Soldering Steps and Precaution for Joystick PCB

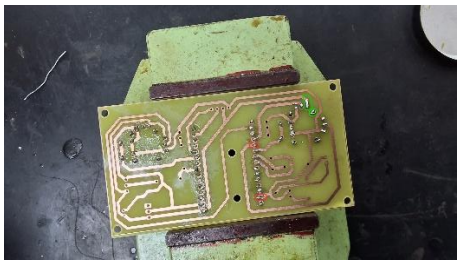
⚠ **Limit Soldering iron contact time to 5 seconds per pad to prevent damage.**

⚠ **Apply small amount of flux on pad where soldering has to be done.**

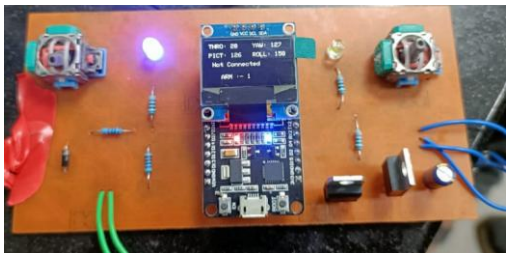
⚠ **Set soldering temperature to 300 °C.**

Controller PCB Soldering.

1) **Check your received PCB for any possible shorts in routing before going for soldering.**
2) **First place the components on top side and do soldering in bottom side.**



Bottom Side



Top Side

Note: The copper track is located on the **bottom side** of the PCB, and all soldering must be done on this side. The **top side** is reserved for placing components, as shown in the image above.

Step-by-Step Soldering Instructions:

1. **Begin Soldering Main Components:**
    - Start by soldering the **general-purpose diode**, **switch**, **LM7805**, and **LM1117T** voltage regulators.
    - After soldering, connect an **8V power supply** to the power connector.
    - **Check the output voltage** of the LM1117T — it should be **3.3V**.
    - If the voltage is incorrect, **debug the circuit** and resolve the issue before proceeding.
    - Once 3.3V is confirmed, continue with the remaining components.
2. **Solder Passive Components:**
    - Proceed to solder **resistors**, **LEDs**, and **capacitors**.
    - **Note:** Pay attention to the **anode and cathode** of LEDs and **polarity** of electrolytic capacitors.
3. **Joystick Placement:**
    - Place and solder the **spring joystick** on the **right-hand side** of the board.
    - The **free joystick** should be placed on the **left-hand side**.

4. **ESP32 Header:**
    - Solder **15-pin female headers** on **both sides** for the ESP32 module.
5. **OLED Connection:**
    - **Do NOT** use the 4-pin header for the OLED on the PCB.
    - Instead, solder **4 wires** directly to the PCB for OLED connections.
    - The other ends of these wires will be connected to a **4-pin header**, where the OLED display will be attached.
6. **Wiring for External Components:**
    - Use **multi-strand (flexible)** wire for connecting the **OLED**, **two switches**, and **battery**.
7. **Final Check:**
    - After soldering, **inspect all joints carefully** to ensure proper connections.
    - Use a **multi-meter** to check for shorts and confirm correct soldering before powering the circuit.