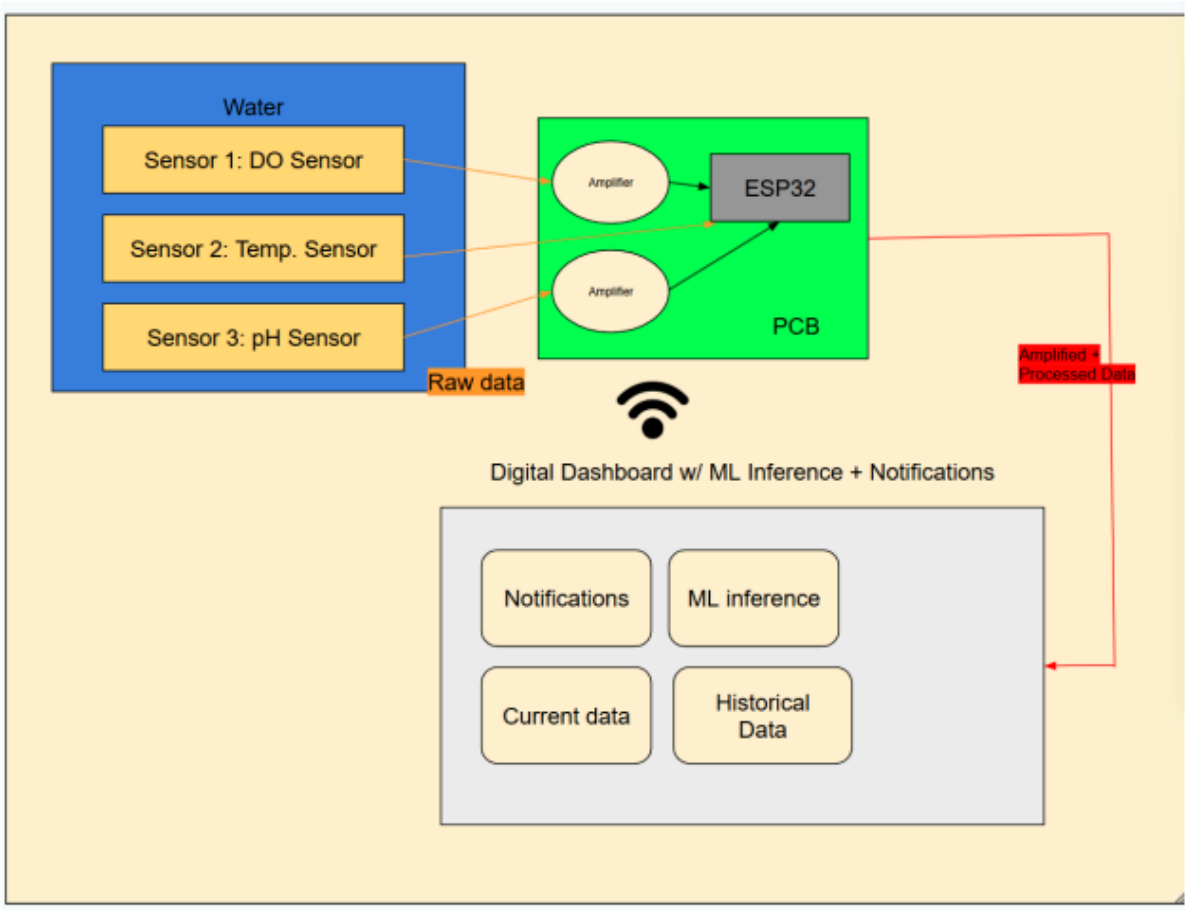
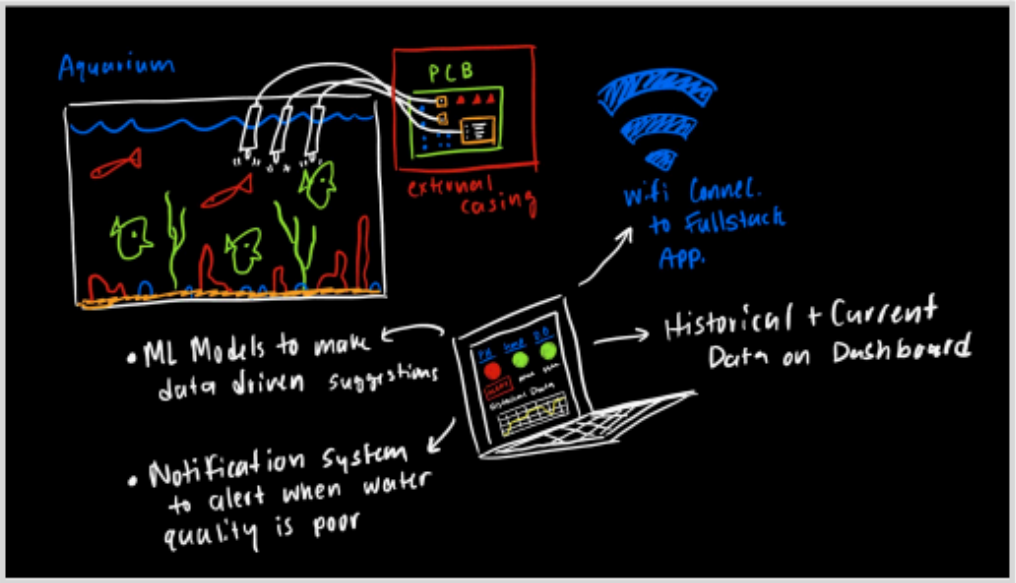
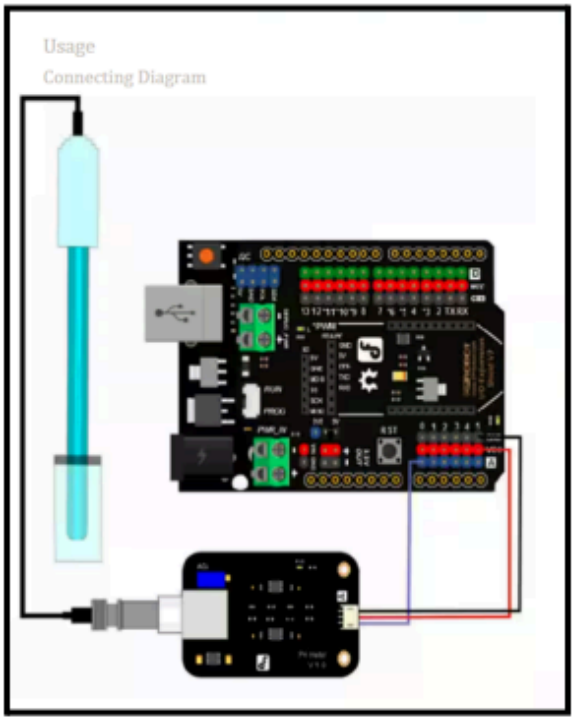
Week 5

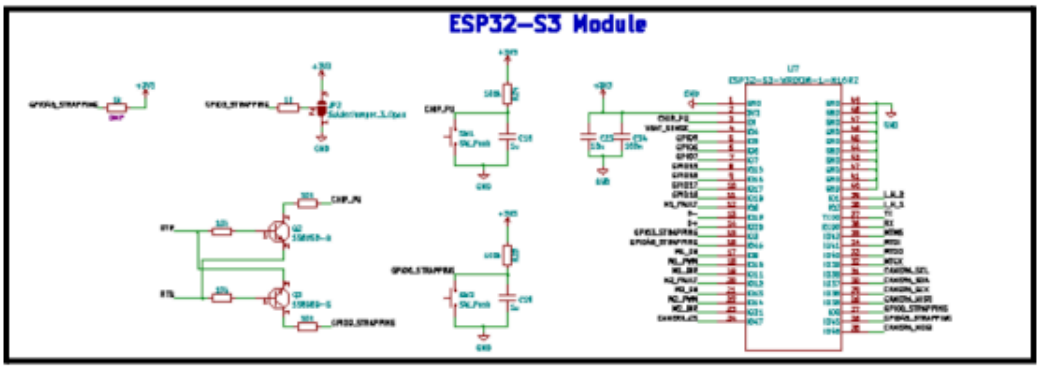
Design Document Prepared

Initial Diagrams -




Aquarium
PCB
external casing
Wifi Connect. to Fullstack App.
• ML Models to make data driven suggestions
Historical + Current Data on Dashboard
• Notification System to alert when water quality is poor


Usage
Connecting Diagram



We need to replicate the sensors' breakout board conditioning logic on our own PCB... how do we approach the problem of signal conditioning? What are common tactics that are used for preparing a raw signal for digital manipulation?

- Capacitors: useful for stabilizing high-noise or sensitive signals
- Voltage reference:

Not all sensors will be handled the same. I think pH and DO will be substantially harder than temperature. You can tell just by looking at the dev boards themselves that the sensors came with...

The breakout boards for pH and DO look pretty involved, I wonder what even needs to be done to the raw sensor's signal... how hard could it be to turn that output into one that can fit the ESP?

Here's what we know so far:

- ESP32 operates on a 3.3 V level
- Interfaces via GPIO pins
- GPIO pins are primarily for DIGITAL signals.
- Apparently they can also do Analog-to-Digital conversion
- Avoid ADC2 (GPIOs 0, 2, 4, 12, 13, 14, 15, 25, 26, 27) because the ESP Wi-Fi subsystem relies on them in-house.