

Innovative Projects using Raspberry Pi (ECE2011)

Phase –III Review Presentation

COMPREHENSIVE DEEP SEA EXPLORATION ANALYSIS AND VISUALISATION PLATFORM

Submitted to the Presidency University, Bengaluru in partial fulfillment of the requirements for the Innovative Project- Raspberry-pi using Python

By

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Project Brief Summery

- This project integrates a Raspberry Pi Pico-based system(used for hosting) with a frontend web interface using HTML, CSS, and JavaScript to create an innovative platform for oceanographic research.
- The website offers two functionalities: Visualization and Analysis.
 - Visualization** allows users to explore pre-existing simulations of critical oceanic factors through embedded resources, enhancing accessibility to complex data.
 - The **Analysis** section provides detailed insights, including CTD profiles, TS diagrams, transect profiles, and a decade's worth of data trends, supporting scientific and environmental studies.
- We have also integrated a chatbot feature that helps navigate to desired section and answer common doubts.



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Challenges Faced in Project

1. Data Integration: Merging diverse data sources such as python flask and the front end.
2. API availability: APIs of other data sources are expensive or if free - are invalid or too complex to implement.
3. Scalability: Expanding platform capabilities.
4. Time Constraints: Was hard to balance college academics along with the project development.
5. Cost Constraint

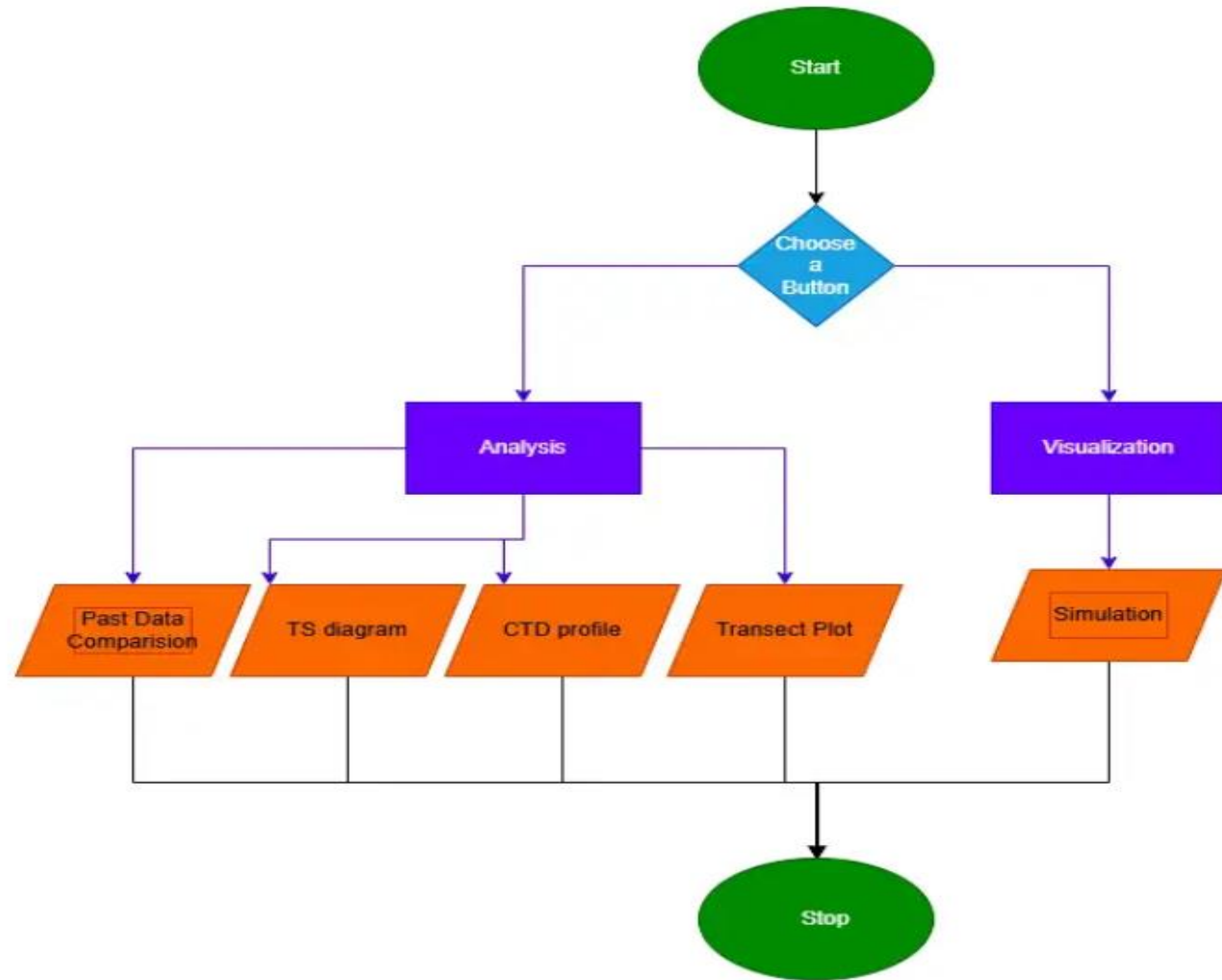


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Circuit/Block Diagram



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Results and Discussions

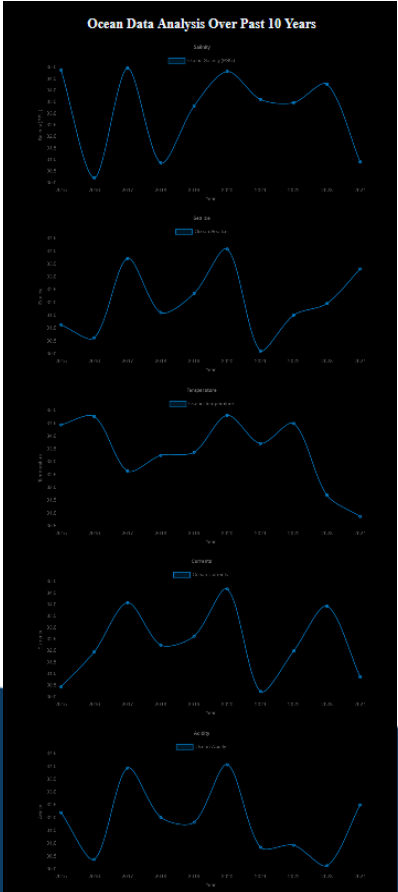
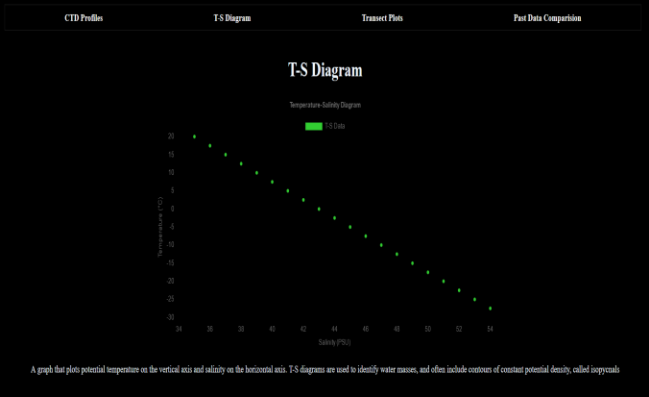
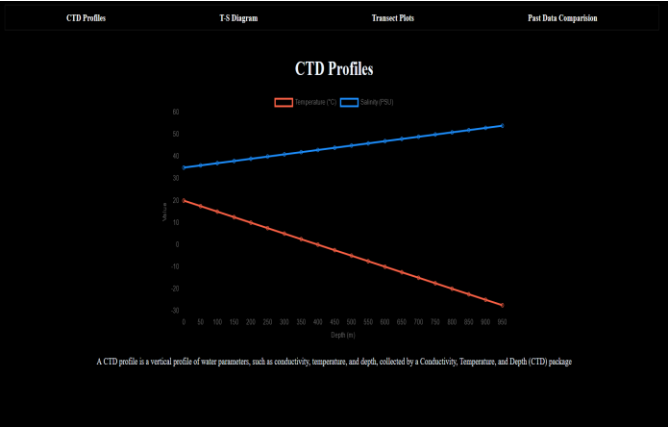
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Report Video

DEEP SEA
DATA ANALYSIS AND
DATA VISUALISATION

Analysis
Visualisation

Chatbot



Chatbot

You: hey

Bot: Hello!

You: What is the current sea temperature?

Bot: The current sea temperature is 3°C.

You: How is the salinity level in the ocean today?

Bot: The current salinity level is 34.9 PSU.

What is the current sea temperature?

How is the salinity level in the ocean today?

Can you predict future temperature trends?

What are the causes of ocean currents?

Type your question here

Send

Chatbot

Q&A



Thank you !!



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