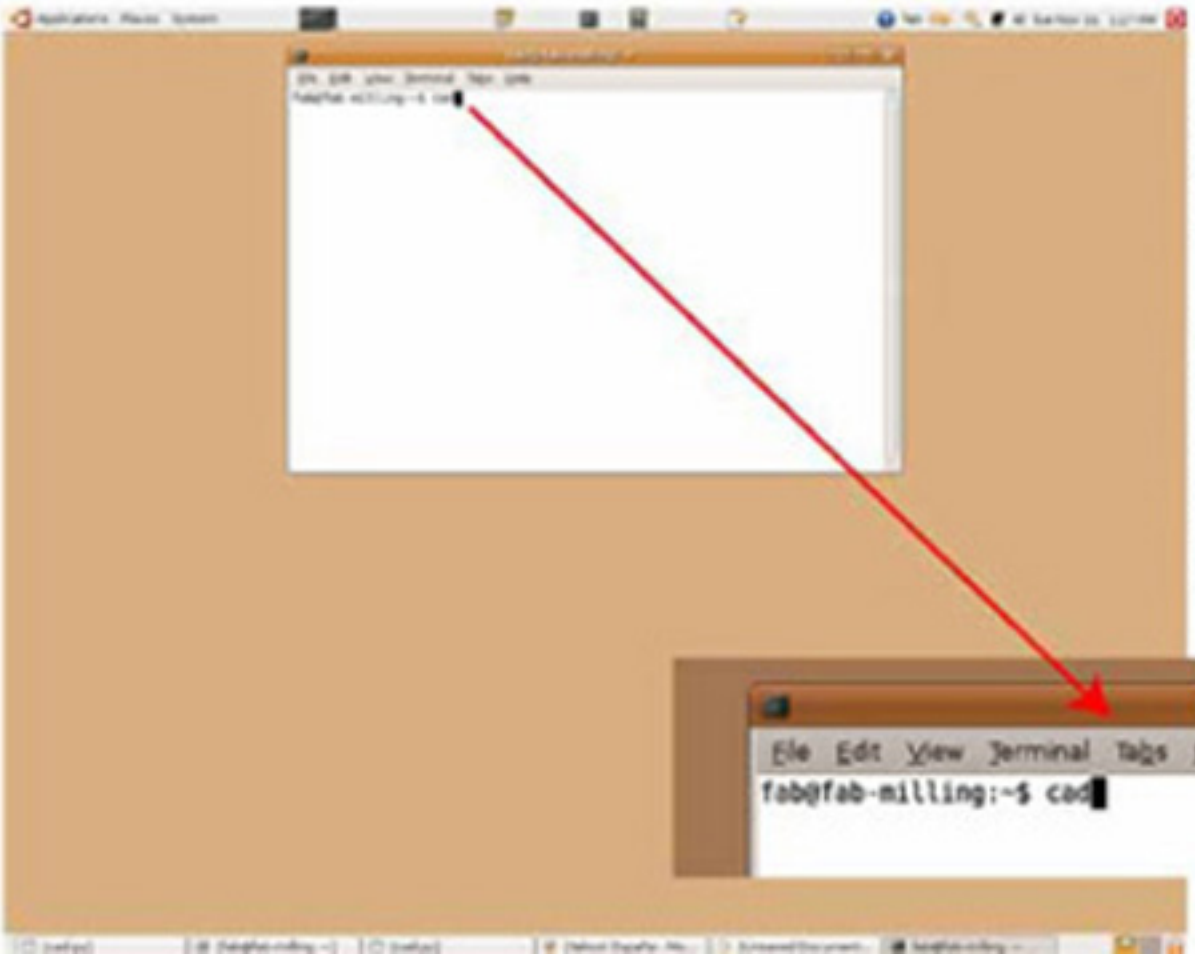
PCB MAKING AND ASSEMBLY

PROCESS (the board)



learning about the micro controllers we started with a lecture by Neil Greshenfeild , our first assignment was to make the first electronic board, here we didn't do the board layout since it was already provided – 'the hello world' serial circuit board.

-We open this file in our computer, searching for Cad files and then we open our hellow .serial.45.cad.mta file.
-Here we see our components and we make our Dpi files to be in high resolution for machining.
-the # command means the command is not read by the machine so we have to uncommand that

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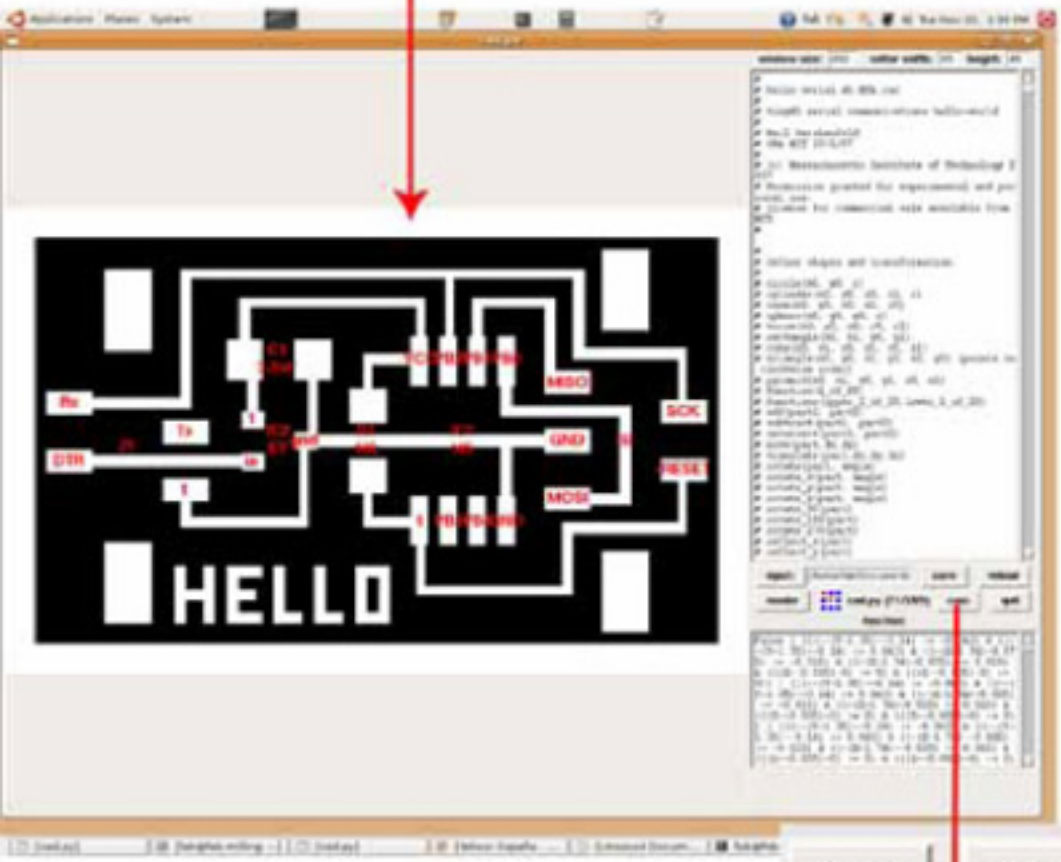
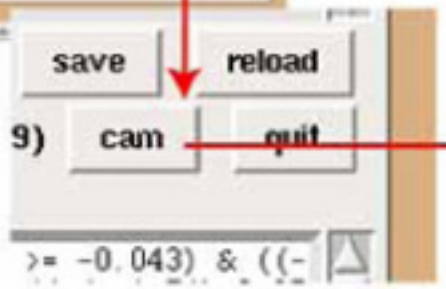
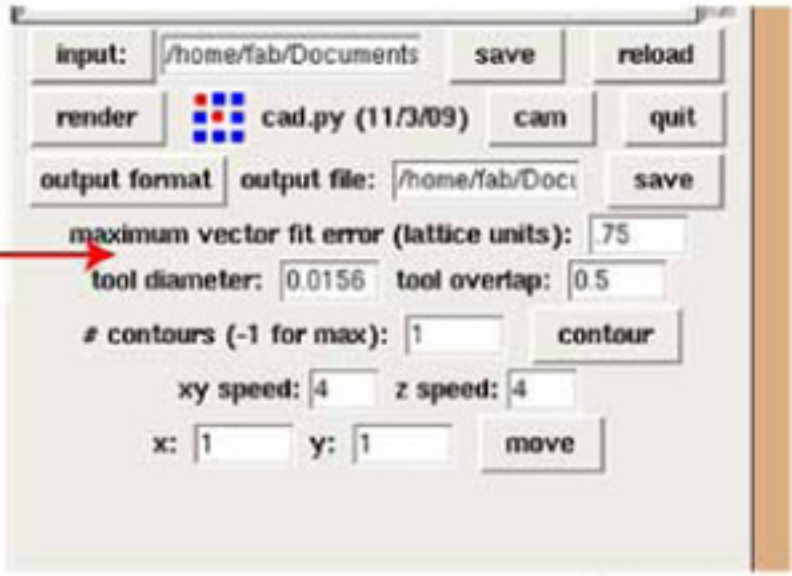
#
# hello.serial.45.MTA.cad
#
```

-Then from the Cad we go to Cam and make our output format into .rml file for the modela (milling machine)
-Here we start to contour our files in the -1 Z direction. Here the X&Y axis's are on the same line. We also choose our tool which will be 1/64 diameter.
-sure the speed for both XY, and Z axis's is 4, we also have to set a distance for our parameters on the machine sacrificial board.







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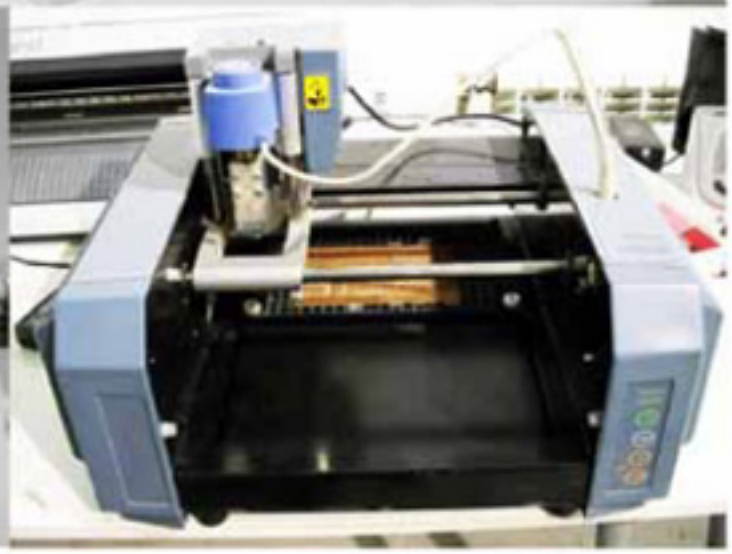

-We also have to go back to our milling machine and prepare our boards for milling. We have to stick our circuit boards on the sacrificial board very firmly to avoid any kind of unwanted distortions possibly caused by the movement of the board,
-we also have to attach our tool firmly on the milling machine with the help of our tools (screwdrivers), and then we have to press view on our machine to get the board ready for milling.
-Once this is finished we press 'send to machine' from our computer and it starts printing.

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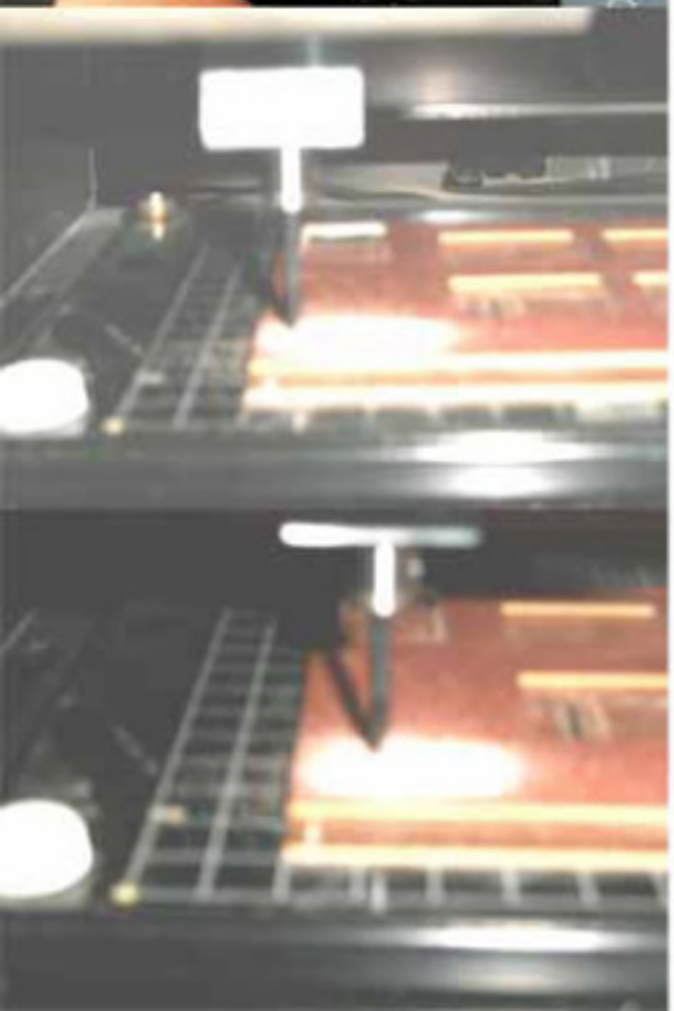

After the interior lines of our board, are finished being cut we have to go back to our computer to contour the exterior part of our board. Here now we make the command for our tool for pcb interior active and we also change our tool diameter into 1/34, then we contour the exterior of our board, we also change the speed to .5 for all directions. With the same process that we did before – we go to our machine change the tool for milling (to the much thicker 1/34 diamm.)and set our computer to send the order.
Then we have our circuit board!

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As we are passing through the details of this exercise, here is the part which gets more interesting - soldering. This is a process where we put all the components to get our board ready for programming.

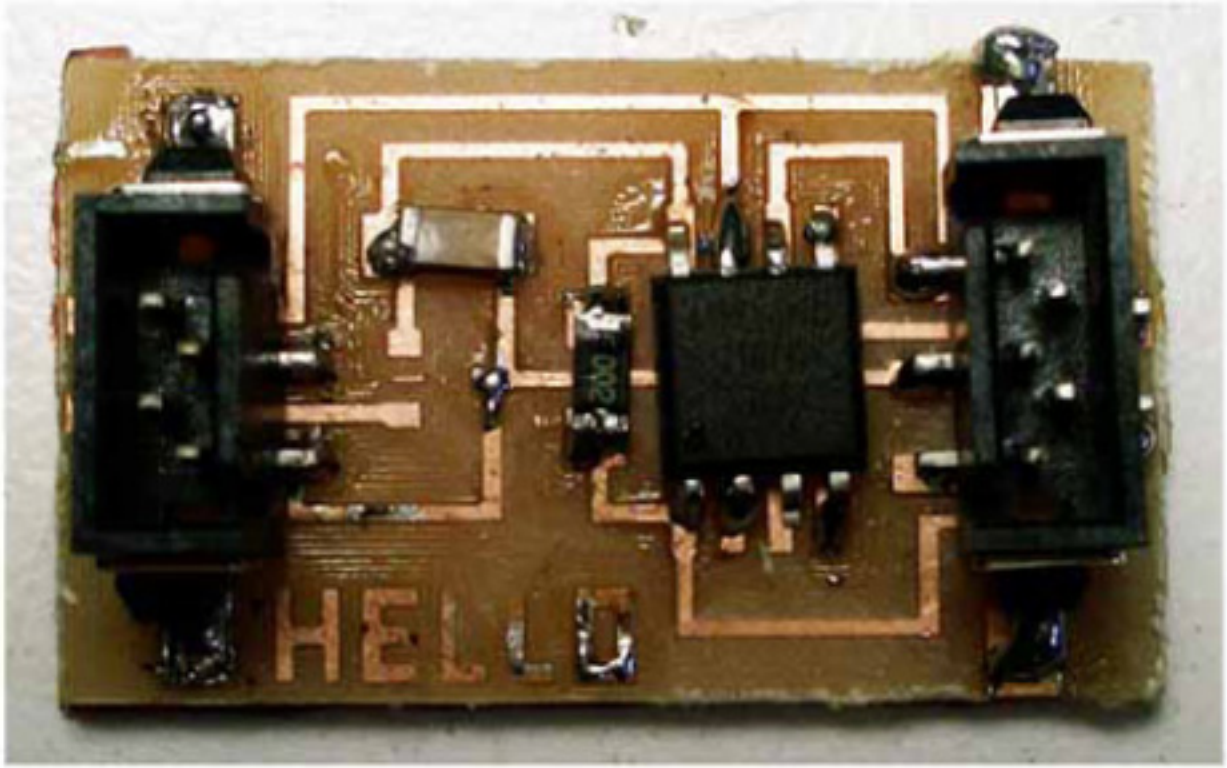
PROCESS (soldering)




Here we will need: Soldering wire, soldering iron, Copper for cleaning brass and a Clip which will serve as tools for soldering



Our components should be the Circuit board, Microcontroller, Resistor 10k(1002) and Capacitor 3.3uF/C1.



When we solder we have to take care that the component wires should not be connected to the other connecting wires at all times (this is a possible mistake), so hands should be held on the table to avoid shaking.

We solder all components according to their position on our drawing then our board is ready for programming.

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