IBM Hack Challenge - 2023

Report on

Project Topic : Eco App Plug and Power

Project Domain : Cloud Development

Team Name : Marvel Coders

Team Members :

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- **Sam Jacob**

1 - INTRODUCTION

1.1 Overview

A brief description about your project

- The proposed solution, "Plug & Power: Revolutionizing the Road," is a comprehensive approach to address the challenges of electric vehicle (EV) charging infrastructure.
- This solution aims to provide accurate, real-time information about charging stations, making the transition to electric mobility smoother and more convenient for EV owners.
- By encouraging the use of electric vehicles and enhancing access to charging infrastructure, the solution aims to contribute to a greener and more sustainable future on the roads.

1.2 Purpose

The use of this project. What can be achieved using this.

- **Charging Station Information:** Users can access detailed information about available charging stations, including location, charging type (fast, regular, superfast), charging speed, and compatible EV models.

- **Mobile Application:**A user-friendly mobile app will be developed for both iOS and Android platforms, ensuring easy access to the platform's features.

2 - LITERATURE SURVEY

2.1 Existing problem

Existing approaches or method to solve this problem

- Electric Vehicle station apps have become crucial for the electric Vehicles user .
- Incomplete or outdated information ,Limited coverage , Payment and Billing issues, Connectivity issues etc are some of the problems and challenges being faced by the users .
- A huge crowd will be created , if not notified the customers properly about the availability of charging ports and slot availability.
- These situations may cause **stress** for the people who run the Charging stations as they have to maintain time management for the customers pleasant service .

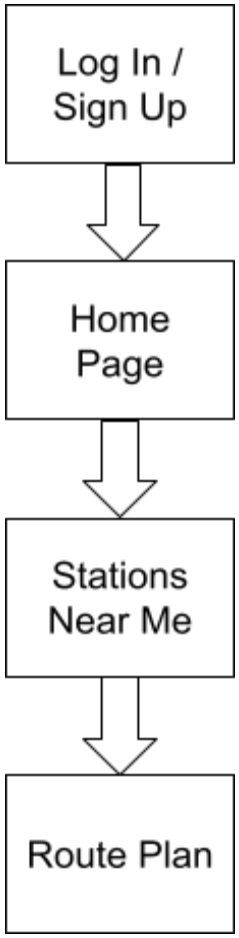
2.2 Proposed solution

What is the method or solution suggested by you?

- **Real-time Availability:** The platform will provide real-time updates on the availability of charging stations, helping users plan their charging stops efficiently.
- **Route Planning:** Users can input their destination, and the platform will calculate whether their current battery charge is sufficient to reach the destination or if a charging stop is needed along the way.
- **Charging Station Ratings and Reviews:** Users can provide ratings and reviews for charging stations based on their experiences, helping others make informed decisions.
- **Billing and Payment:** The platform will display pricing information for each charging station and enable users to make payments seamlessly through various payment methods.
- For every page : log in , sign up , home page , Route Plan and Stations near me we used **HTML**, **CSS, Java Script** . The use of IBM cloud to connect it with the database.

3 - THEORETICAL ANALYSIS

3.1 Block diagram



3.2 Hardware / Software designing :

Hardware requirements of the project :

- I3 or rayzen 3 processor
- 4 gb ram
- 2gb graphics card
- Windows or Mac or linx

Software requirements of the project :

FRONT END - HTML , CSS , Javascript , Flask

BACKEND - Flask , Javascript

DATABASE - IBM Cloud

4 - EXPERIMENTAL INVESTIGATIONS

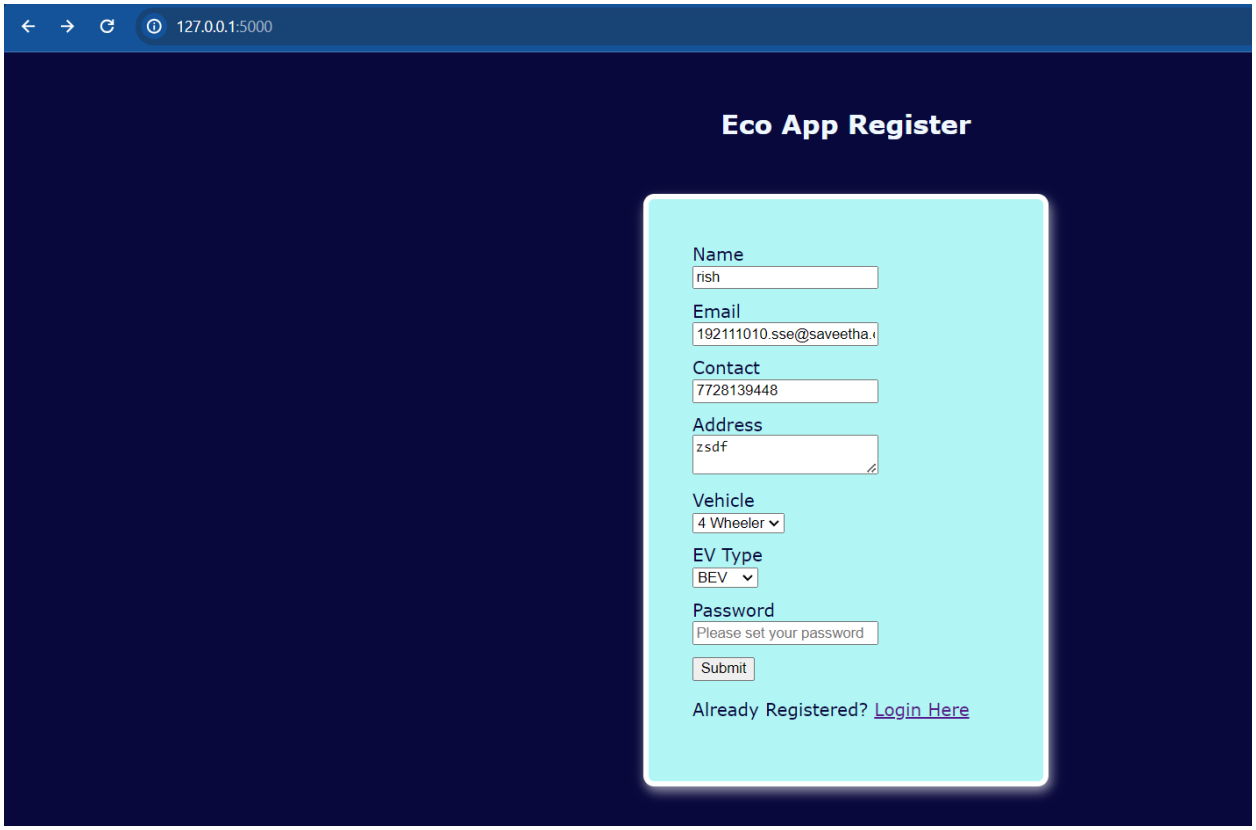
Analysis or the investigation made while working on the solution.

- So while shaping an idea about how to create a website for the proposed project , we visited a lot of websites for referrals to study about any pre existing solutions and how to make a more advanced and useful model other than the existing one .
- To check the working of the app we created , we entered to get the proper prediction of the entry and exit of the route plan .

5 - FLOWCHART

Diagram showing the control flow of the solution

6 - RESULT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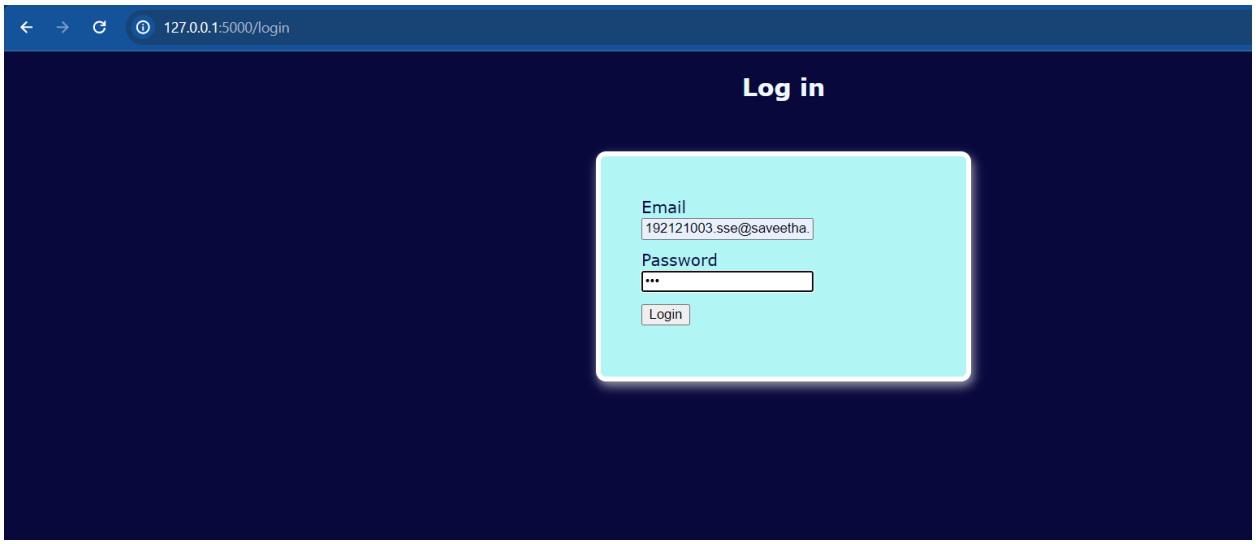
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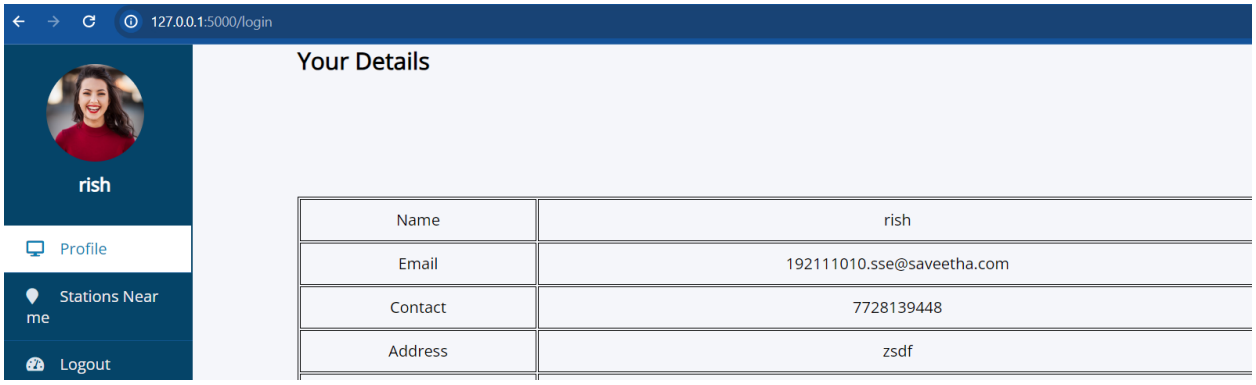


7 - ADVANTAGES & DISADVANTAGES

ADVANTAGES :

- Real time integration of slot availability to charge .
- Route planning to have knowledge about the charging stations on the way.
- To make a reservation for charging what type of vehicle .
- Having reviews about the stations and users can add feedback .

DISADVANTAGE :

- The user needs to enter the details manually.

8 - APPLICATIONS

The areas where this solution can be applied

The website we designed can be used by

- Electric Vehicle Owners.

The station location in the app will be useful for the users to review and book a slot according to their flexibility to charge their vehicle.

9 - CONCLUSION

Conclusion summarizing the entire work and findings.

1. **Charging Station Information:** Users can access detailed information about available charging stations, including location, charging type (fast, regular, superfast), charging speed, and compatible EV models.

2. **Real-time Availability:** The platform will provide real-time updates on the availability of charging stations, helping users plan their charging stops efficiently.

3. **Route Planning:** Users can input their destination, and the platform will calculate whether their current battery charge is sufficient to reach the destination or if a charging stop is needed along the way.

4. **Charging Station Ratings and Reviews:** Users can provide ratings and reviews for charging stations based on their experiences, helping others make informed decisions.

5. **Billing and Payment:** The platform will display pricing information for each charging station and enable users to make payments seamlessly through various payment methods.

6. **Mobile Application:** A user-friendly mobile app will be developed for both iOS and Android platforms, ensuring easy access to the platform's features.

10 - FUTURE SCOPE

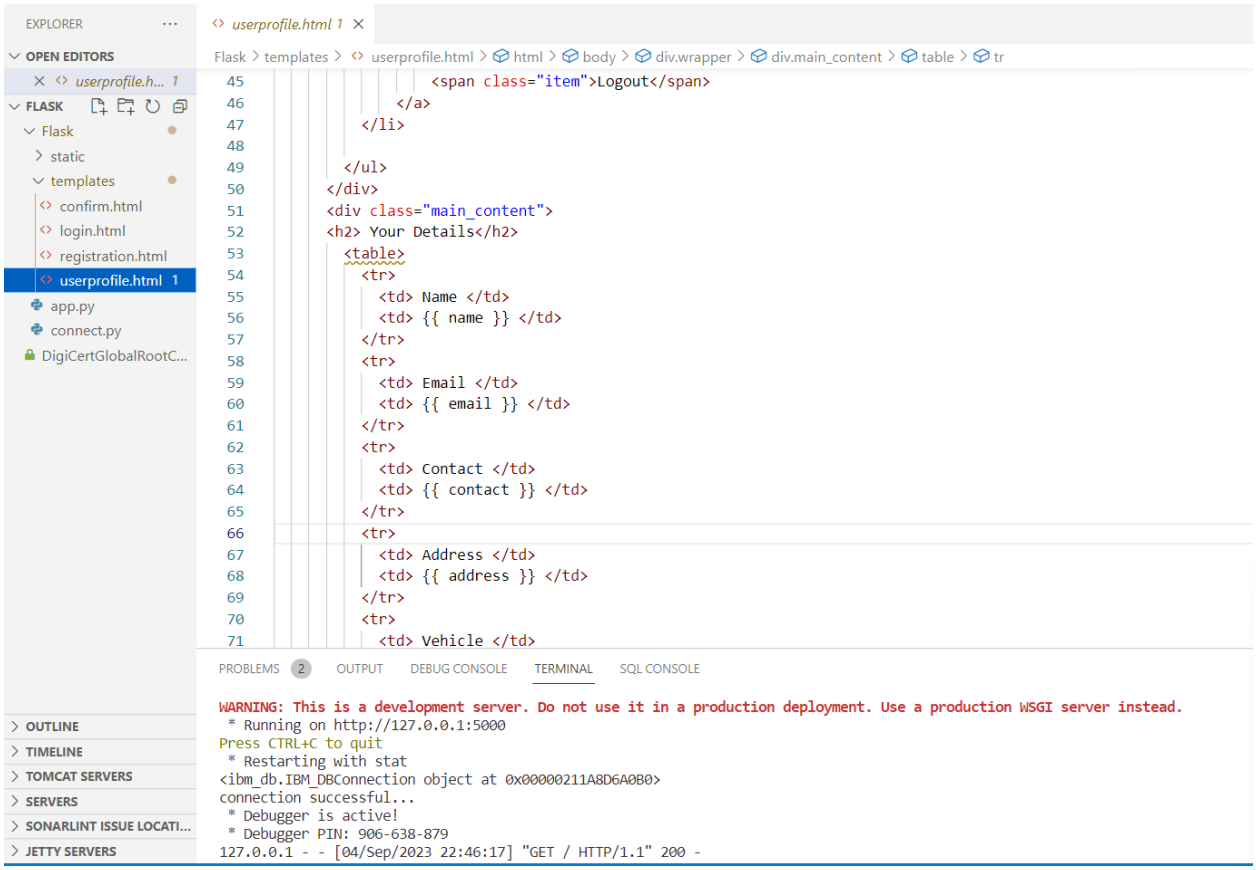
Enhancements that can be made in the future.

- To connect with the electric vehicle and **notify** the users regarding its current charge and how long it will last to reach the destination without recharging it .
- To give an alert if the battery of the electric vehicle is too hot .

11 - APPENDIX

A. Source Code Attach the code for the solution built.

Code Sample :



Source Code Link :

https://github.com/smartinternz02/SBSPS-Challenge-10746-1692441721

Demonstration Link :

http://127.0.0.1:5000/

https://www.figma.com/proto/L3uXrlk9WmkcxsBDZQGuX6/IBM-_-ECO?type=design&node-id=1-64&t=zivrxiDSFP1pDJMS-1&scaling=scale-down&page-id=0%3A1&mode=design