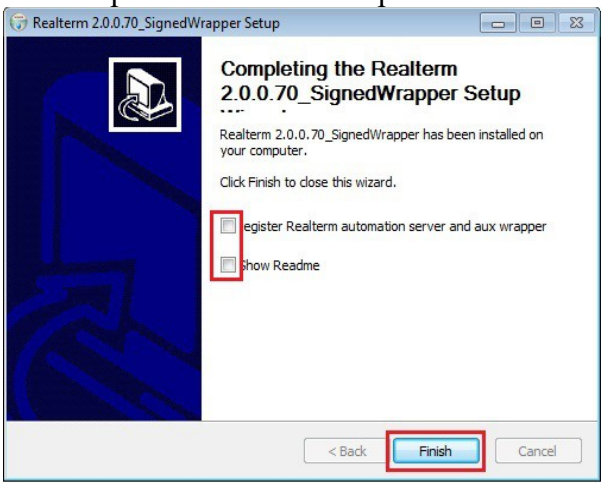

Figure 6

Using Terminal Software

Step 1: After successful installation, turn ON the robot and run Realterm.

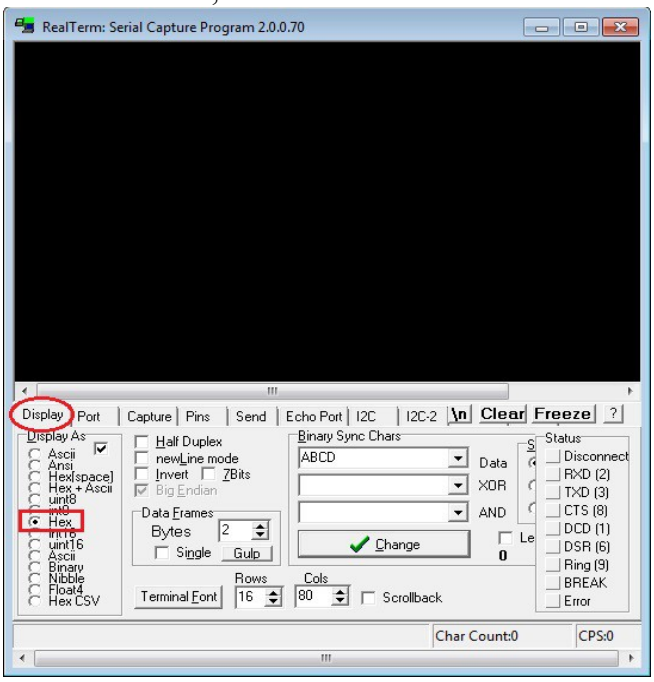

Figure 7: Serial terminal window

Step 2: Click "**Port**" and then set com port parameters as shown in following figure and click "**Open**" to establish connection between USB to Serial adapter with RealTerm.

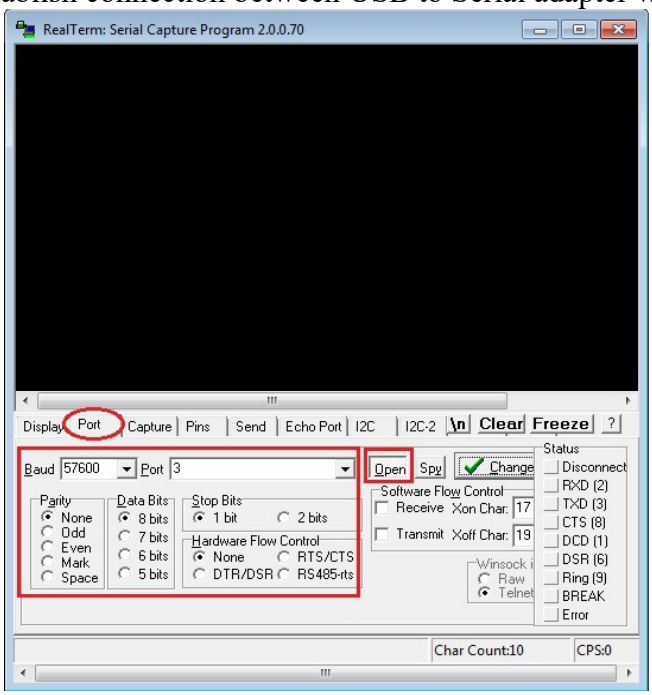

Figure 8: RealTerm new connection

Step 3: RealTerm will open the selected com port. Make sure that the baud rate is set to 57600 bps. Now click on "**Send**". Enter the command string to simply check battery voltage of robot. i.e. "**$4E $45 $58 $20 $F5**" each command byte should be separated by space and then press "**Send Number**".

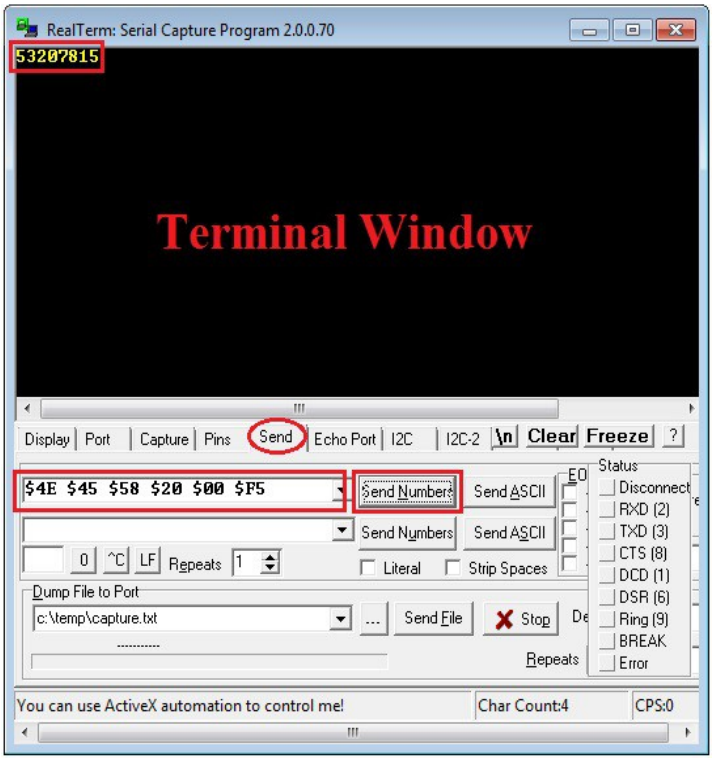

Figure 9: Serial port settings

After sending command byte, robot will send response byte on Terminal Window. For this particular command byte, response byte is 53207815.

Where,
53 is hexadecimal header bytes of response for successful command.
20 is command byte
78 is robot's battery voltage in hexadecimal
15 is checksum byte.

This response string indicates correct working of your robot.