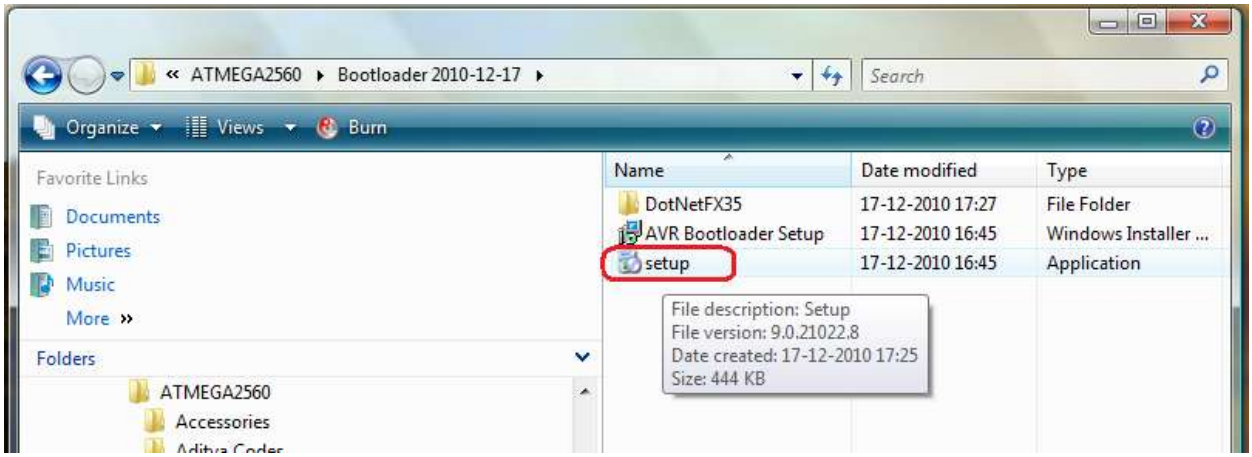
Installing and using AVR Bootloader

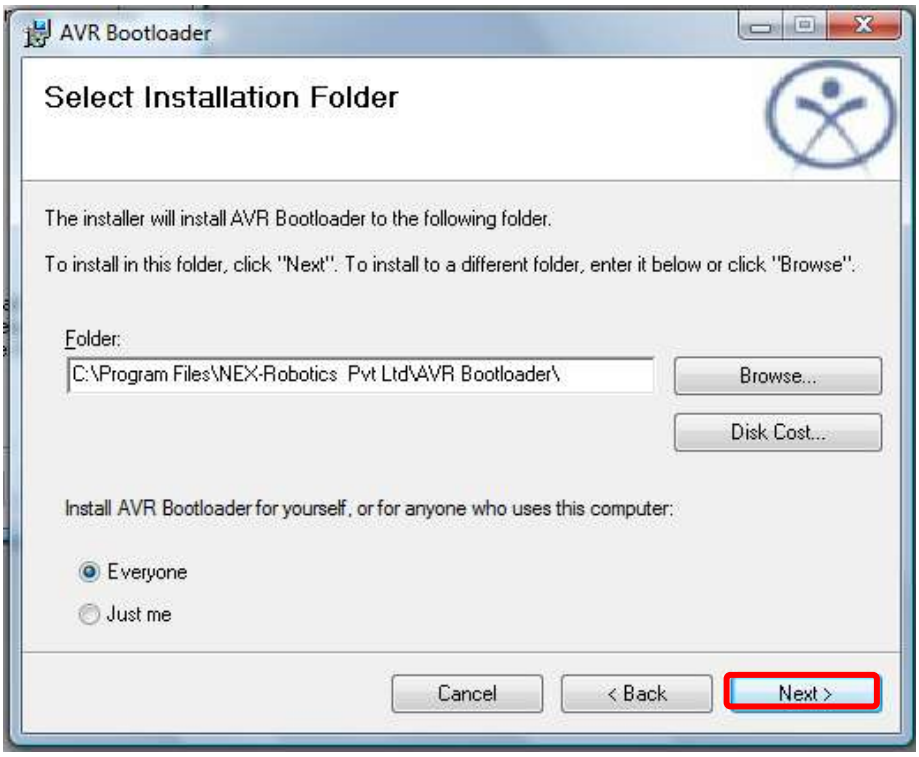
All AVR microcontrollers can be programmed using In System Programming (ISP), external programmer or using boot loader. Advantage with the boot loader is that you don't need any external hardware to load .hex file on the microcontroller. It also protects robot's hardware from possible damage due to static electricity and prevents any accidental changes in the fuse settings of the microcontroller.

I. Install the Bootloader GUI

1. Copy "AVR Bootloader" folder which is located in the **Software and Drivers** folder of the documentation DVD to the PC and click on the "**setup**" application file.
   (Do not click on AVR Bootloader Setup)

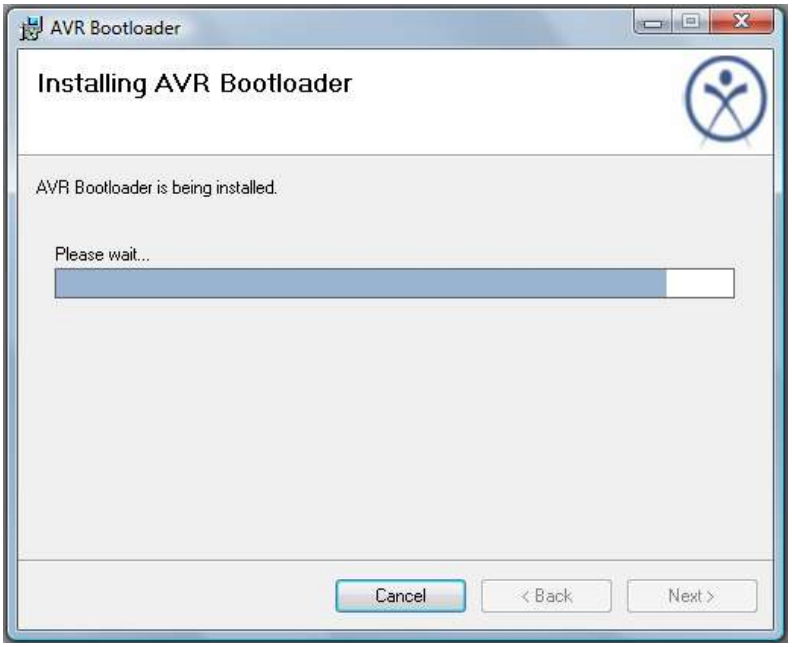


2. Use the browse the folder where you want to install the bootloader.Then select '**everyone**' from the two options available and click on next.

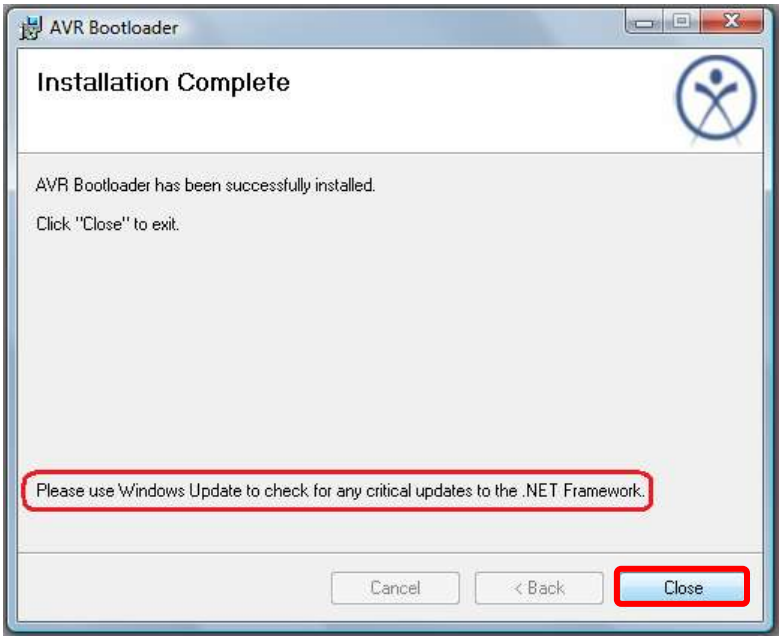


3. Click on Next

4. Do not press cancel wait for the installation to complete

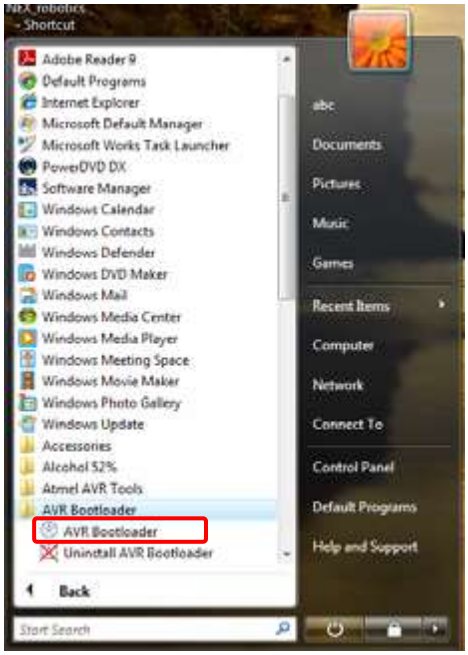


5. Click close to complete the installation

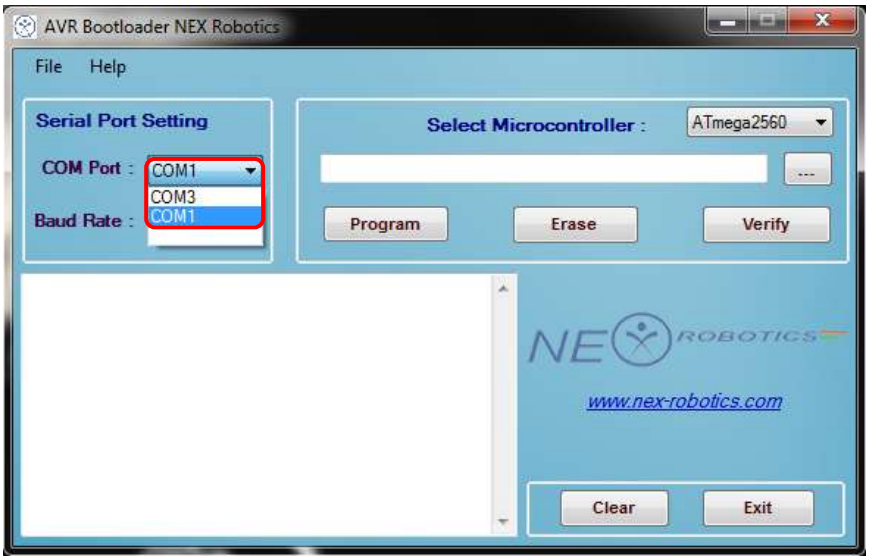


II. USING THE AVR BOOTLOADER

1. Go to start menu. Select the AVR Bootloader option.

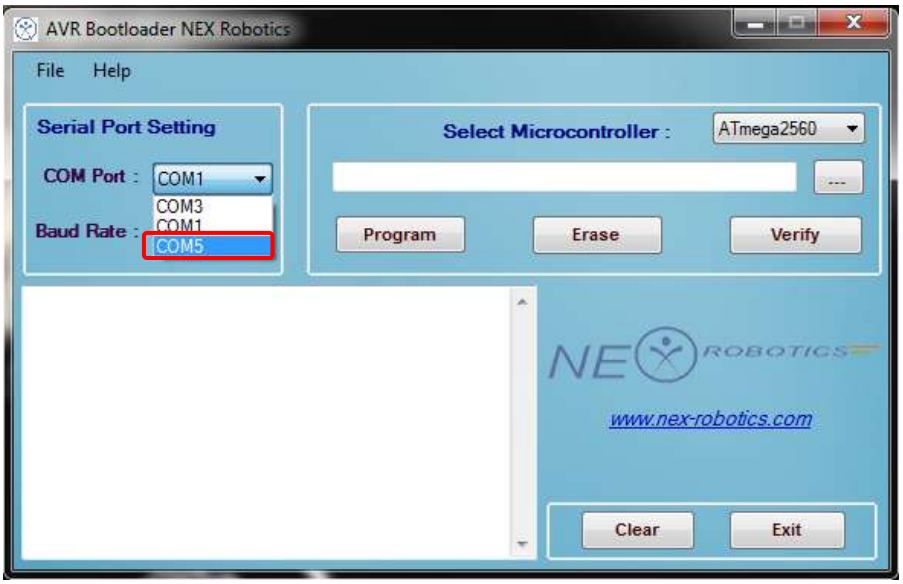


2. You will see a window as shown below. First have at the look at the COM port. You might see option like COM1 etc



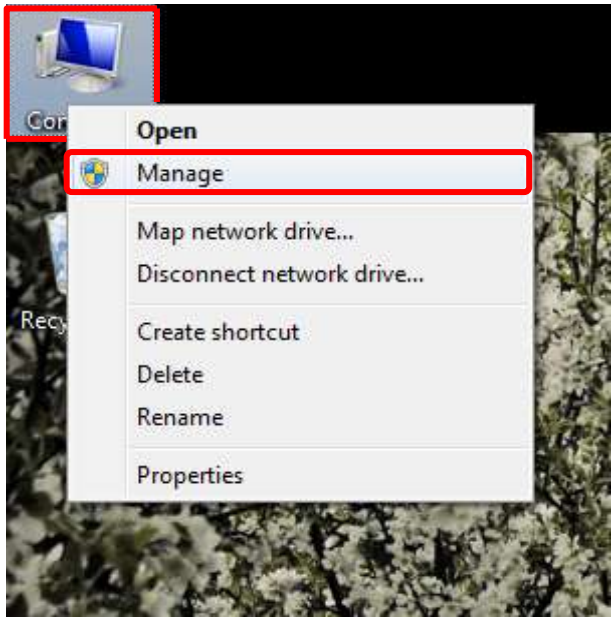
3. Now connect robot to the computer via the USB chord provided in the kit. Connect the power supply to the robot.

4. Steps to install drives for FT232 USB to Serial Converter are covered in detail in the section 6.5 of the Hardware Manual. You will see another COM port that was invisible earlier in the COM port option. In this case it is COM5.



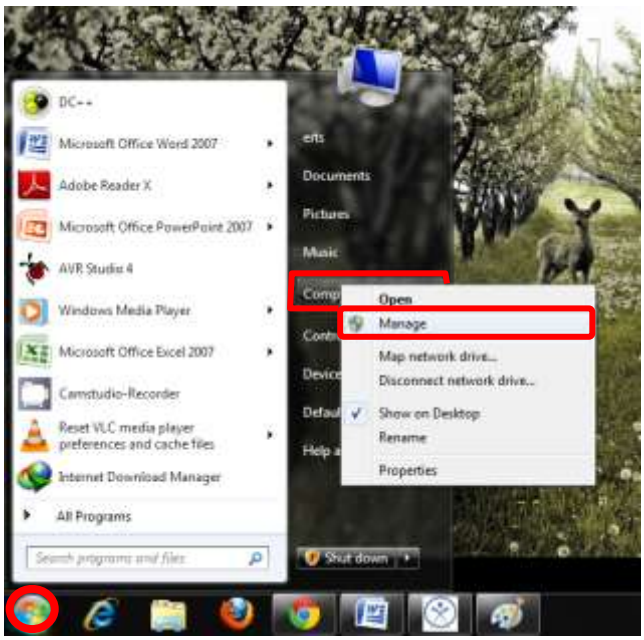
(If the value of COM port is greater than 8 then follow the following steps to set the value of COM port preferably between 2 to 8 else continue with step number10.)

5. Right click on the My Computer icon on the desktop and select manage

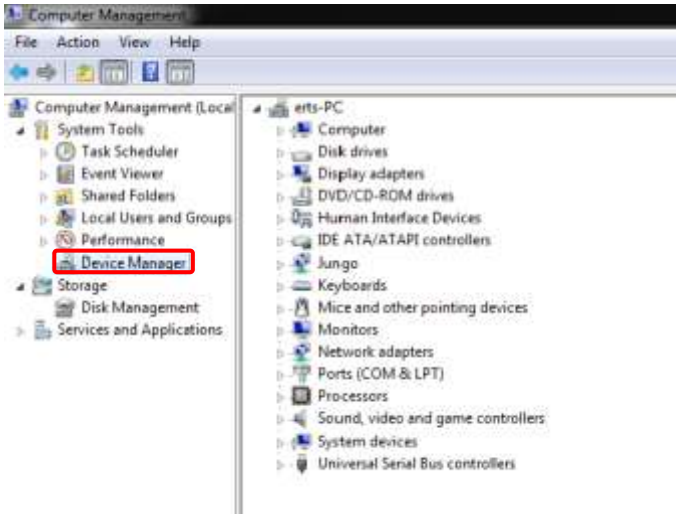


OR

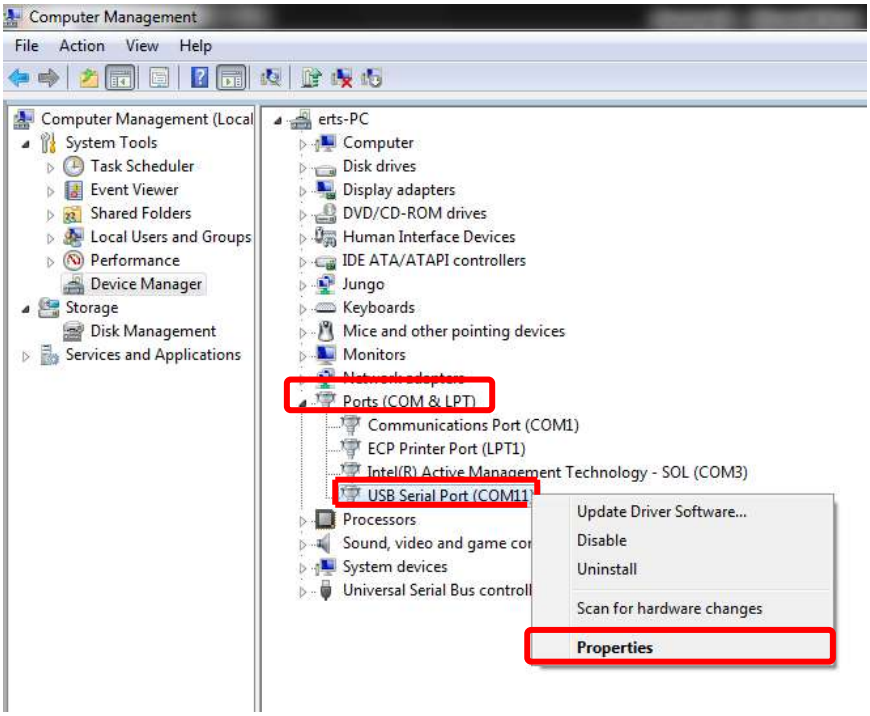
Go to the start menu. Right click on the My Computer icon and select manage.



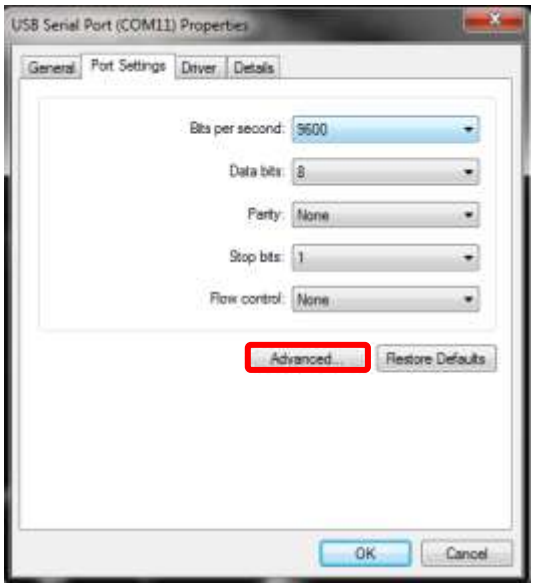
6. Select the device manager.



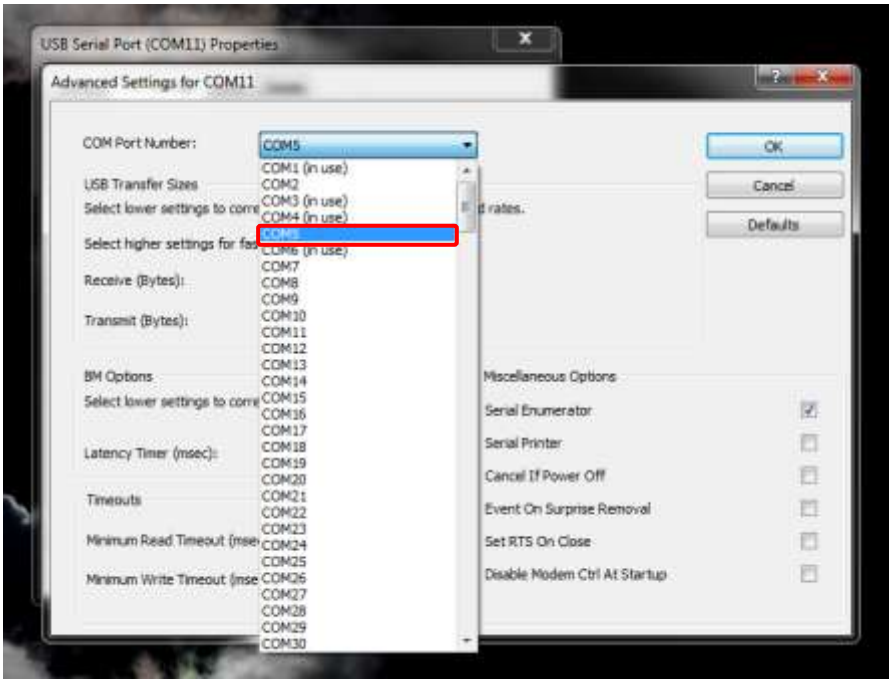
7. In the device manager expand the ports option and **right click** on USB Serial Port option to which the robot is connected and select **properties.**



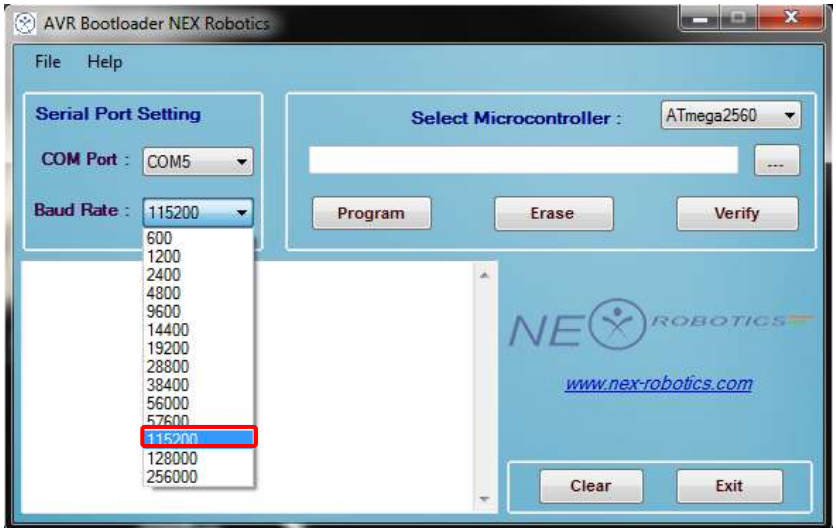
8. In properties click on the Advanced button



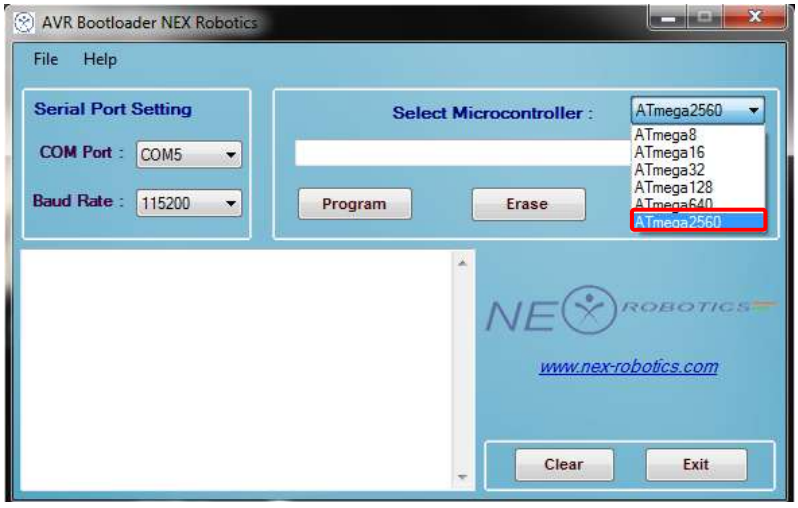
9. In COM Port Number scroll to select the COM port in range if 2-8.It does not matter even if the com port is in use. In this case we have selected COM5.



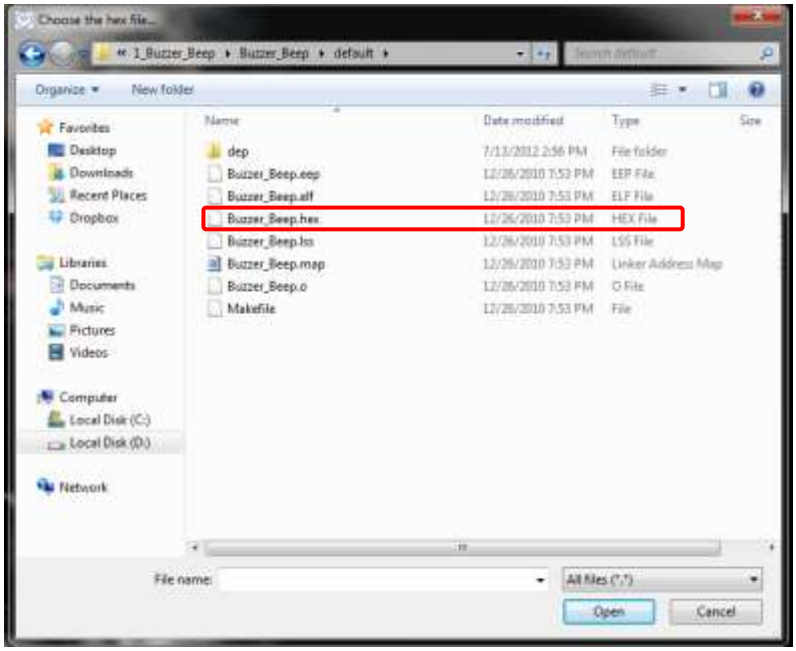
10. Select the baud rate as **115200**.



11. Select the microcontroller as **ATmega2560**.



12. Press the Browse button and select the hex file that is present in the Debug folder (default folder in case using the AVR studio 4) of the Project you have created.



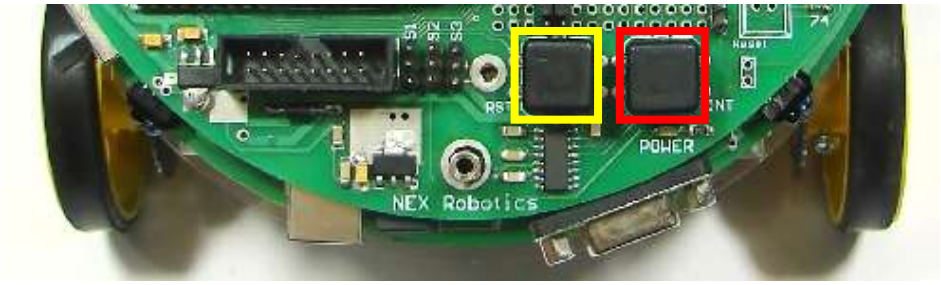
13. Put the robot in boot mode by following the steps given below

STEPS TO BOOT THE ROBOT

The colors represent which button is pressed

Boot switch Reset switch

Press the boot switch



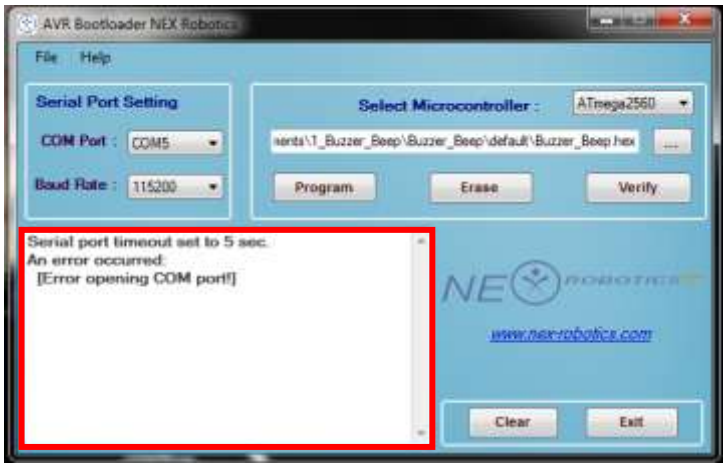
Keep the boot switch pressed & press the reset switch

Release the reset switch

Release the boot switch

14. Click on the program button

15. If you get errors similar to the ones shown below, unplug the robot from the computer and plug it back again. Then set the robot in the boot mode and click on the program button.(try it once or twice until you get the final window as demonstrated in step 16)



OR

16. You get the following window when you have successfully burnt the code.