Grow It!

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What is Grow It?

Grow It! Is the solution for anyone struggling with maintaining healthy plants at home.

With Grow It! Users can keep track of their plant's health, visualize environmental trends, and toggle specific sensors through an intuitive and simple UI.
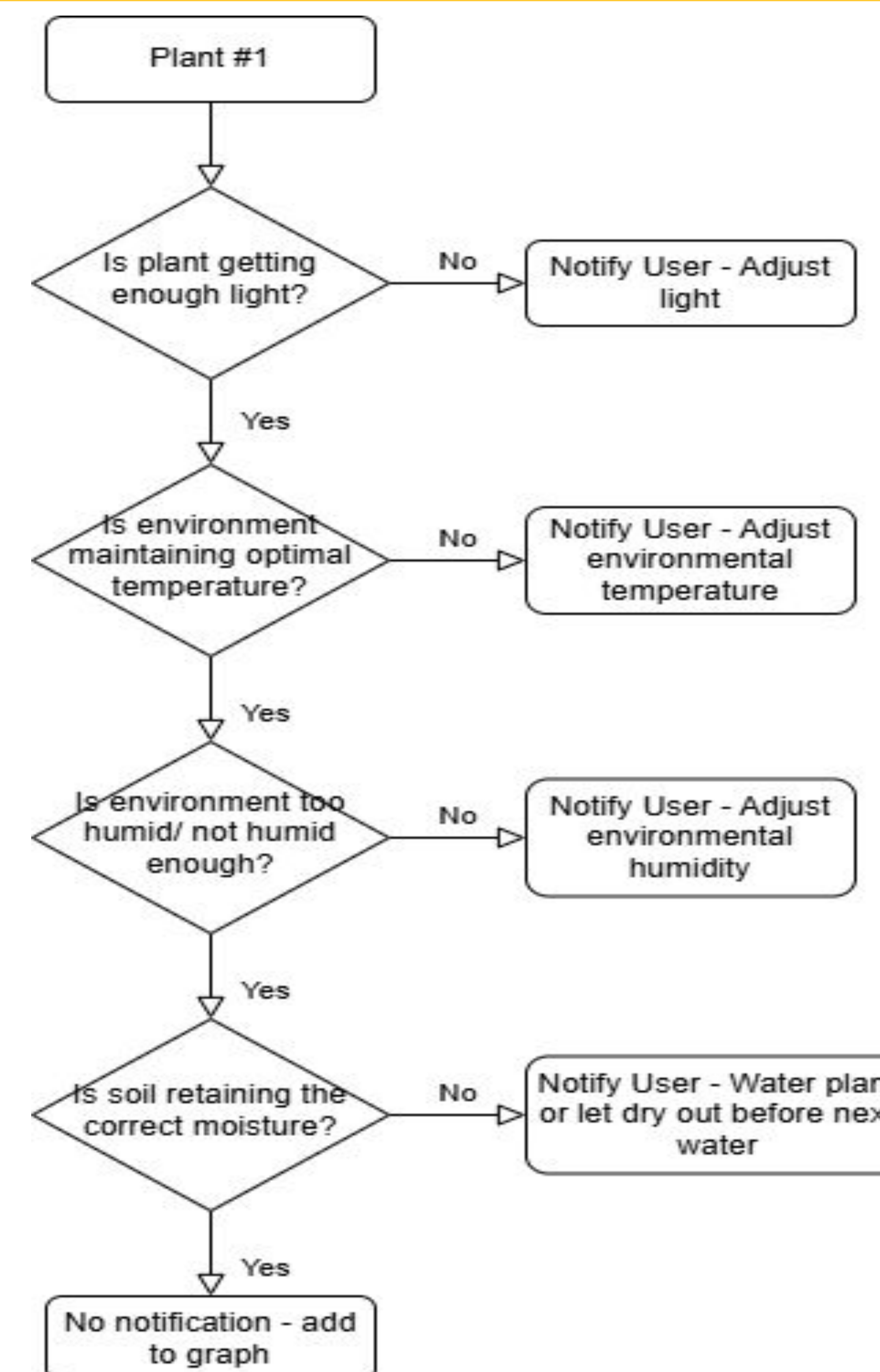
Grow It! Features

- Pre-assembled sensor, just plug in to power and go!
- Sensor setup system, customizable for your needs
- Device notifications, if something goes wrong, you'll be the first to know!
- An all encompassing database lets you fine tune your sensor to your species of plant!

Technology/Resources

- Database: MongoDB Atlas
- Server Host: DigitalOcean
- Backend: node js
- UI: React Native
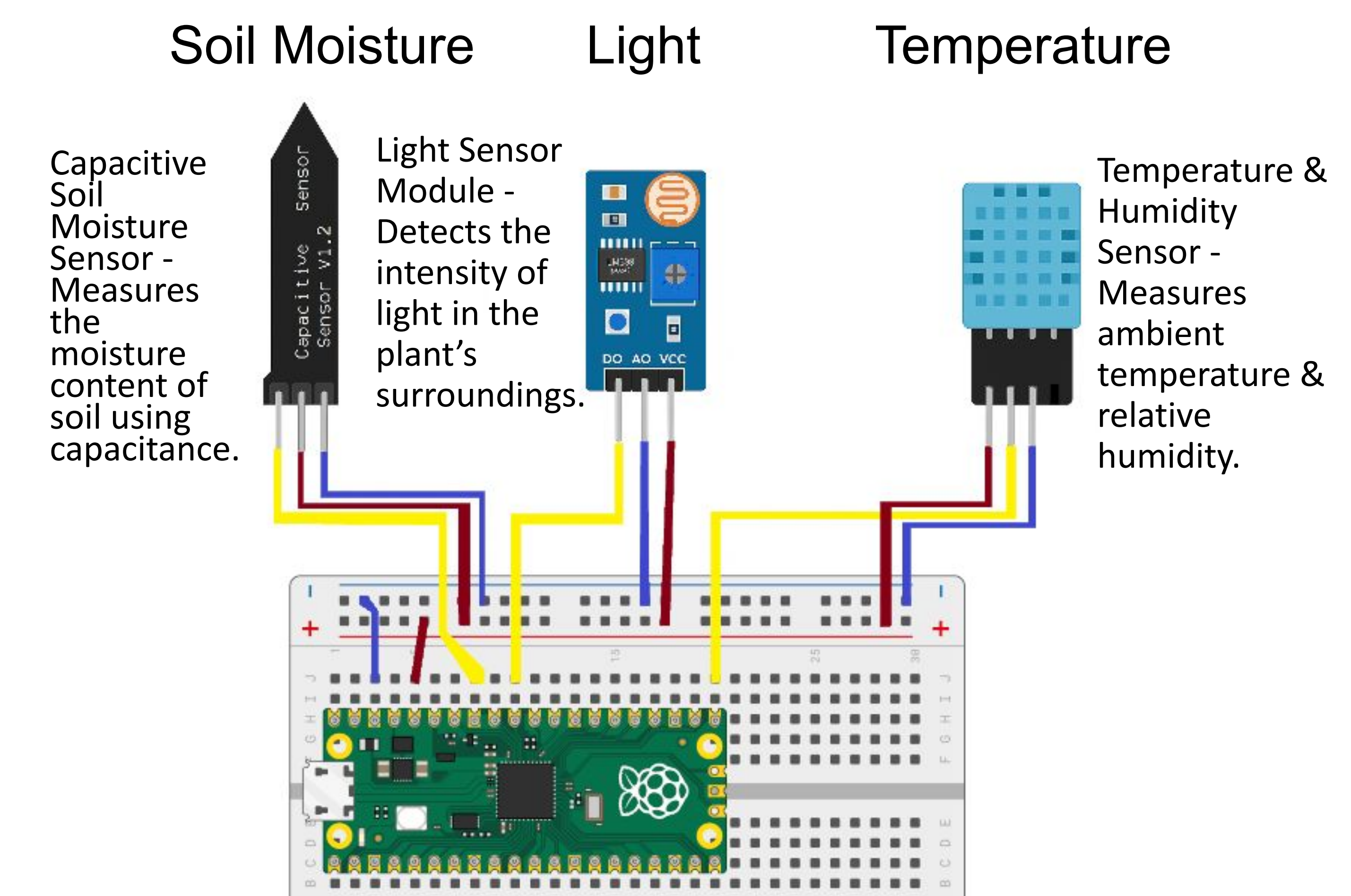- Sensors: Raspberry Pi Pico w/ MicroPython

How Does Grow It Work?

Plant #1 →
Is plant getting enough light? → No → Notify User - Adjust light
↓ Yes
Is environment maintaining optimal temperature? → No → Notify User - Adjust environmental temperature
↓ Yes
Is environment too humid/ not humid enough? → No → Notify User - Adjust environmental humidity
↓ Yes
Is soil retaining the correct moisture? → No → Notify User - Water plant or let dry out before next water
↓ Yes
No notification - add to graph

Contributions

- Estevan Arroyo: Hardware assembly, integration, backend design
- Karla Medrano: UI design and database implementation
- Issa Samara: Database Server creation and management
- Sophia Stewart: UI design and database population
- Christian Viramontes: Web Server management, security, and backend design

Sensor Diagram

Soil Moisture   Light   Temperature

Capacitive Soil Moisture Sensor - Measures the moisture content of soil using capacitance.

Light Sensor Module - Detects the intensity of light in the plant's surroundings.

Temperature & Humidity Sensor - Measures ambient temperature & relative humidity.

Timeline

ID	Task Name	2025-01	2025-02	2025-03	2025-04
1	Create Sensors/Database				
2	Create Application				
3	Testing				
4	Completion				
5	Expo Poster				

- **Phase 1 (January 15 - February 10)**: Create Sensors, Database, and prototype
- **Phase 2 (February 11 - March 28)**: Create Application
- **Phase 3 (March 28 - April 21)**: Testing
- **Phase 4 (March 31 - April 21)**: Expo Preparation
- **Completion (April 21)**