

# **Oilzocone-Fuel Booking App**

*Project Progress report submitted*

*To*

**MANIPAL ACADEMY OF HIGHER EDUCATION, MANIPAL**



*in partial fulfilment of the requirements for the award of degree of*

**MASTER OF COMPUTER APPLICATIONS**

**By**

**Armaan Tiwari (230970018)**

Under the guidance of

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**April 2025**

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# Offer Letter



## CYPWNG SOFTWARE TECHNOLOGIES

Let's Automate the World Together

Dear Armaan Tiwari,

We are pleased to offer you the position of **Software Developer (AI Specialist) Intern** at **CYPWNG Software Technologies Pvt. Ltd.**, beginning on **17 February 2025**.

### Details of the Internship:

Position : **Software Developer(AI Specialist) Intern**  
Office Location : Oval Building, Hi-Tech City, Hyderabad  
Start Date : 17<sup>th</sup> February 2025  
Duration : 4-6months  
Reporting To : Developer – Ujwala/Ragini or Pavani

### Responsibilities:

As a Software Developer(AI Specialist) Intern, you will:

- Collaborate with the development team on ongoing projects.
- Develop and test software applications as per project requirements.
- Participate in code reviews and team discussions.
- Learn and adapt to the tools and technologies used within the company.

### Terms and Conditions:

- You are expected to work [6 hours, e.g., Monday to Friday, 10:00 AM to 4:00 PM].
- Confidentiality of company data and projects must be maintained at all times.

Please confirm your acceptance of this offer by signing and returning a copy of this letter by 17<sup>th</sup> February 2025.

We look forward to welcoming you to the team!

### Candidate's Acceptance

I, **Armaan Tiwari**, accept the offer of internship as **Software Developer(AI Specialist) Intern** at **CYPWNG Software Technologies Pvt. Ltd.**

Signature: \_\_Armaan\_\_

Date: \_\_17-02-2025\_\_



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## 1. Introductions

In today's fast-paced and environmentally conscious world, access to sustainable fuel solutions and efficient energy services has become increasingly vital. Individuals and communities often face challenges in locating fueling stations, staying updated on fuel prices, or finding eco-friendly alternatives like electric vehicle charging stations. As green initiatives gain momentum, there is a significant demand for digital platforms that provide real-time fuel-related information, promote sustainability, and support user convenience.

This project, titled “**Oilzocone – Fuel & Energy Navigator with Smart Station Locator**”, is designed to address these modern-day challenges by offering a comprehensive solution for managing fuel services, promoting eco-conscious decisions, and simplifying the search for nearby stations. It combines both frontend and backend technologies to deliver a seamless user experience that is interactive, informative, and geared towards sustainable living.

The application includes features such as dynamic location-based station finders, fuel type categorization, live fuel price updates, eco-friendly product listings, and green initiative pages. Users can also take advantage of secure OTP-based login and registration, contributing to both user safety and platform integrity. With real-time map integration and intuitive navigation, Oilzocone bridges the gap between technology and sustainability.

The project is undertaken as part of the academic curriculum for **MCA 5291 – Project Work & Practice School** under the **Department of Data Science & Computer Applications, MIT Manipal**. It is being developed in collaboration with **CYPWNG Software Technologies Pvt. Ltd.**, offering a valuable opportunity to work on a real-world application with practical industry use.

Under the guidance of **Mr. Vinay Veergani**, the project covers multiple functional modules including:

1. A **Fuel & Energy Station Locator** integrated with OpenStreetMap using **Leaflet.js** for users to find nearby petrol, diesel, CNG, biofuel, and EV stations.
2. An **OTP-based Authentication System** for secure and user-friendly login and registration.
3. **Django and MySQL integration** for efficient data management and dynamic content delivery.
4. Additional modules such as **Green Initiatives, Deals & Discounts**, and **Community Engagement Pages**, to support sustainability and user interaction.

The goal of this project is not only to demonstrate technical proficiency in web development and geolocation services but also to create a meaningful platform that empowers users with real-time fuel information and green choices.

## 2. Problem Definition

### 2.1 Challenges

- Integrating interactive geolocation features (using Leaflet.js and OpenStreetMap) for real-time station locating.
- Developing OTP-based login and mobile/email verification for secure authentication.
- Ensuring smooth data flow and dynamic rendering between Django backend and MySQL database.
- Designing an intuitive UI/UX for multiple modules like Fuel Types, Green Initiatives, and Deals & Discounts.
- Managing dynamic content updates for station data, fuel prices, and eco-product listings.

### 2.2 Project Scope

The Oilzocone platform is divided into multiple major modules:

- **Fuel & Energy Locator** system using Django and MySQL.
- **Green Initiatives** section to promote eco-friendly living and sustainability awareness.
- **Deals & Discounts** and **Community** modules for user engagement.
- **Secure Authentication** using OTP verification.
- **Interactive Map-based Navigation** for petrol, diesel, CNG, biofuels, and electric vehicle stations.

### 2.3 Project Perspective

This project provides a scalable, web-based platform aimed at enhancing public access to fuel and energy-related services with a sustainability focus. It aims to modernize how users locate fuel stations, get price updates, and participate in green movements — all in one seamless application.

### 2.4 Project Functionality

- Real-time fuel station locator with map-based UI.
- Category-based navigation for Petrol, Diesel, Natural Gas, Biofuels, and EV Charging.
- Green initiative modules like Tree Planting, Urban Farming, and Recycling.
- Live updates for fuel pricing and offers.
- OTP-based secure login and registration.
- Responsive layout with optimized performance across devices.
- MySQL-based backend for efficient data storage and retrieval.
- Separate modules for Sign-up, Login, Company Info, and User Dashboard.

## 2.5 Software Requirements

1. **Frontend:** HTML, CSS, JavaScript, Tailwind CSS
2. **Framework:** Django (Python), Leaflet.js for maps
3. **Backend:** Django Framework (Python)
4. **Database:** MySQL
5. **Tools:** Visual Studio Code, GitHub, DB Browser for MySQL, Canva/Figma (for UI Design)

## 2.6 *Hardware Requirement*

1. Processor: Intel i5 or above
2. RAM: 8 GB or above
3. Disk Space: Minimum 500 MB free
4. Operating System: Windows 10 or above

### 3. Objectives

- To design and develop a comprehensive fuel and energy service platform using Django and MySQL that enables users to access information on various fuel types (petrol, diesel, natural gas, biofuels, and electric charging stations) and locate nearby fueling stations efficiently.
- To integrate an interactive station locator using Leaflet.js and OpenStreetMap that helps users visually identify and navigate to the nearest fuel or electric charging station based on real-time geolocation data.
- To provide a centralized system combining eco-awareness resources, fuel price comparisons, tree-planting initiatives, and green product deals, thereby promoting sustainability and informed fuel usage.
- To implement a responsive and intuitive user interface using HTML, CSS, and JavaScript with Tailwind CSS and Bootstrap, ensuring seamless access and usability across various devices.
- To develop secure user authentication systems using OTP-based login and email/password methods, including OTP verification during sign-up for improved security and user validation.
- To ensure that all user data, including login details, station information, and green activity participation, is securely stored and managed using structured MySQL databases integrated with Django ORM.
- To thoroughly test all modules including login, signup, OTP verification, station locator, and fuel price updates, ensuring performance, usability, and deployment-readiness in a local or production environment.
- To provide a practical, real-world digital solution that enhances convenience in fuel access, promotes sustainability, and offers an educational experience aligned with industry standards and academic learning objectives.



## 4. Methodology

### 4.1 Application Development:

*Set up the project environment using Django and React. Backend development using Django for managing user registration, login (with OTP/email), fuel categories, station locators, and green initiatives.*

*Frontend development using HTML/CSS/JavaScript for basic UI and React for map-based station locator and pricing sections.*

### 4.2 Database Management:

- Created a MySQL database with multiple tables: Users, FuelCategory, FuelStation, GreenInitiatives, OTP Verification.
- Connected the database to Django using Django ORM.
- Enabled dynamic population of dropdowns and forms for fuel type, station selection, and eco-friendly activities.

### 4.3 Testing and Deployment:

- Performed unit testing on all modules (Login, Signup, OTP, Station Fetch, Map Rendering).
- Conducted integration testing across login workflows and station data.
- Deployed the Django project locally using the development server
- UI was tested and improved based on mentor's and user feedback.

### 4.4 Sequence Diagram

A sequence diagram was conceptualized and used during design:

- Actor initiates login or signup request.
- System fetches data from DB or sends OTP.
- User inputs are validated and stored securely.
- On success, confirmation is shown.
- User proceeds to use map locator or explore deals with a React-based UI interface.

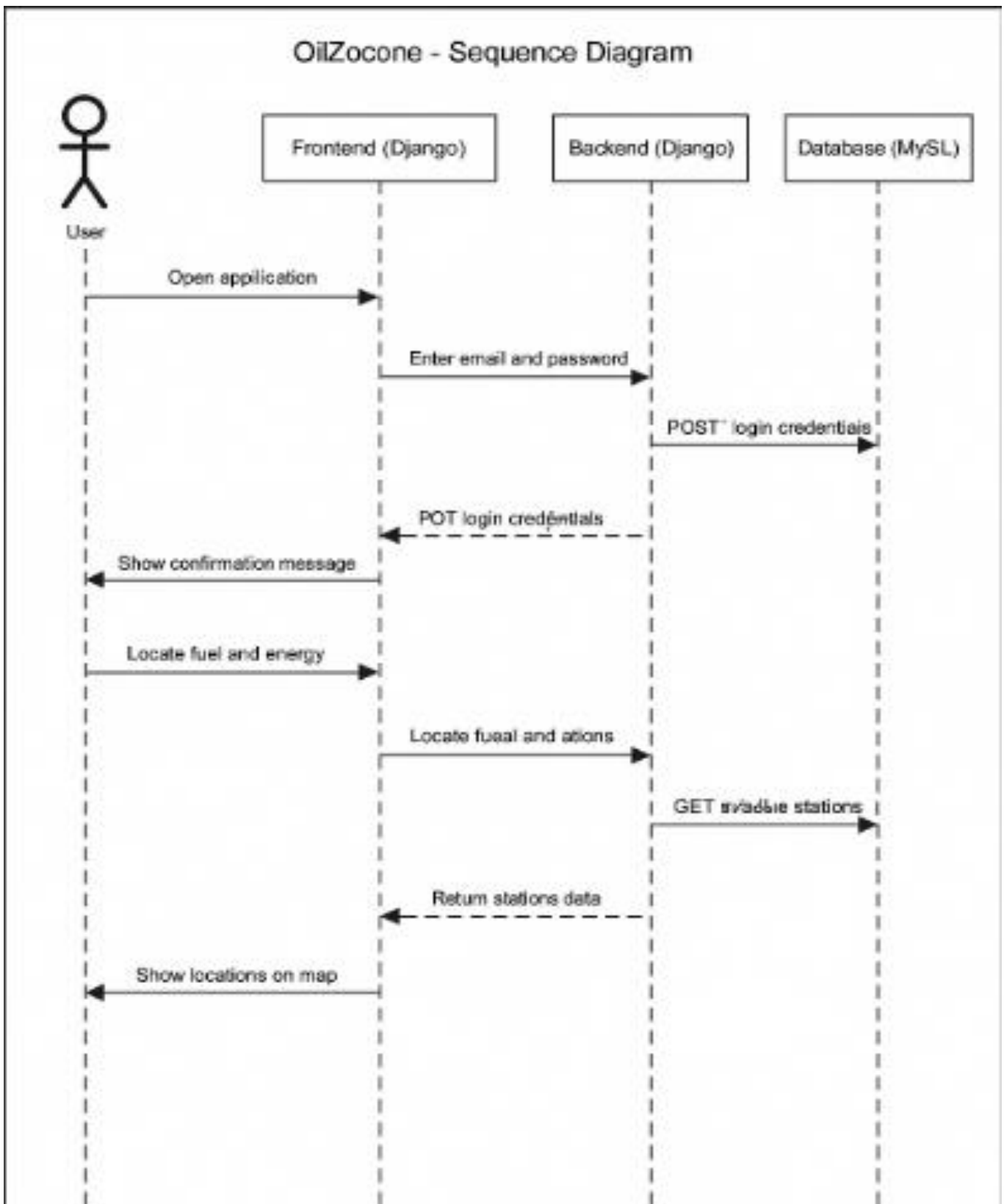


Fig 1: Sequence diagram

## 5. Work done so far

- Completed backend development for user authentication and MySQL database integration.
- Designed and structured responsive frontend pages like Login, Signup, Home, and Fuel & Energy sections.
- Integrated dynamic navbar with dropdowns and user-specific views post-login.
- Developed OTP-based login and secure password handling features.
- Created footer with company info, support, social links, and download app section.
- Deployed the entire Django project with static file handling and local database setup.
- Learned and implemented Django, Tailwind CSS, and modern frontend principles for seamless UX/UI.

**Fuel & Energy** **Green Initiatives** **Deals** **Community**

## Login to Oilzocone

**Email:**


**Password:**

**Login**

[Forgot Password?](#)



OR

**Mobile Number:**

 **+91**

**Send OTP**

OR

Do not have an account? [Sign up](#)

Fig 2: Login Page

3, trip

Search

Fuel & Energy

Green Initiatives

Deals

Community

About Us

Login

Strength: Weak

Confirm Password

Confirm your password

Send OTP

Enter OTP

☐ I agree to the [Terms & Conditions](#)

Sign Up

Already have an account? [Login](#)





Quick Links

Refund Policy





FAQs




Customer Support

Social Media





Payment Methods





Download Our App



Currency Converter

Phone App

Support

Department of Data Science and Computer Applications, MIT, Manipal



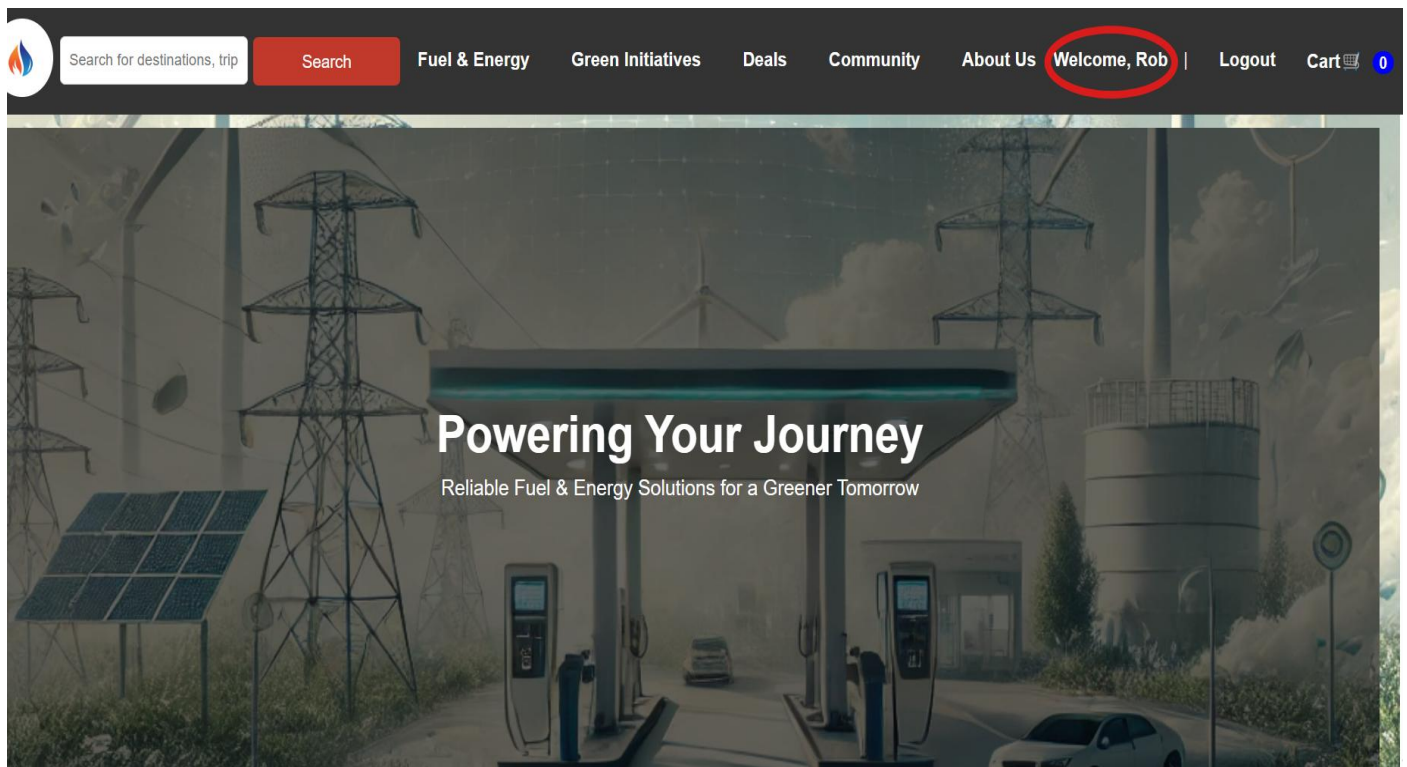


Fig 4 User Dashboard – Post Login Welcome Screen after login you are redirected to this page.

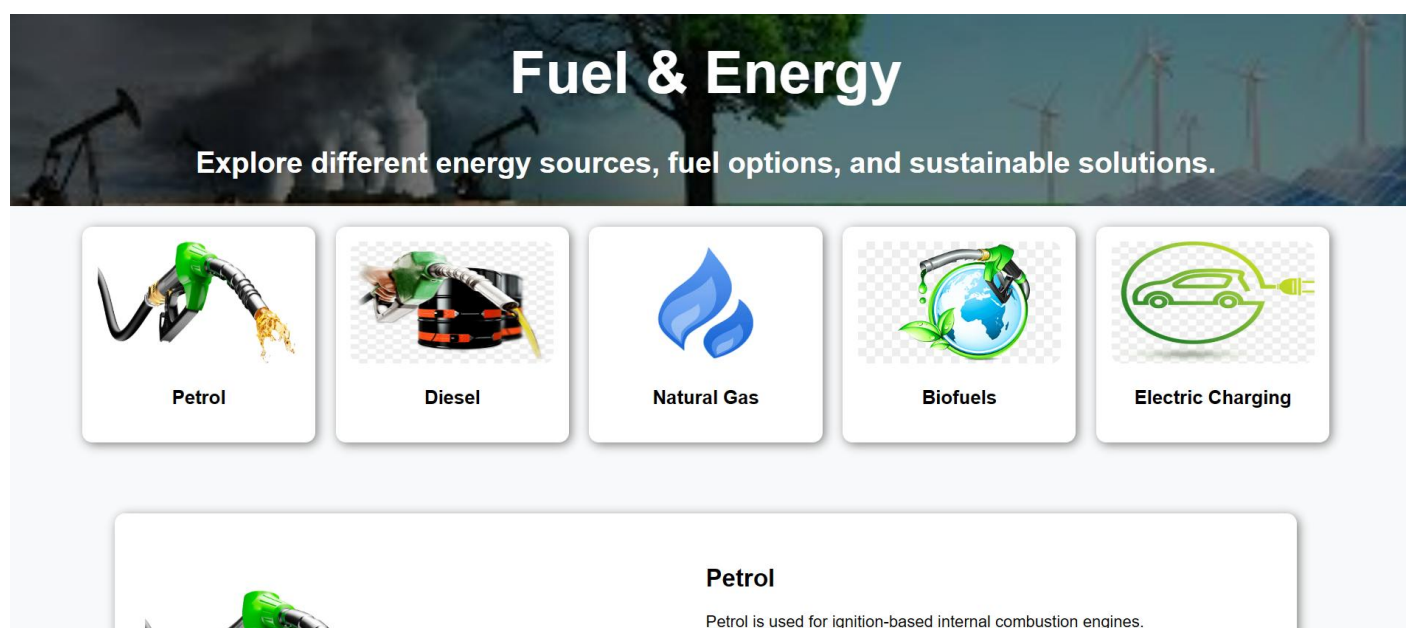
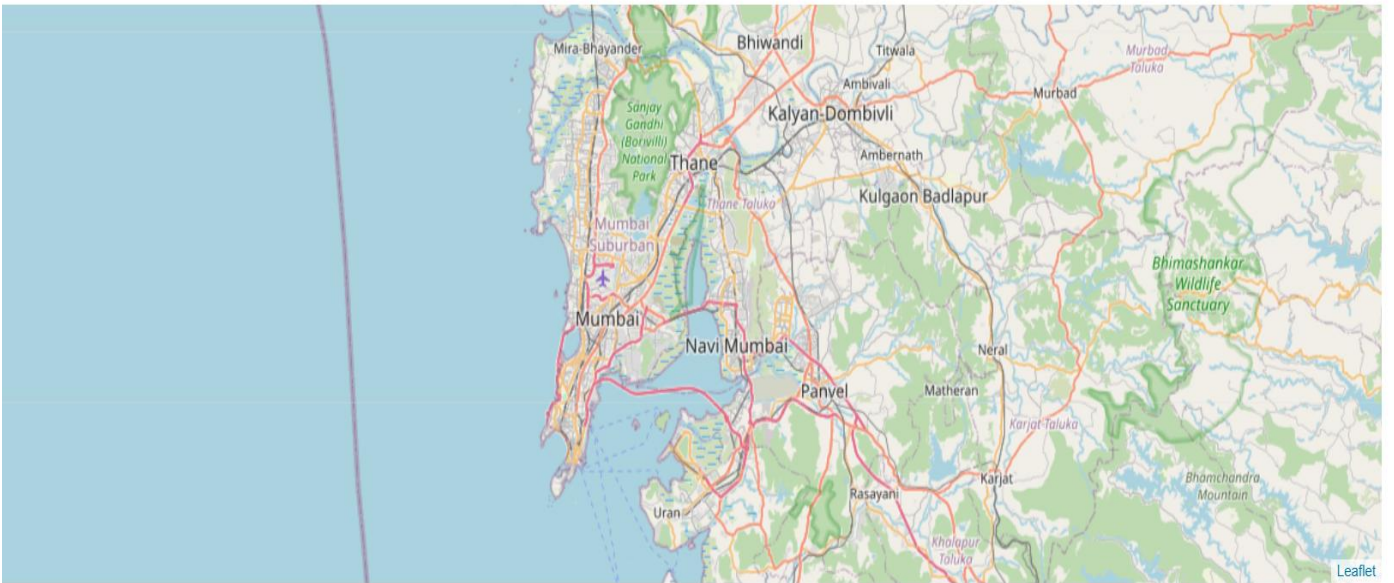


Fig 5: Fuel & Energy Main Page – Categories (Petrol, Diesel, Electric, Biofuel)

## Find a Fuel Station

Mumbai



Station Locator Page – Integrated with Leaflet.js Map . Over here you have to put your req city and it will redirect you there

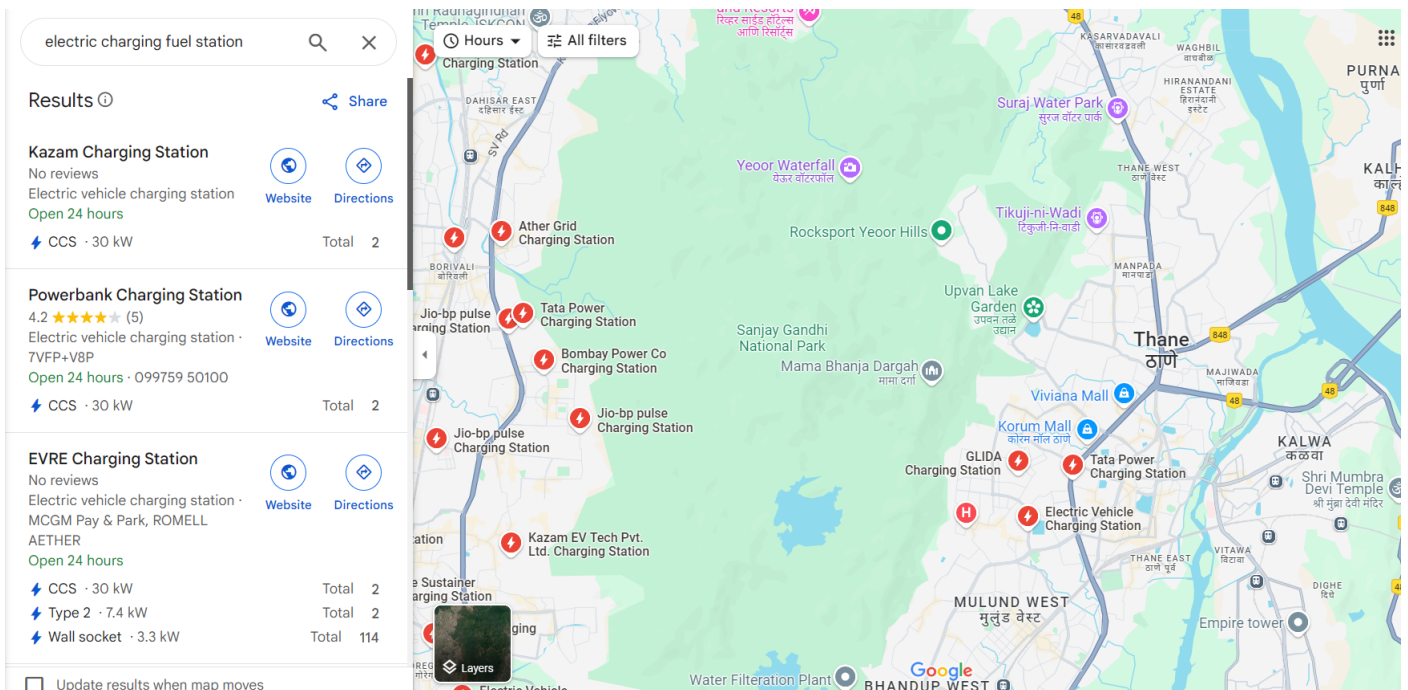


Fig 7: Live Map Display Showing Nearby Fuel Stations. Different for different categories eq-Petrol,EVetc

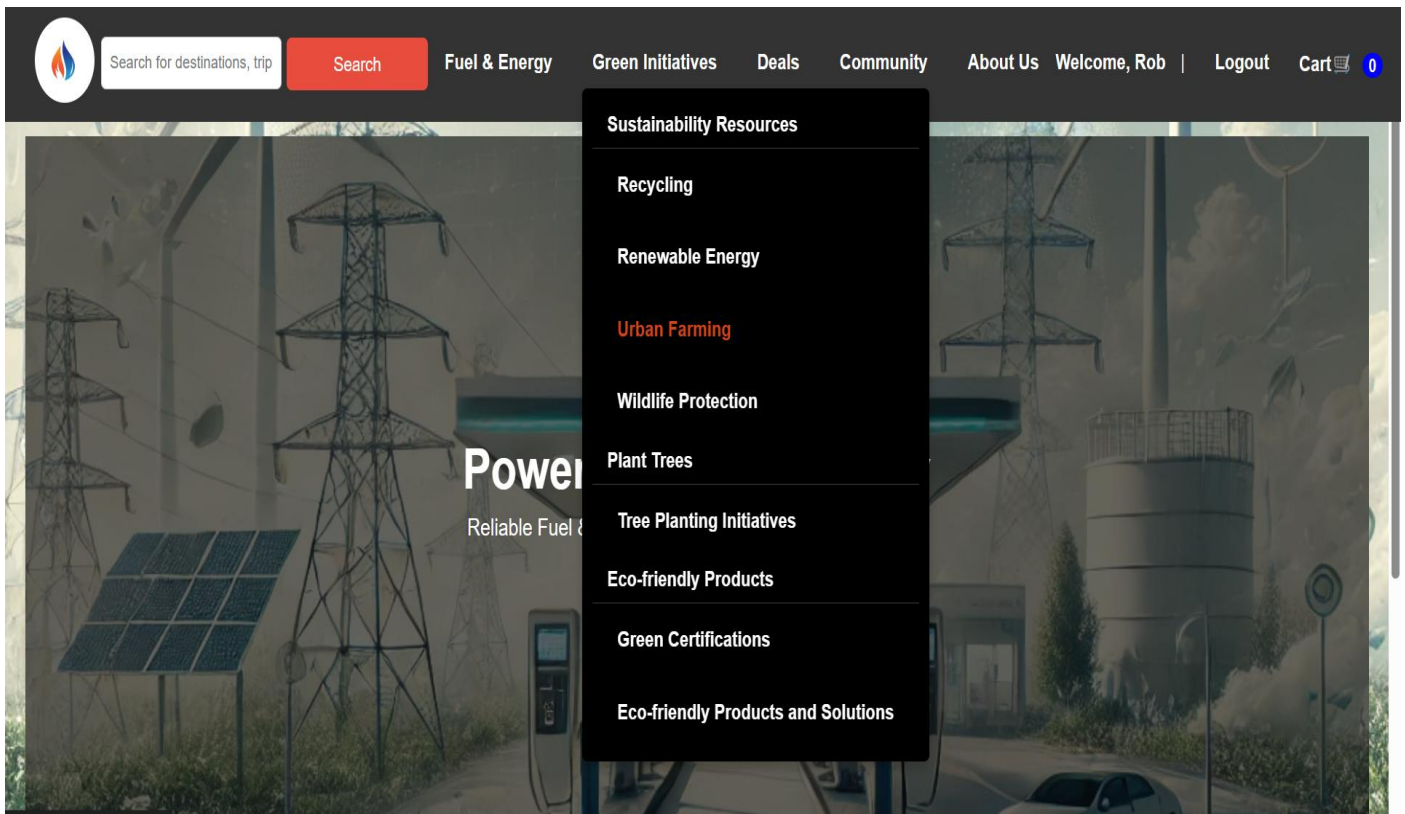


Fig 8 Navbar with Cart Icon, Login Button, and Dropdown Menus

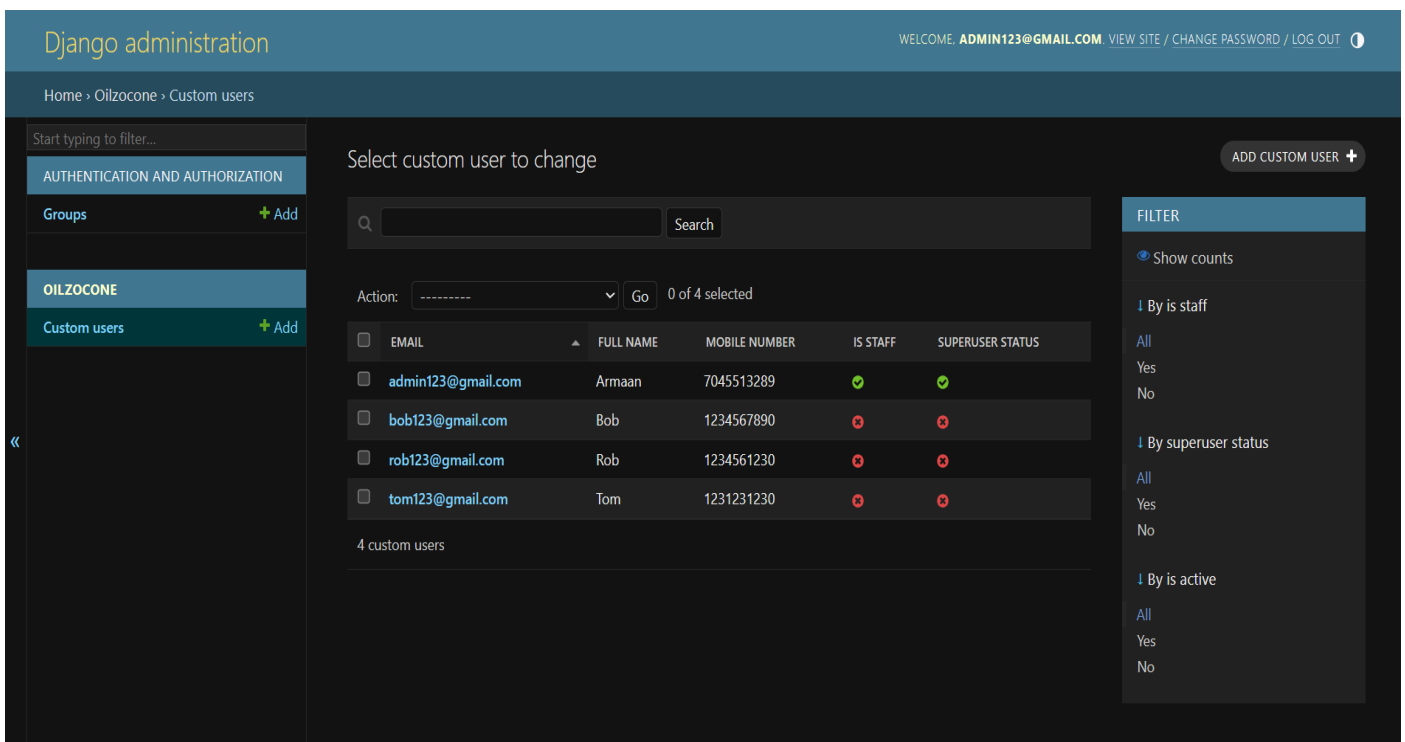


Fig 9: Django Admin Panel with all the user logged in and their information



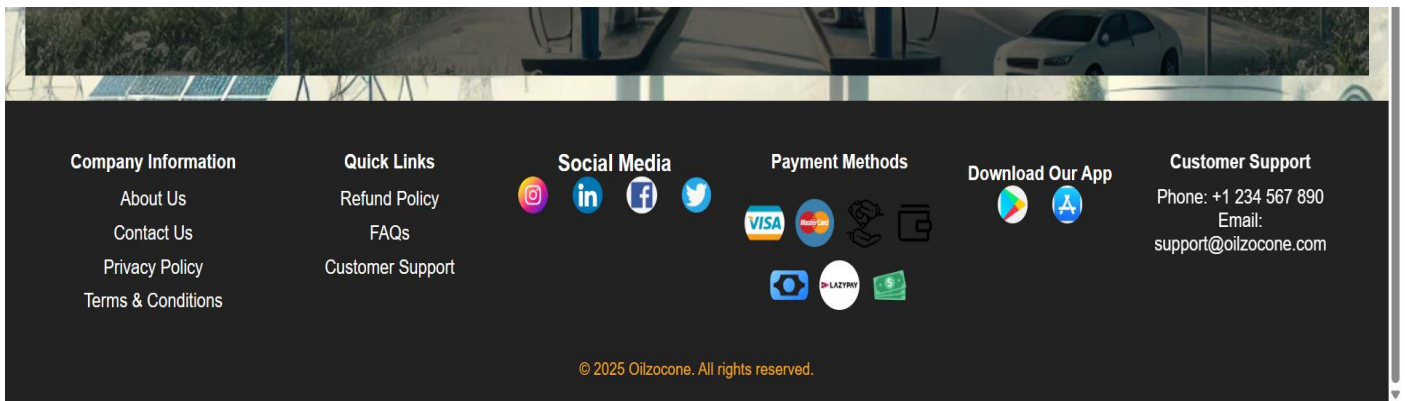


Fig 10-footer

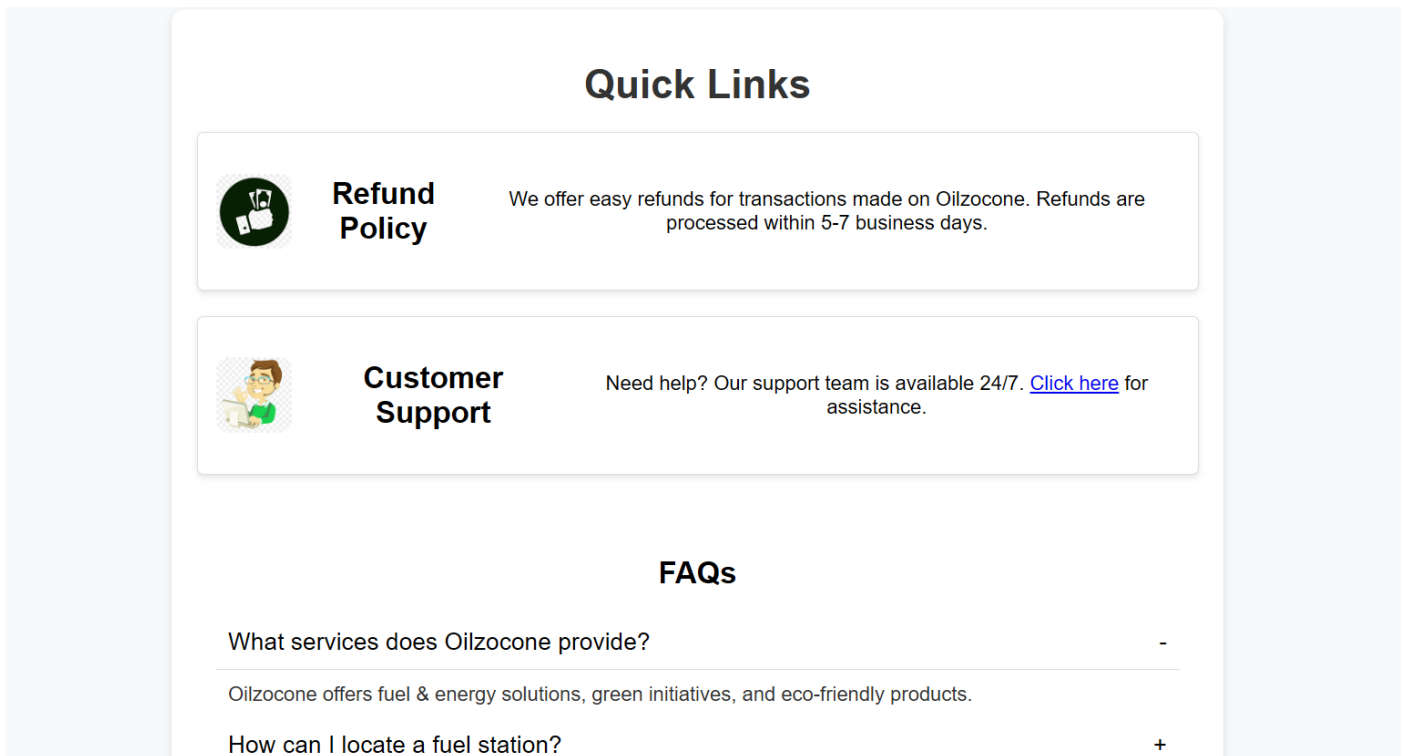


Fig 10.1-Footer Section – Quick Links, Support, Social Icons, App Download

Navigator: SCHEMAS

Filter objects

oilzocone\_db

- Tables
  - auth\_group
  - auth\_group\_permission
  - auth\_permission
  - django\_admin\_log
  - django\_content\_type
  - django\_migrations
  - django\_session
  - myapp\_payment
  - oilzocone\_customuser
  - oilzocone\_customuser
  - oilzocone\_customuser
- Views
- Stored Procedures
- Functions

Administration Schemas

Information

No object selected

Query 1 x

Limit to 1000 rows

1 • SELECT \* FROM oilzocone\_customuser;

Result Grid

	id	password	last_login	is_superuser	full_name	email	mobile_number	otp	is_verified	is_staff	is_active
▶	1	pbkdf2_sha256\$870000\$mXFzIgUN4qIP16izCEb...	2025-04-02 02:12:15.016724	0	Bob	bob123@gmail.com	1234567890	685729	0	0	1
	2	pbkdf2_sha256\$870000\$osaJRlwKh27pA96hpq...	2025-04-07 17:18:05.104367	0	Rob	rob123@gmail.com	1234561230	NULL	0	0	1
	3	pbkdf2_sha256\$870000\$2KdGdO4vdhQFBohtzf...	2025-04-07 17:32:22.424415	1	Armaan	admin123@gmail.com	7045513289	NULL	0	1	1
	4	pbkdf2_sha256\$870000\$zCCidGv50BsaTWOJ1...	2025-04-02 05:45:36.957354	0	Tom	tom123@gmail.com	1231231230	NULL	0	0	1
•	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Result Grid

Form Editor

Field Types

\_customuser1 x

Apply Revert

Output

Action Output

#	Time	Action	Message
1	23:08:12	SELECT * FROM oilzocone_customuser LIMIT 0, 1000	4 row(s) returned

Fig 11: MySQL Database connectivity with all the current users and their information

## 6. Timeline

Date	Activity Description
10/2/25	Project Allotment and Discussion of Oilzocone Scope
11–14/2/25	WAMP & MySQL Setup; Initial PHP Connectivity Check
17–21/2/25	Goal Category CRUD (Create, Read, Update, Delete) Functionalities
24–28/2/25	Login & Sign-Up Pages with Email/OTP Validation
3–7/3/25	MySQL Database Design & Integration with Django Backend
10–12/3/25	Navbar, Footer, and Static Page Layouts (About Us, Contact Us, etc.)
17–18/3/25	UI Revisions: Homepage, Search Bar, Dropdowns, and Cart Enhancements
19/3/25	Final Touch-ups, Report Writing, and Screenshot Collection
20–21/3/25	Sequence Diagram Design and Footer Fix on Login/Signup Pages
24–27/3/25	Station Locator Page + Leaflet.js Integration for Map View
31/3/25	Final Testing, Bug Fixes, and Visual Improvements Across All Pages

## 7. Future Work

- To integrate GPS-based multi-fuel station listings with support for Petrol, Diesel, CNG, and EV Charging, allowing users to locate nearby stations and view real-time service availability.
- To implement interactive AI-powered fuel pricing charts using tools like Chart.js or Recharts, offering users dynamic insights into pricing trends and cost-saving opportunities.
- To build a secure user authentication system enabling customers to sign up, log in, and manage their profiles and fuel orders using technologies like JWT, OAuth, or Firebase Authentication.
- To deploy the Oilzocone platform on a scalable cloud solution (e.g., Firebase Hosting or Render) to ensure real-time access and seamless service performance across devices.
- To enable PDF export functionality for fuel order summaries, subscription plans, and transaction receipts, making it easy for users to save or print records.
- To add smart email notifications that automatically send digital invoices, fuel alerts, and order confirmations to users' registered email addresses.
- To introduce a personalized dashboard where users can track their loyalty points, past orders, preferred stations, and service reviews.
- To implement multilingual support and accessibility features to serve a diverse user base with regional language options and inclusive design.

## 8. Conclusion

The Oilzocone project represents a meaningful advancement toward building a modern, user-focused platform for fuel and energy services. It is designed to simplify access to critical resources like fuel station locators, green energy initiatives, and personalized deals through a cohesive, responsive web interface. By utilizing technologies such as HTML, CSS, JavaScript, Django, and MySQL, the project offers an integrated backend and frontend experience that supports dynamic content and user interaction.

This project addresses the growing need for an eco-conscious, digital-first approach to energy and mobility solutions. It provides users with tools to explore fuel types, locate stations, engage with sustainability efforts, and access exclusive offers—all in one centralized platform. The backend ensures secure data management, while the frontend offers a seamless navigation experience with visually engaging design components.

During development, focus was placed on modular design, responsiveness, and brand consistency across all pages, including login/signup, fuel tracking, and green initiatives. The implemented components have been tested within the planned scope and align with the project's initial objectives, ensuring functional accuracy and user accessibility.

Looking ahead, the platform holds substantial potential for feature expansion. Planned enhancements such as real-time pricing, PDF reports, cloud deployment, and personalized dashboards will greatly increase user engagement and service utility. These features will elevate Oilzocone from a prototype into a full-scale smart fuel and energy assistant.

In conclusion, this project not only satisfies academic requirements but also introduces a practical, scalable solution that bridges technology with sustainable energy access and user convenience in the modern digital ecosystem.

## 9. References

- W3Schools – HTML, CSS, JavaScript, and Django tutorials – <https://www.w3schools.com>
- Django Official Documentation – <https://docs.djangoproject.com>
- MySQL Documentation and Tutorials – <https://dev.mysql.com/doc>
- Font Awesome Icons – <https://fontawesome.com>
- Google Fonts – <https://fonts.google.com>
- Stack Overflow – <https://stackoverflow.com>
- GitHub – <https://github.com>
- Mentor Guidance and Class Lectures

\*\*\* Thank you \*\*\*