**Workflow Chart Steps**

**Step 1: Start**

- Power ON the ESP32 microcontroller.

- Initialize sensors, actuators, and connect to the Wi-Fi network.

**Step 2: Sensor Monitoring**

**- Read Sensor Data:**

- Temperature (DS18B20).

- Turbidity (NTU).

- Water level (cm).

- pH (0–14).

**- Log Sensor Readings:**

- Store or display readings in the Serial Monitor.

**Step 3: Decision Logic**

**1. Check Temperature:**

- If temperature is outside the range 24°C–27°C, send an alert to the TCP client.

**2. Check pH Level:**

- If pH is outside the range 6.5–8.0, send an alert to the TCP client.

**3. Check Water Level:**

- If water level is below 10 cm, activate the pump via the relay module.

**Step 4: Feeding Mechanism**

- Trigger the servo motor to rotate periodically (every 10 seconds).

- Rotate to dispense food and return to its original position.

**Step 5: TCP Communication**

**- Listen for Client Commands:**

- If the client sends "SEND\_VALUES", send the latest sensor readings via TCP.

**- Send Notifications:**

- Alerts for anomalies (temperature, pH) sent to TCP client.

**Step 6: Repeat**

- Return to Sensor Monitoring and repeat the workflow.