Using the HardwareVerification Program

1. Download the HardwareVerification program from Eclass and save it to your Desktop.

2. Mount the PCB onto the breadboard. You might have to gently bend(wiggle) the power/gnd pins so that they will fit nicely on the vertical rails on the breadboard. The +5VDC pin should fit in the Red+ vertical rail with the GND pin inserted in the Blue-. Don't use too much force or you will break the pins.

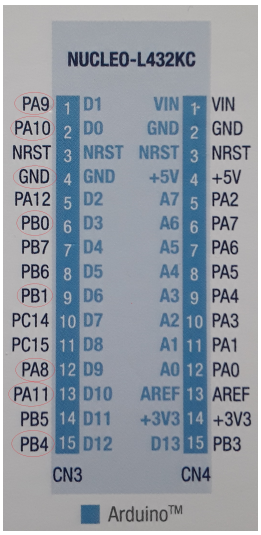
3. Connect the following wires from the Nucleo Board to LED PCB on the Breadboard(***Caution!!! When hooking up wires, make sure the NUCLEO board is not powered up**)

   PA8 (Nucleo-L432KC) $\longrightarrow$ Pin1(C1)(8x8 LED PCB)
   PA9 (Nucleo-L432KC) $\longrightarrow$ Pin2(C2)(8x8 LED PCB)
   PA10(Nucleo-L432KC) $\longrightarrow$ Pin3(C3)(8x8 LED PCB)
   PB0 (Nucleo-L432KC) $\longrightarrow$ Pin4(R1)(8x8 LED PCB)
   PB1 (Nucleo-L432KC) $\longrightarrow$ Pin5(R2)(8x8 LED PCB)
   PB4 (Nucleo-L432KC) $\longrightarrow$ Pin6(R3)(8x8 LED PCB)
   PA11(Nucleo-L432KC) $\longrightarrow$ Pin7(EN)(8x8 LED PCB)

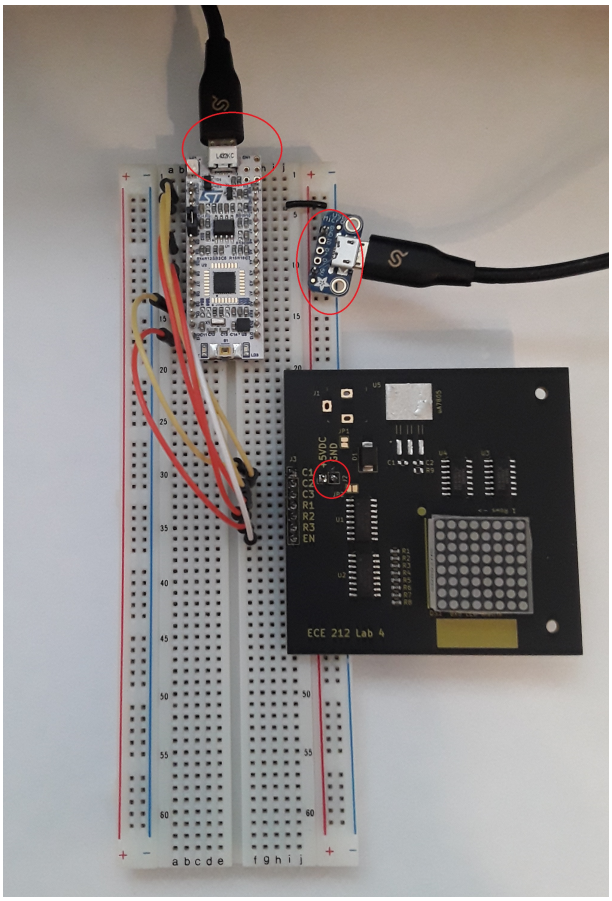
   Connect the following wires from the USB 5V adapter to power the LED PCB/Nucleo(**Do not power up the 5V USB adapter**). I recommend that you connect the USB 5V adapter to one set of the vertical rails on your breadboard(Same side as where you connected the +5VDC/GND for the LED PCB). That way it power/ground the rails directly. (**Caution!!! Do not use your computer to power up the 5V USB adapter. Doing so can damage your computer/laptop. Use the provided walladapter only.**)

   GND(USB adapter) $\longrightarrow$ Pin8(GND)(8x8 LED PCB)
   5V(USB adapter) $\longrightarrow$ Pin9(+5VDC)(8x8 LED PCB)
   GND(USB adapter) $\longrightarrow$ GND(Nucleo-L432KC)(Either side works)

   For more information on the which Nucleo pins are used, please see the picture below.



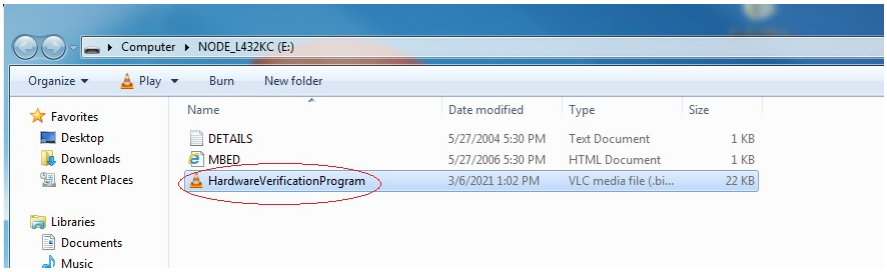
4. Your connections should look similair to the picture below



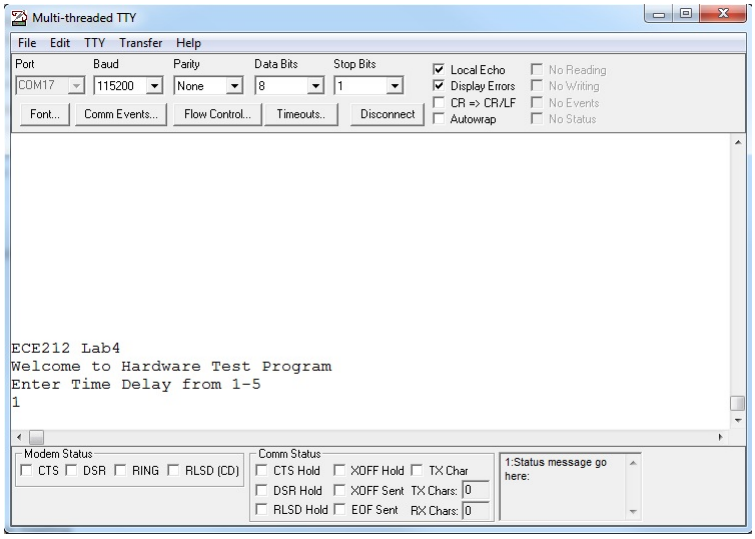
5. Once everythig is connected, power up your Nucleo board and the 5V USB adapter. Launch the program 'MTTTY' and connect it to the board

6. Upload the program by moving the Hardware Verification file into Nucleo mounted drive(Mine was E: Drive).

Double click on the mounted drive and drag and drop the file into it.



7. Go back to MTTTY and select a time delay(1-fastest,5-Slowest)



8. Verify that each LED lights up. Using the grid below, it should light up starting at coordinate (0,0) and cycle through left to right, up to down. Note that the LED array is mounted with a 90 degrees clockwise rotation when viewing the LEDS compared to the picture below. If you view the LED array from the label(SN788AS) then everything should be fine.