

Team Green Algos presents

Algabit

AUTOMATED LOCATOR FOR GARBAGE IN AQUATIC
BODIES WITH INTELLIGENT TRACKING

Problem statement:

The increasing pollution of ponds and lakes due to the accumulation of garbage poses a significant environmental threat. Current methods for monitoring and addressing this issue are often inadequate and inefficient.



Our solution!

Introducing our very own **Algabit**! Our cute but clever solar powered friend who can detect garbage in local water bodies such as ponds and lakes and alert the responsible authorities so that action can be taken swiftly.

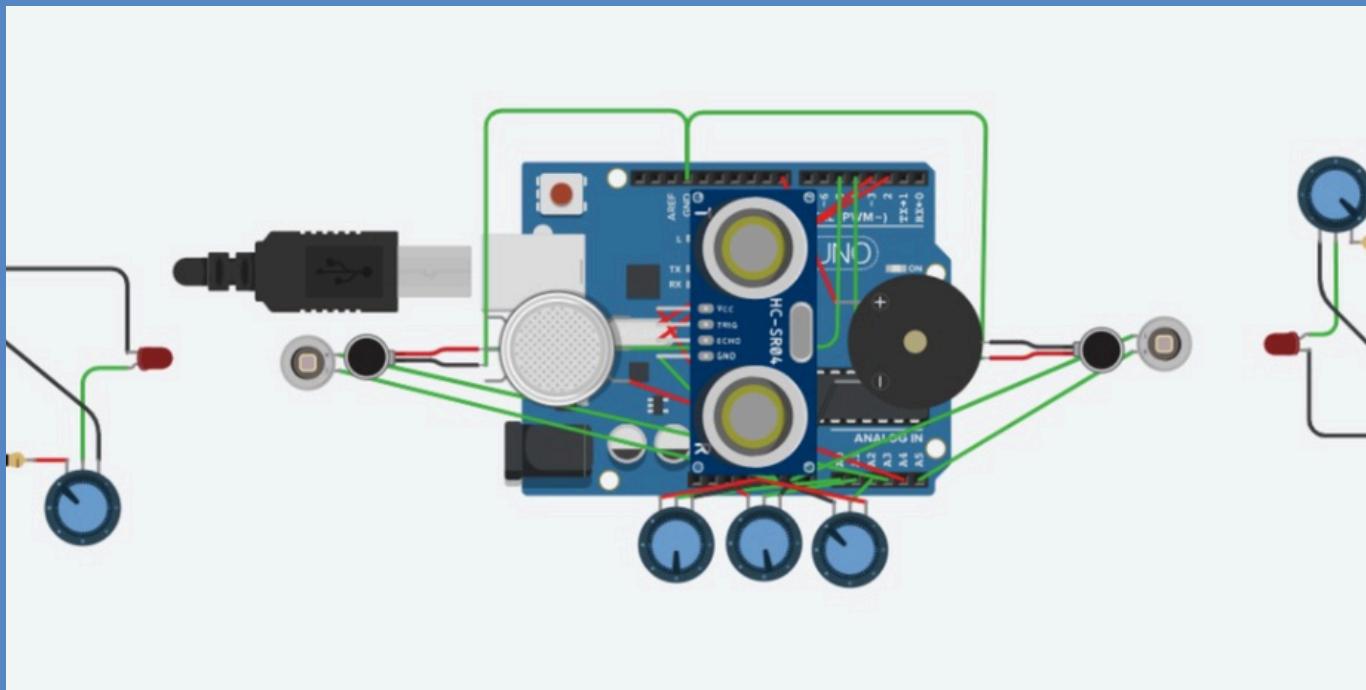
How the hardware works

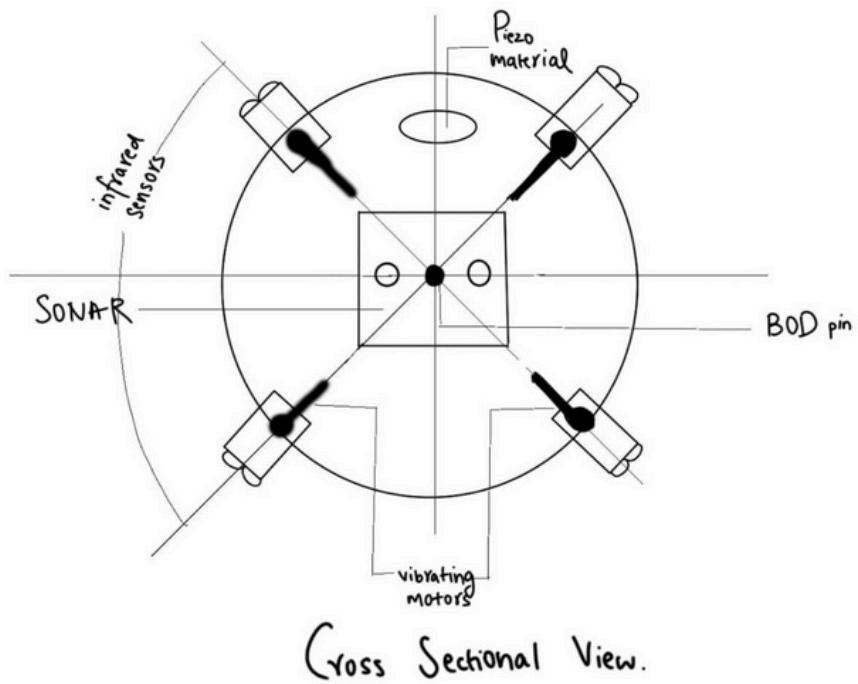
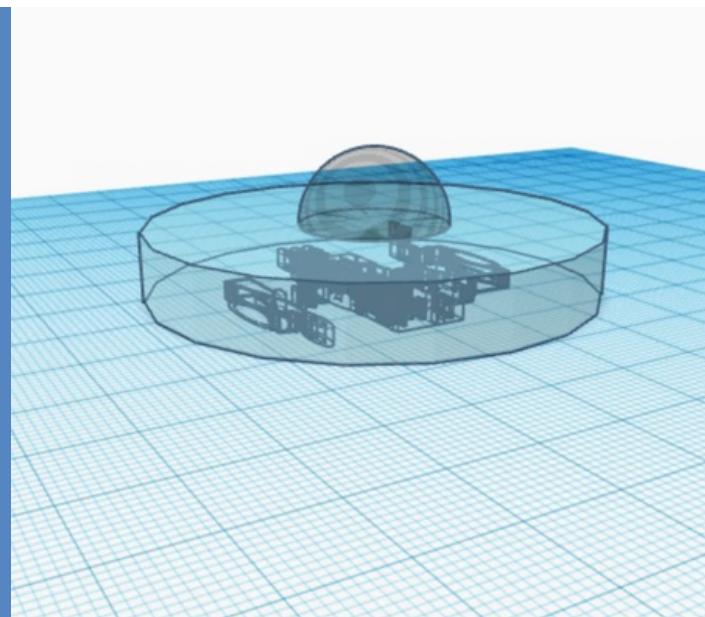
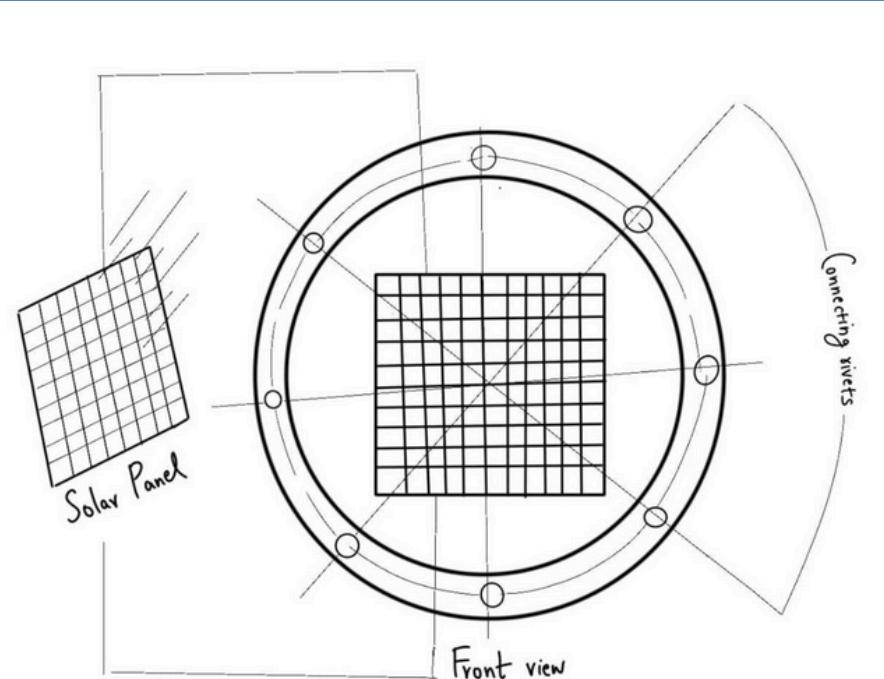
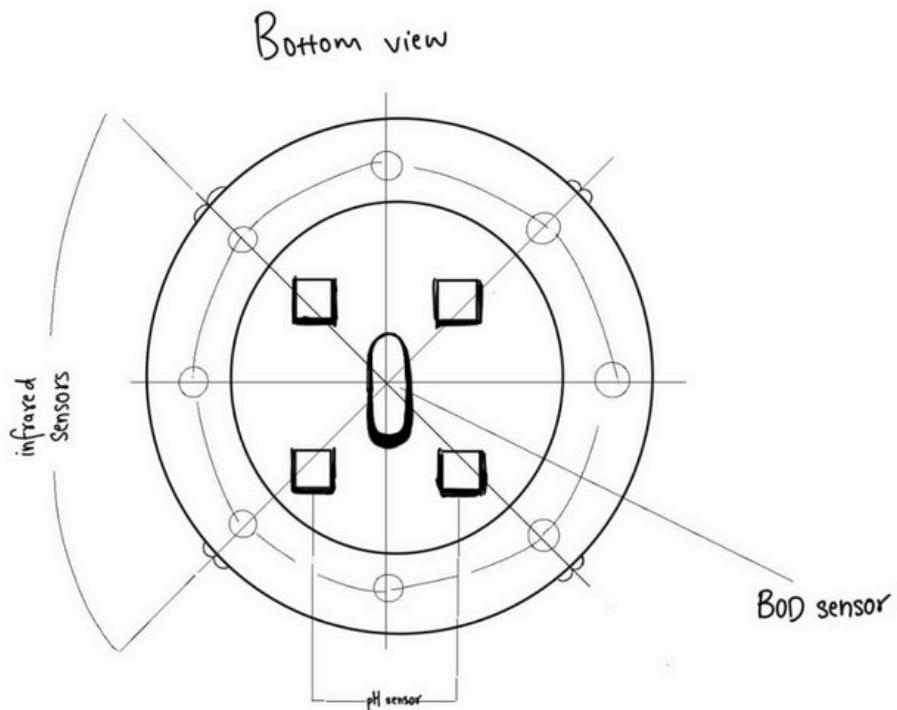
The body has a round, flat shape and has a dome like top

it functions using the following sensors

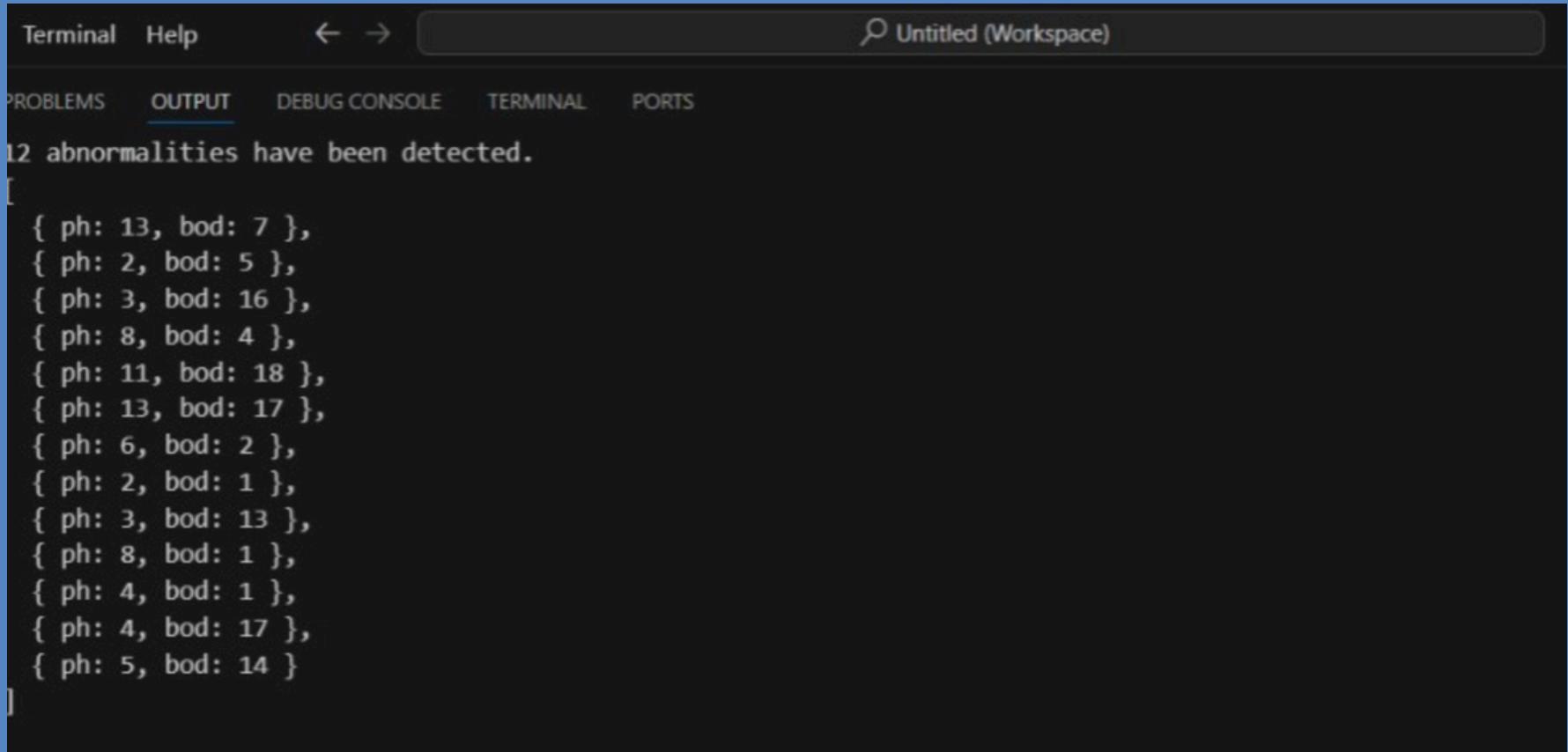
- pH SENSOR
- BOD SENSOR
- ULTRASONIC SENSOR
- IR SENSOR

Our tinkercad simulation



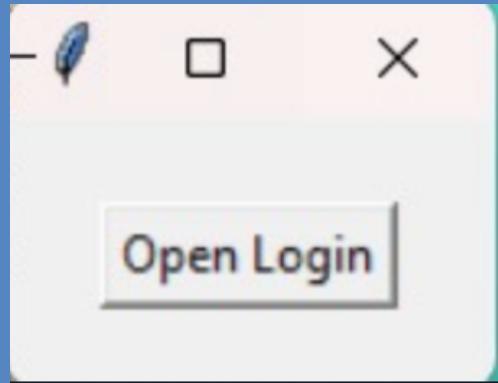


Working of database



A screenshot of a terminal window titled "Untitled (Workspace)". The window has tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS, with "OUTPUT" being the active tab. The output content shows a JSON array with 12 elements, each containing a "ph" and a "bod" value.

```
12 abnormalities have been detected.  
[  
  { ph: 13, bod: 7 },  
  { ph: 2, bod: 5 },  
  { ph: 3, bod: 16 },  
  { ph: 8, bod: 4 },  
  { ph: 11, bod: 18 },  
  { ph: 13, bod: 17 },  
  { ph: 6, bod: 2 },  
  { ph: 2, bod: 1 },  
  { ph: 3, bod: 13 },  
  { ph: 8, bod: 1 },  
  { ph: 4, bod: 1 },  
  { ph: 4, bod: 17 },  
  { ph: 5, bod: 14 }  
]
```

A larger window titled "Login". The title bar includes a logo icon, the title "Login", and standard window control buttons. The main interface consists of two text input fields: one for "Username" containing the text "anoop", and another for "Password" containing three asterisks ("***"). Below these fields is a "Login" button.

pH:

10.43

BOD:

12

Warning: The water is basic!

Warning: The water has high BOD levels!

Longitude: 74.569065

Latitude: 11.827761

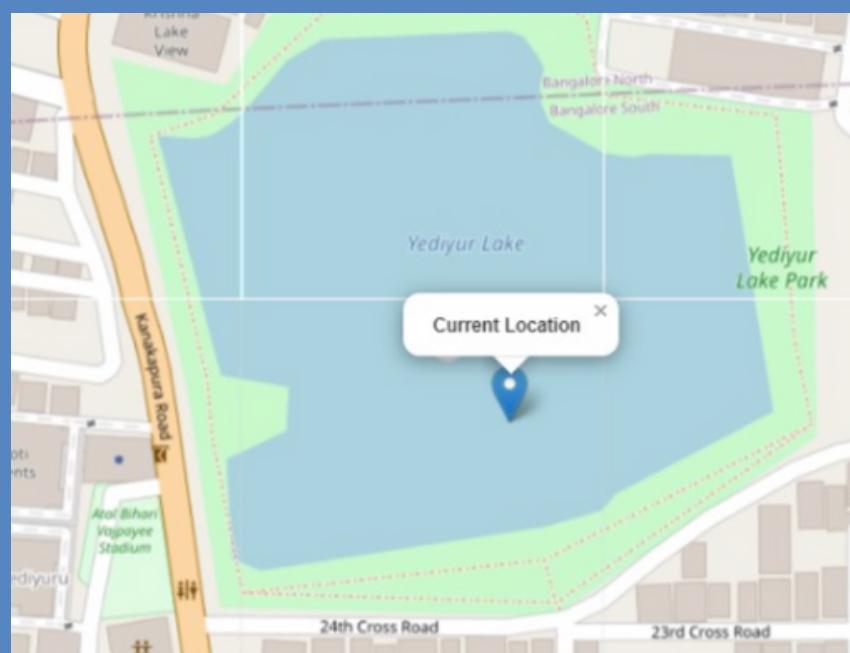
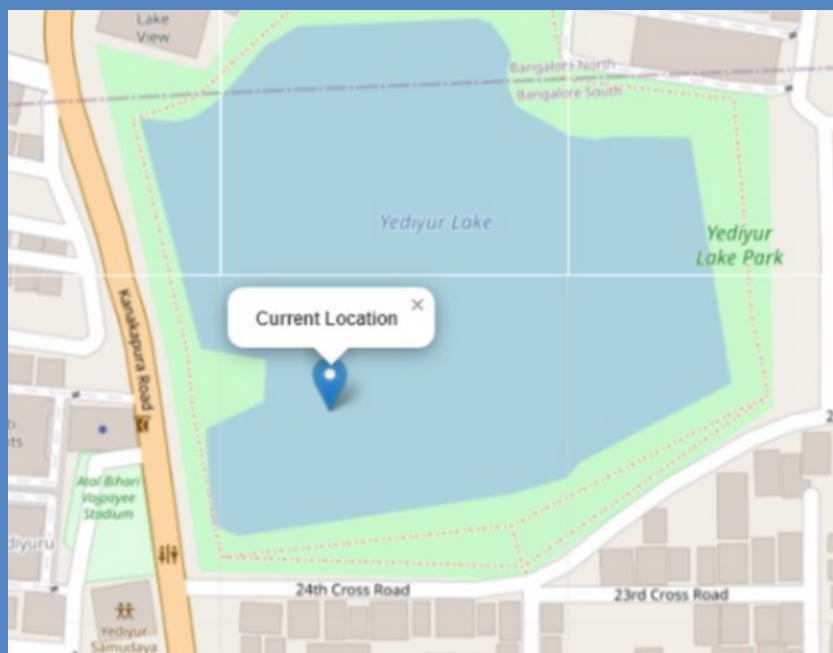
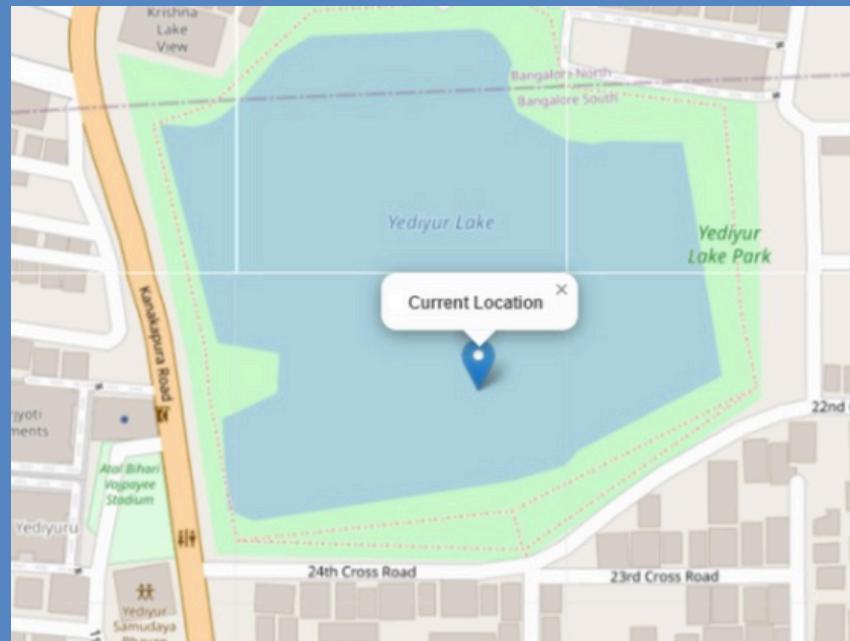
General Log

In Queue

In Progress

History

General Log
List: [{'serial no': '1', 'pH': '3', 'BOD': '9', 'Coordinates': '(12.1,72.1)', 'Time': '14:35', 'Date': '02/04/2024'}, {'serial no': '2', 'pH': '13', 'BOD': '7', 'Coordinates': '(11.9,73.4)', 'Time': '19:45', 'Date': '02/04/2024'}, {'serial no': '3', 'pH': '11', 'BOD': '8', 'Coordinates': '(12.5,76.8)', 'Time': '21:09', 'Date': '03/04/2024'}]
In Queue
List: [{'serial no': '1', 'pH': '10', 'BOD': '5', 'Coordinates': '(11.1,76.1)', 'Time': '15:45', 'Date': '05/04/2024'}, {"serial no": "2", "pH": "11", "BOD": "7", "Coordinates": "(11.8,74.4)", "Time": "12:32", "Date": "01/04/2024"}, {"serial no": "3", "pH": "13", "BOD": "8", "Coordinates": "(12.5,75.9)", "Time": "22:39", "Date": "06/04/2024"}]
In Progress
List: [{'serial no': '1', 'pH': '13', 'BOD': '9', 'Coordinates': '(12.1,72.1)', 'Time': '17:25', 'Date': '03/04/2024'}, {"serial no": "2", "pH": "2", "BOD": "13", "Coordinates": "(11.9,73.4)", "Time": "23:45", "Date": "01/04/2024"}]
History
List: [{'serial no': '1', 'pH': '3', 'BOD': '5', 'Coordinates': '(12.2,72.3)', 'Time': '14:35', 'Date': '02/04/2024'}, {"serial no": "2", "pH": "3", "BOD": "7", "Coordinates": "(11.9,76.5)", "Time": "17:25", "Date": "02/04/2024"}, {"serial no": "3", "pH": "14", "BOD": "8", "Coordinates": "(11.8,76.9)", "Time": "23:59", "Date": "03/04/2024"}, {"serial no": "4", "pH": "1", "BOD": "15", "Coordinates": "(12.4,74.1)", "Time": "15:35", "Date": "02/04/2024"}, {"serial no": "5", "pH": "3", "BOD": "8", "Coordinates": "(12.9,75.4)", "Time": "18:49", "Date": "02/04/2024"}, {"serial no": "6", "pH": "11", "BOD": "13", "Coordinates": "(12.8,76.8)", "Time": "11:49", "Date": "03/04/2024"}]



Tech stack

Back end

- mongoDB and JS for database storage
- Arduino simulation in tinkercad
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Front end

- Python with modules Tkinter and custom Tkinter, HTML with JS and CSS for GUI
- Leaflet map API for geolocation implementation

Sustainability, ease of use and implementation in the real world



Business model



A scenic landscape featuring a dense forest of evergreen trees on a hillside. In the foreground, there's a body of water, possibly a lake or a large pond, with some small plants floating on it. The sky is a clear, vibrant blue.

THANK YOU

**Let us tackle this
problem
Alga-bit-by-bit!**