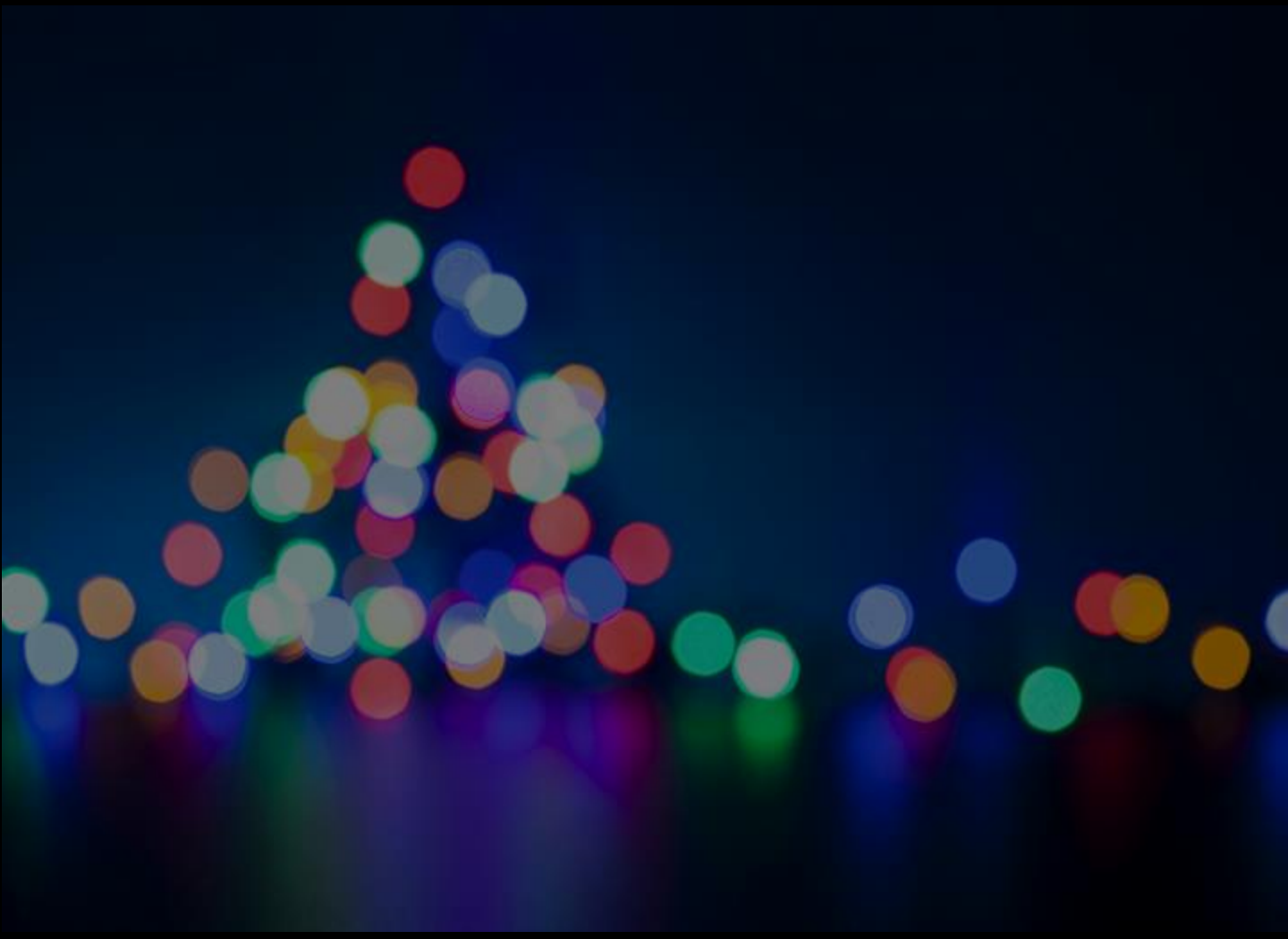
ME110 Project-2 Report



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Introduction

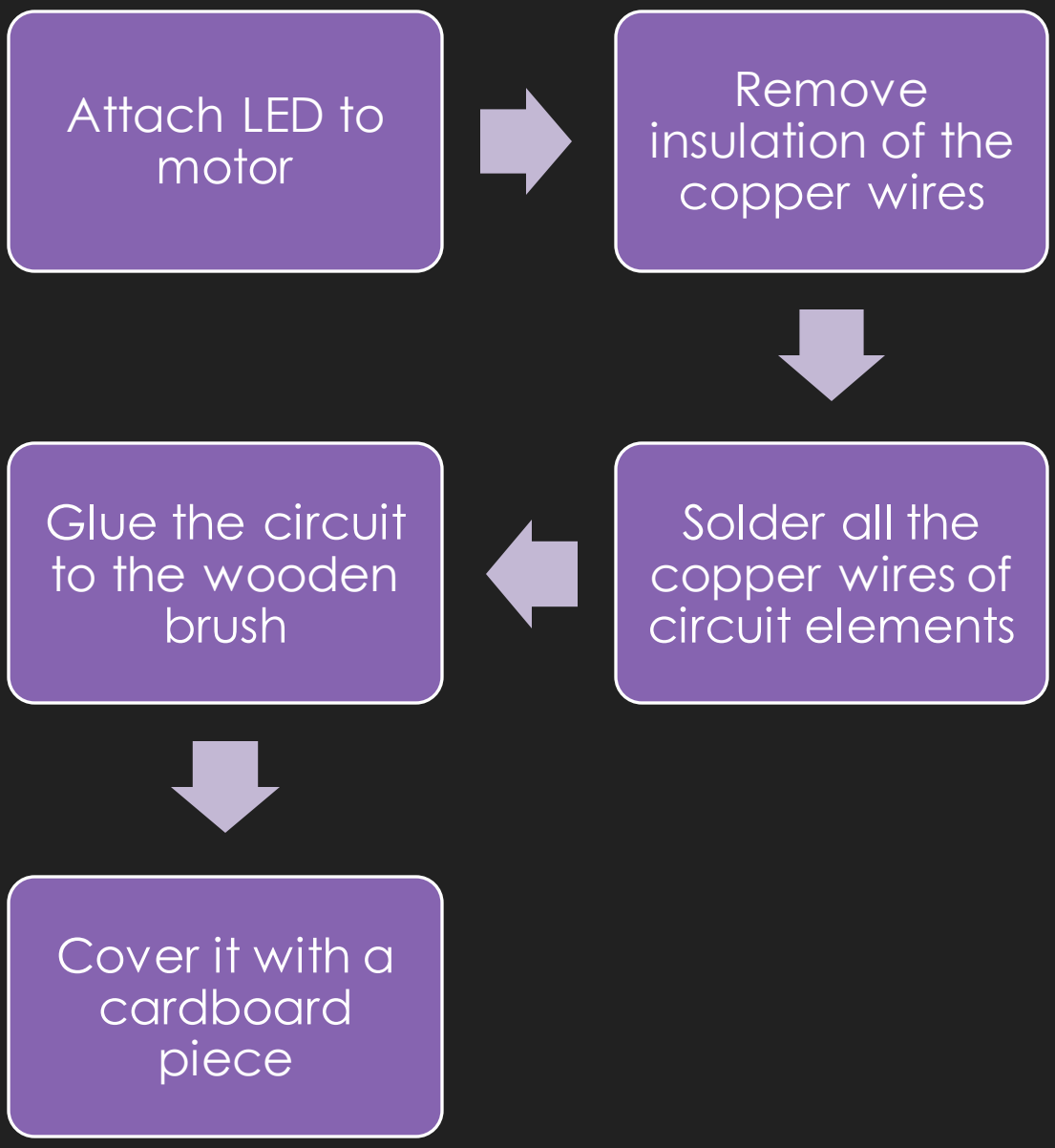
- Here I will be using electical parts from old scrap toys to build a caterpillar robot, which works by using vibrations(produced by some circuit) to move the the surface(in this case, a brush). All the circuit elements are taken from old toys.

- Details of materials

  Wooden brush, on which the whole circuit is placed, glue gun to glue the circuit to it, circuit contains motor, switch, battery, and on motor there's an LED attached. Copper wires, and wire cutter. Sandpaper to clean them. All the elements of circuit joined with soldering, using soldering iron and flux rosin-core solder wire. Since the solder wire already contains flux core, I will not be using additional flux. Also, I used a wire holder to hold the wires while soldering.

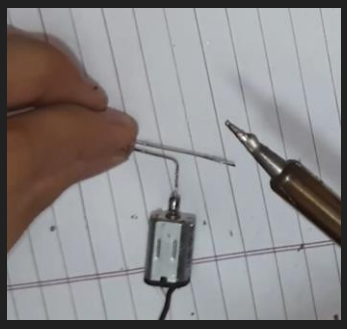
  - Wooden brush
  - Glue gun
  - Motor
  - Switch
  - Battery
  - LED
  - Copper wires
  - Wire cutter
  - Sandpaper
  - Soldering Iron
  - Solder wire
  - Wire clamp

Flow chart of process planned

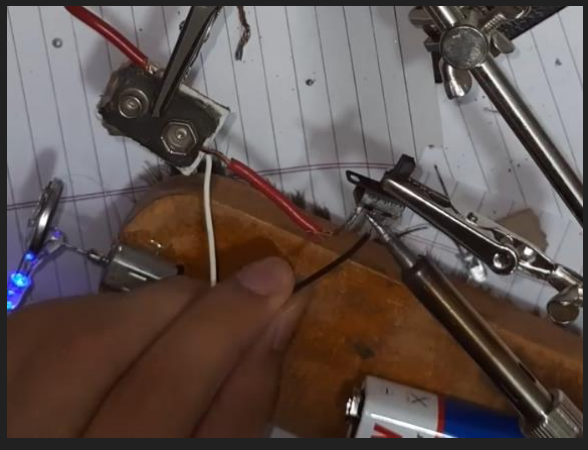


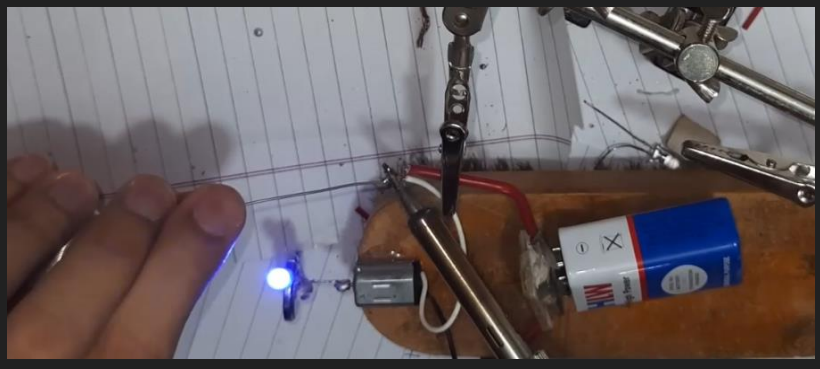
Detailed Procedure

- First start with attaching the LED to the motor top. This will work as an unbalanced load. I used sandpaper before soldering to clean both the parts.

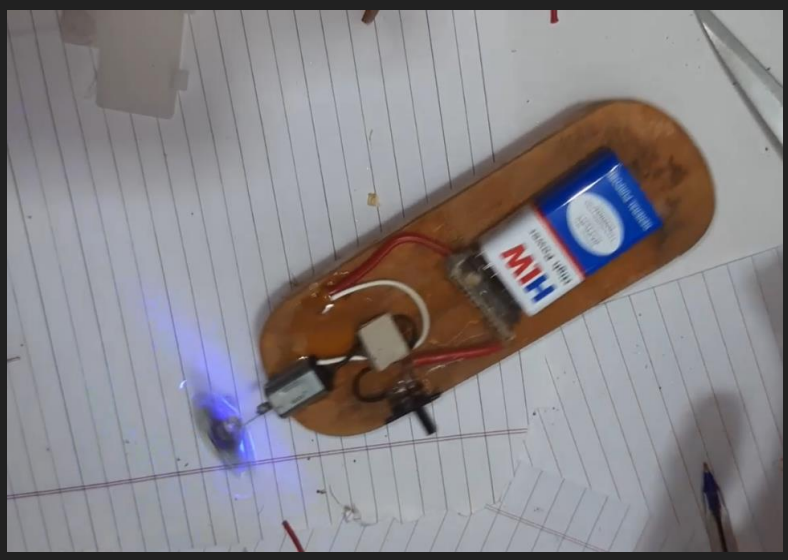


- Then I soldered the wires of circuit. Remove the insulation, then join them with solder. The circuit is pretty simple, motor-switch-battery joined in series.

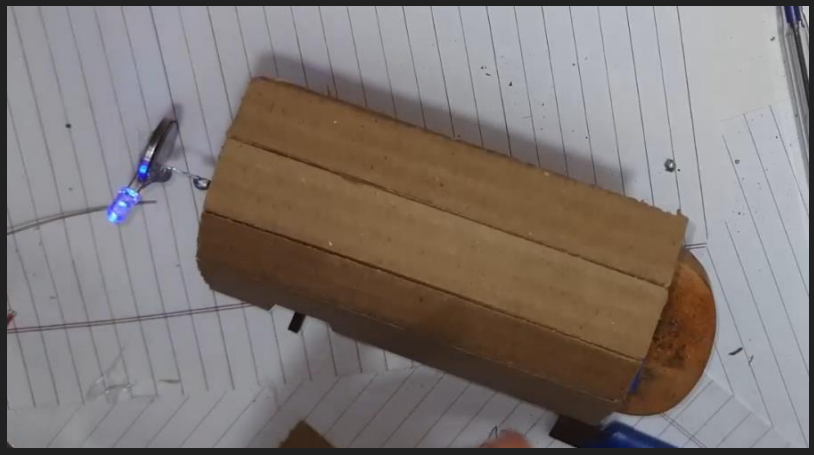




- Then I glued the circuit to the wooden brush. The working robot now looks like this.



- Finally I covered the circuit with a cardboard piece.



Results and Discussions

- Hence, with soldering operation and using waste materials obtained from old toys, we have created this nice simple robot.

- Precautions that needs to be taken care include taking care of the soldering iron as the tip gets quite hot. Keeping an organized workspace is recommended for this reason.

- If not done properly, the soldered joint will break easily. So its important to use appropriate amount of solder along with flux. In project the solder I used had flux core, so I didn't have to use extra flux with it. The LED is attached to the motor with soldering, and its clearly quite strong.

Conclusion

Thus we see soldering is a simple process with which we can make use of old materials which would be otherwise called waste. The process is much safer and simpler than welding.