Step-by-Step Wiring Instructions:

1. **Power Supply (12V):**

   - Connect the positive (+) terminal of the 12V power supply to a power rail on the breadboard.
   - Connect the negative (-) terminal of the 12V power supply to a ground rail on the breadboard.

2. **DC-DC Converter:**

   - **VIN+:** Connect to the 12V positive rail.
   - **VIN-:** Connect to the 12V ground rail.
   - **VOUT+:** Connect to a *positive terminal of the jack barrel*
   - **VOUT-:** Connect to the ground terminal of the jack barrel
   - **Adjust Output:** *Very Important:* Before connecting anything to VOUT+, measure the voltage and adjust the potentiometer on the LM2596 module until it outputs a stable 5V-9V.

3. **Arduino Uno Power:**

   - **Vin:** Connect to the 12V positive rail.
   - **GND:** Connect to the ground rail.

4. **LCD (I2C):**

   - **VCC:** Connect to the 5V from the arduino.
   - **GND:** Connect to the ground from the arduino.
   - **SDA:** Connect to Arduino pin A4 or (SDA).
   - **SCL:** Connect to Arduino pin A5 or (SCL).

5. **Relay Module:**

   - **VCC:** Connect to the 5V rail from the arduino.
   - **GND:** Connect to the ground rail.
   - **IN1:** Connect to Arduino Digital Pin 8.
   - **IN2:** Connect to Arduino Digital Pin 9.
   - **IN3:** Connect to Arduino Digital Pin 10.
   - **IN4:** Connect to Arduino Digital Pin 11.
   - **IN5:** Connect to Arduino Digital Pin 12.
   - **COM1, COM2, COM3, COM4, COM5:** Connect *each* of these to the 12V positive rail.

6. **Pumps and Fans (Relay Side):**
   NO: NORMALLY OPEN TERMINAL
   - **NO1:** Connect to the positive (+) terminal of the Water Pump.
   - **NO2:** Connect to the positive (+) terminal of the Soap Pump.
   - **NO3:** Connect to the positive (+) terminal of the Sanitizer Pump.

- ○ **NO4:** Connect to the positive (+) terminal of Fan 1.
- ○ **NO5:** Connect to the positive (+) terminal of Fan 2.
7. **Pumps and Fans (Negative and Flyback Diodes):**

- ○ For *each* pump and fan:
  - ■ Connect the negative (-) terminal of the pump/fan to the 12V ground rail.
  - ■ Connect the *cathode* (banded side) of a 1N4001 diode to the positive (+) terminal of the pump/fan.
  - ■ Connect the *anode* (non-banded side) of the same diode to the negative (-) terminal of the pump/fan. This is the flyback diode.
8. **Inputs (Button and Float Switches):**

- ○ **Push Button:**
  - ■ One leg of the push button to Arduino Digital Pin 2.
  - ■ Other leg of the push button to the ground rail.
- ○ **Float Switches (x3):**
  - ■ One leg of *each* float switch to Arduino Digital Pins 3, 4, and 5, respectively.
  - ■ 3 - water float switch
  - ■ 4 - soap float switch
  - ■ 5 - sanitizer float switch
  - ■ Other leg connect to GND.