Smart home automation by PCB Designing

- AIM: Smart home automation by PCB Designing

- Software used: -
  1. EasyEDA

- APPARATUS REQUIRED:-
  1. PCB Curing Machine (oven)
  2. Photo-resist Dip coating Machine.
  3. Double Sided U.V. exposer unit.
  4. Photo developer dye Machine.
  5. Etching Machine
  6. PCB Shearing Machine
  7. PCB Drilling Machine
  8. Roller Tinning Machine
  9. PCB Artwork Film Maker

- THEORY:-

The term "Smart home automation" refers to the automatic and electronic control of features, activities, and appliances in the home. In layman's words, it implies you can effortlessly control your home's utilities and features via the Internet, making life more easy and secure while also spending less on household expenses. A smart home often implies that you have set up your equipment using a wireless protocol so that they may run with voice control, automatically, according to routines or schedules, or remotely via a mobile device or computer.

- Procedure:

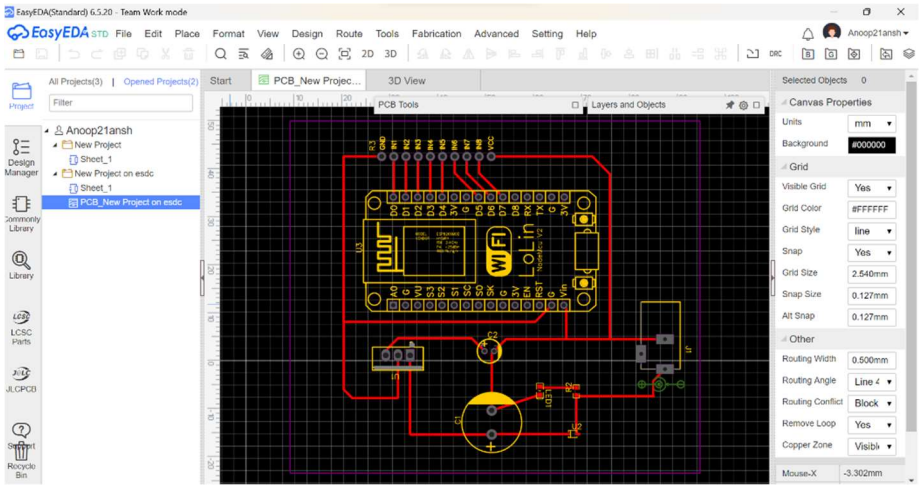
- Design the Circuit Diagram on the software (**EasyEDA**).
- Then start the process of Fabrication.
- Take 2 compositions Na2Co3(A) and Butadiene(B) take a spoon of each composition and add half liter of water into the tray where 2 compositions are mixed.
- Take simple water approximately 1 liter.
- 2 bottle caps Fixer (Hypo) and add half liter of water into it.

- Take a black film and cut it into a size of layout circuit where that film should be one side dark and one side light where we can use any side of the film.
- Light side should be kept in the contact with layout circuit.
- Close the clip and press the push button leave it for 10-12 seconds.
- Add half liter water in through B, Put film in through A and dip until it becomes dark.
- Then put in the fixer (so that white portion becomes transparent)
- Then wash the positive film which is generated.
- Dry the film in oven for 2 to 3 minutes and the temperature should be below 100

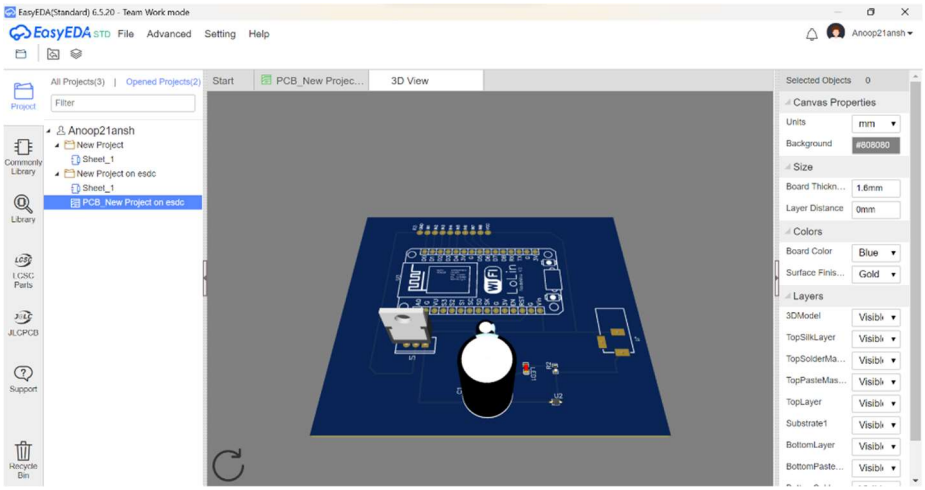
Shearing:

- Take a copper sheet (bigger than the positive film) with single sided and cut it in the size of positive film.
- Clean the cut-out copper sheet with steel wool
- Take photo resist of 200ml (3 years life span)
- Coat the copper sheet with it and put the copper in oven to dry for 1 minute
- Put the photo film on the copper sheet insert sheet in U.V for (2.5-3 min)
- Take the copper sheet and put liquid photo resist developer of 200 ml in dye developer with pump (1min)
- Take the copper plate out and sprinkle water on it
- Now put the copper plate in blue dye again wash the copper plate
- Take ferric chloride (5kg + Water 10lt) and clip the copper plate and don't touch it until 5 minutes.
- After 5 min take it out and wash it
- drilling of PCB is done for making holes on the conductor pattern for inserting the component leads to the solder of PCB.

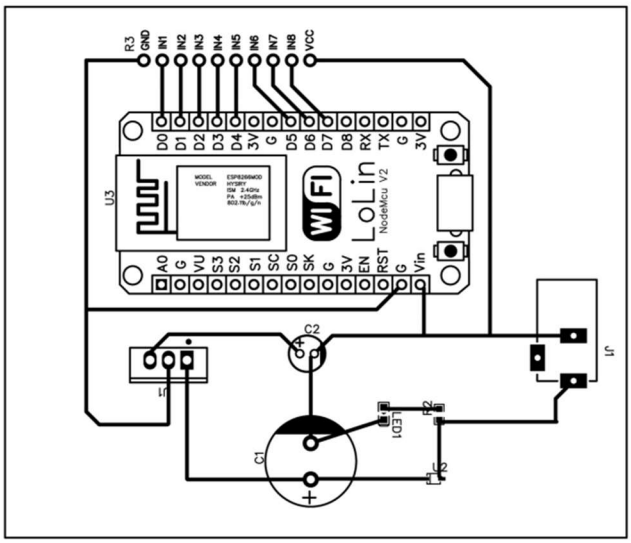
➢ Circuit



➢ 3D diagram



➢ Layout Design



➢ Result:

PCB is fabricated according to required circuit board.