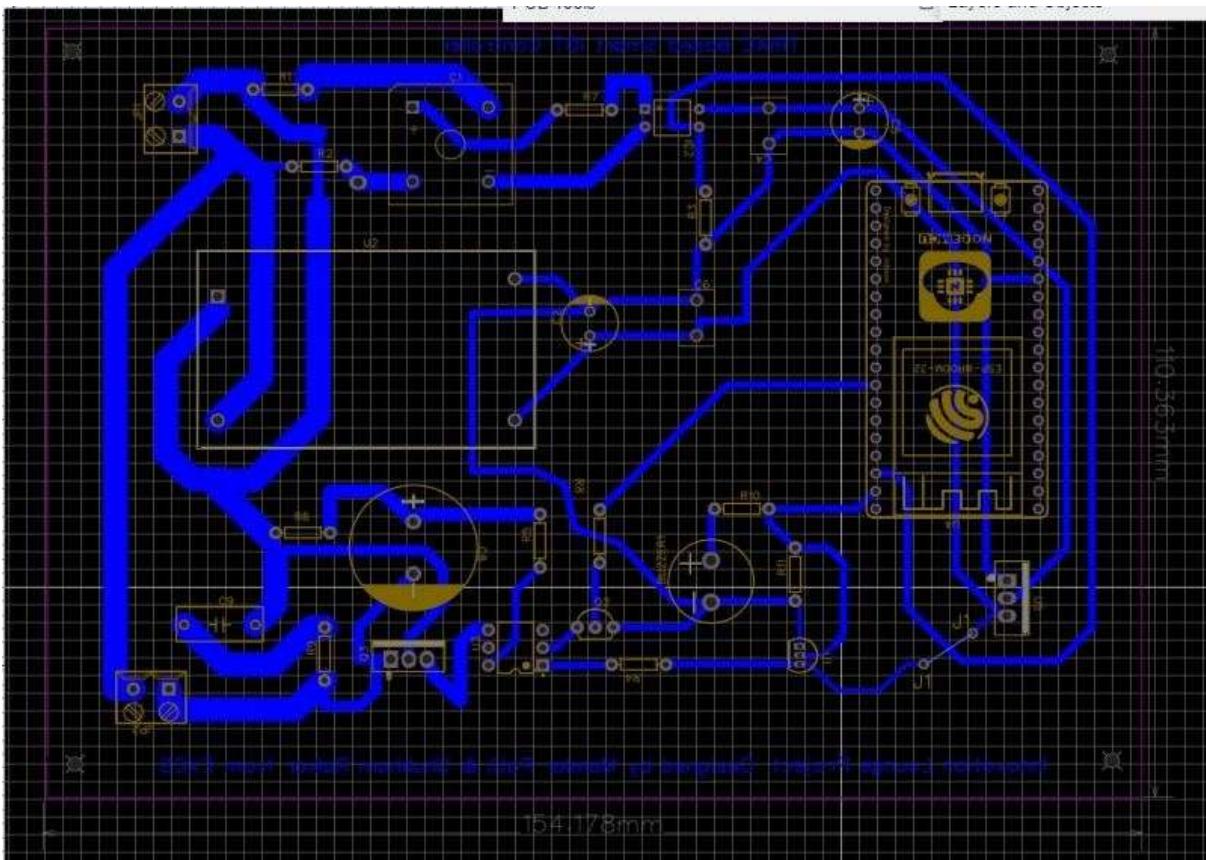


PCB making:

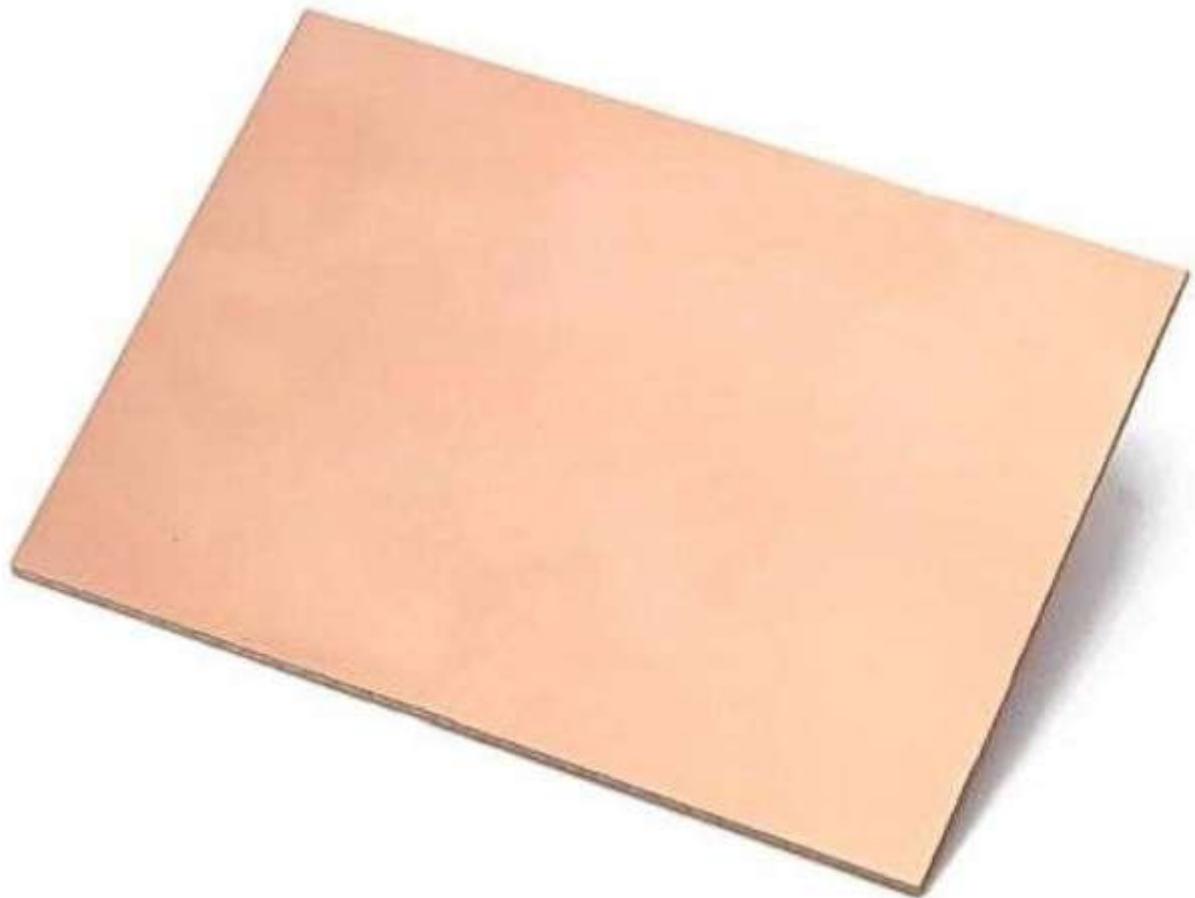
PCBs or Printed circuit boards are at core of many electronics devices and gadgets. I have created a PCB for my home automation project.

For it there was a need of special PCB as breadboards are only for experimentation. Further I designed the PCB on EasyEDA software. The results look like this:



To convert this into reality, following components were needed:

- 1)Copper Clad board



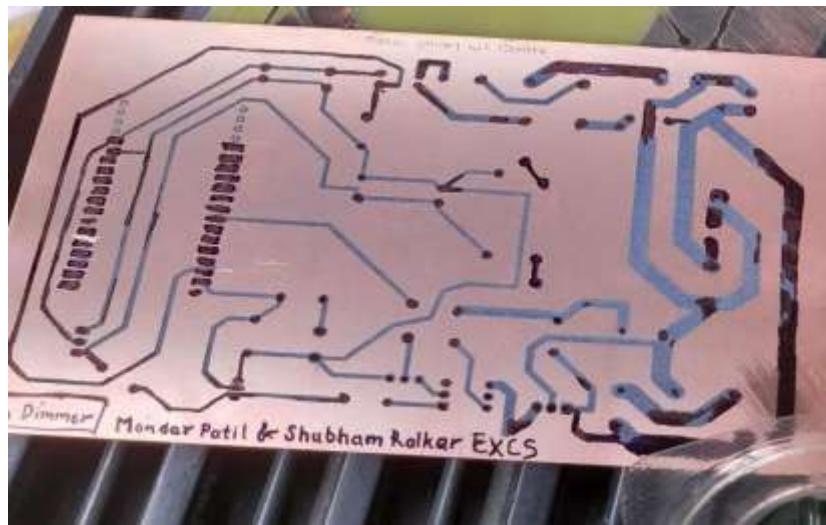
2) Ferric Chloride:



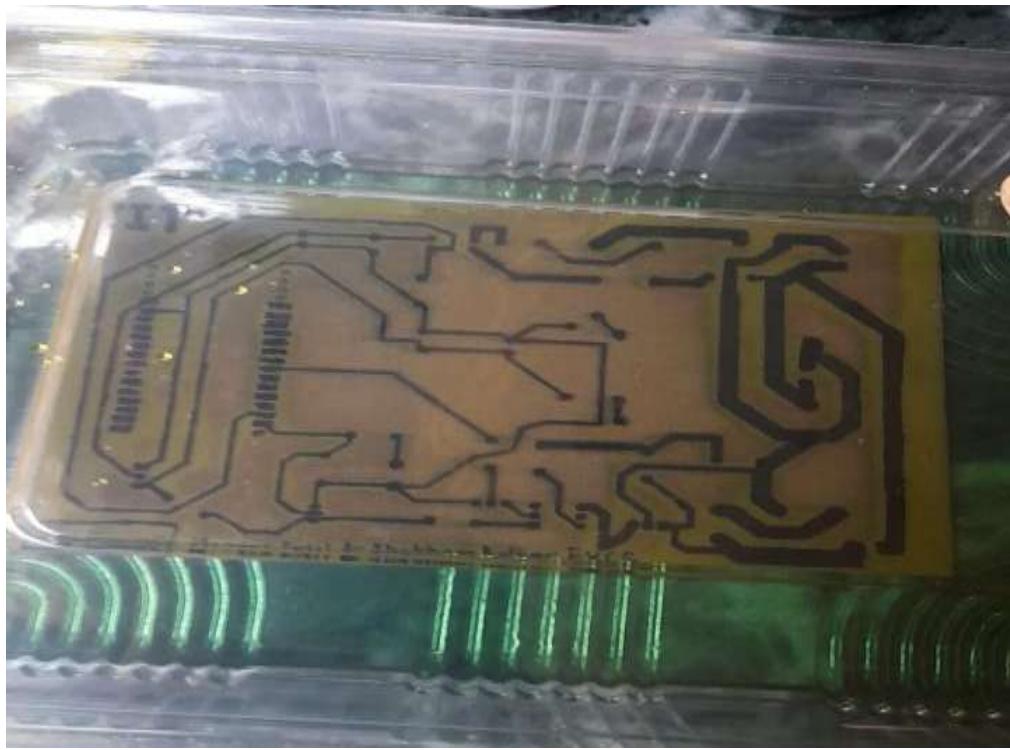
The PCB layout was then laser printed on Glossy paper(photopaper). Laser printing it had specific reason. Which is, it is easily transferrable to Copper clad once pressed and heated.

The PCB layout was placed on a copper clad and ironed(Istri) for 2-3 minutes.

Result :



After this process, the copper clad was immersed into Ferric choride solution:



The copper exposed(Copper other than PCB lining)
Reacted with ferric chloride in following way:

Although copper is least reactive, it reacts with Ferric Chloride



The CuCl₂ also reacts with Cu to give CuCl.

Observations:

- 1) Concentration of FeCl₃ initially, determines the rate of reaction, or how soon the PCB will be ready.
- 2) The strength of solution decreases over time and so also the rate of reaction.
- 3) colour of solution changes from Reddish-Brown to dark_Greenish.
- 4) Constantly moving the PCB plate in solution speeds up the process.

At last the Product looked something like this:



The Holes are drilled on respective spots and components soldered. This reaps us the final working electronic circuit on a piece of fibre, and that's how basically

PCB's are made!

Note: In Same way, Art Enthusiasts create art on copper boards. Do check them out too!

Document by: Shubham Ralkar EXCS A

Reference: [Copper Reactivity: Etching] PDF