

## Sensor Connections – Fish Aquaculture Monitoring System

### 1. DHT11 (Temperature & Humidity Sensor)

- VCC → 3.3V
- GND → GND
- DATA → GPIO 4 (ESP32)

Notes: Use 10k pullup resistor for DATA pin.

### 2. pH Sensor

- VCC → 3.3V or 5V (module dependent)
- GND → GND
- AOUT → GPIO 34 (Analog Input)

### 3. Turbidity Sensor

- VCC → 5V
- GND → GND
- AOUT → GPIO 35

### 4. TDS Sensor

- VCC → 3.3V recommended
- GND → GND
- AOUT → GPIO 32

### 5. MQ135 Air Quality Sensor

- VCC → 5V
- GND → GND
- AOUT → GPIO 33

### Safety Notes:

- Always use common ground between ESP32 and sensors.
- MQ135 requires 5V due to heater.
- Turbidity readings may fluctuate; averaging recommended.

- Ensure waterproofing for all water-contact sensors.