



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

RESPONSE TO CITY DISASTER

CS7CS3 Advanced Software Engineering

GROUP 16

TANAY DARDA
SHAUNAK PEDGAONKAR
ASHIQU'R RAHMAN HABEEB RAHUMAN

Introduction

PROJECT SUMMARY

An Initiative to create a solution as for an real-time emergency response to city-scale disasters using software engineering logics.

The goal is to develop a dynamically accessed system with feasible algorithms to adjust to real-time data for effective disaster response.

next

FUNCTIONAL ARCHITECTURE

CENTRAL DESIGN

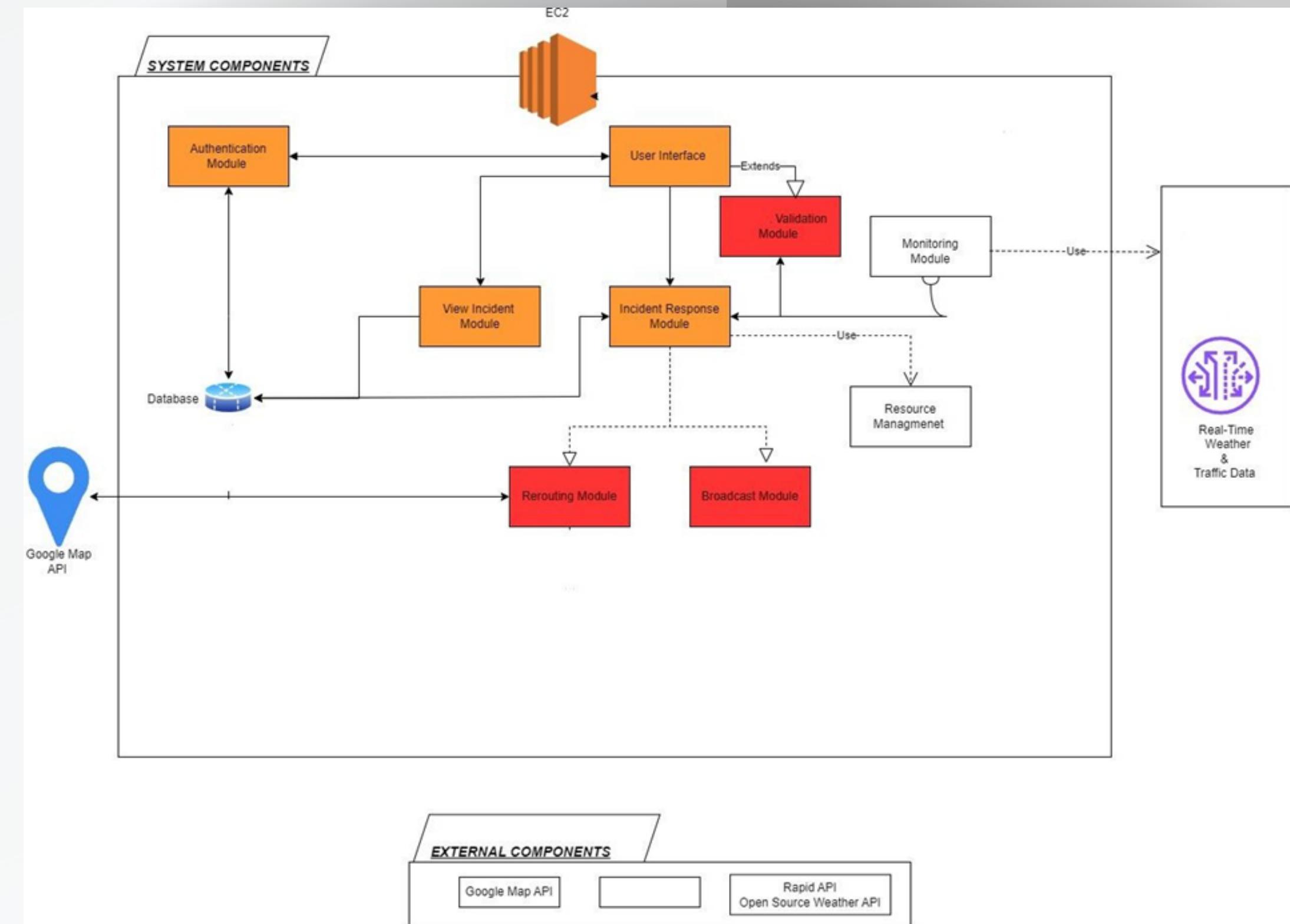
The architecture is designed to handle real-time data efficiently, ensuring swift response to emergency conditions.

CLOUD INTEGRATION

Utilizes AWS for data storage, processing, and scalability.

ROUTING AND SAFETY

Google Maps API for precise routing and real-time update. Integration of Amazon services for analyzing the safer routes.



TECHNICAL ARCHITECTURE

FRAMEWORK

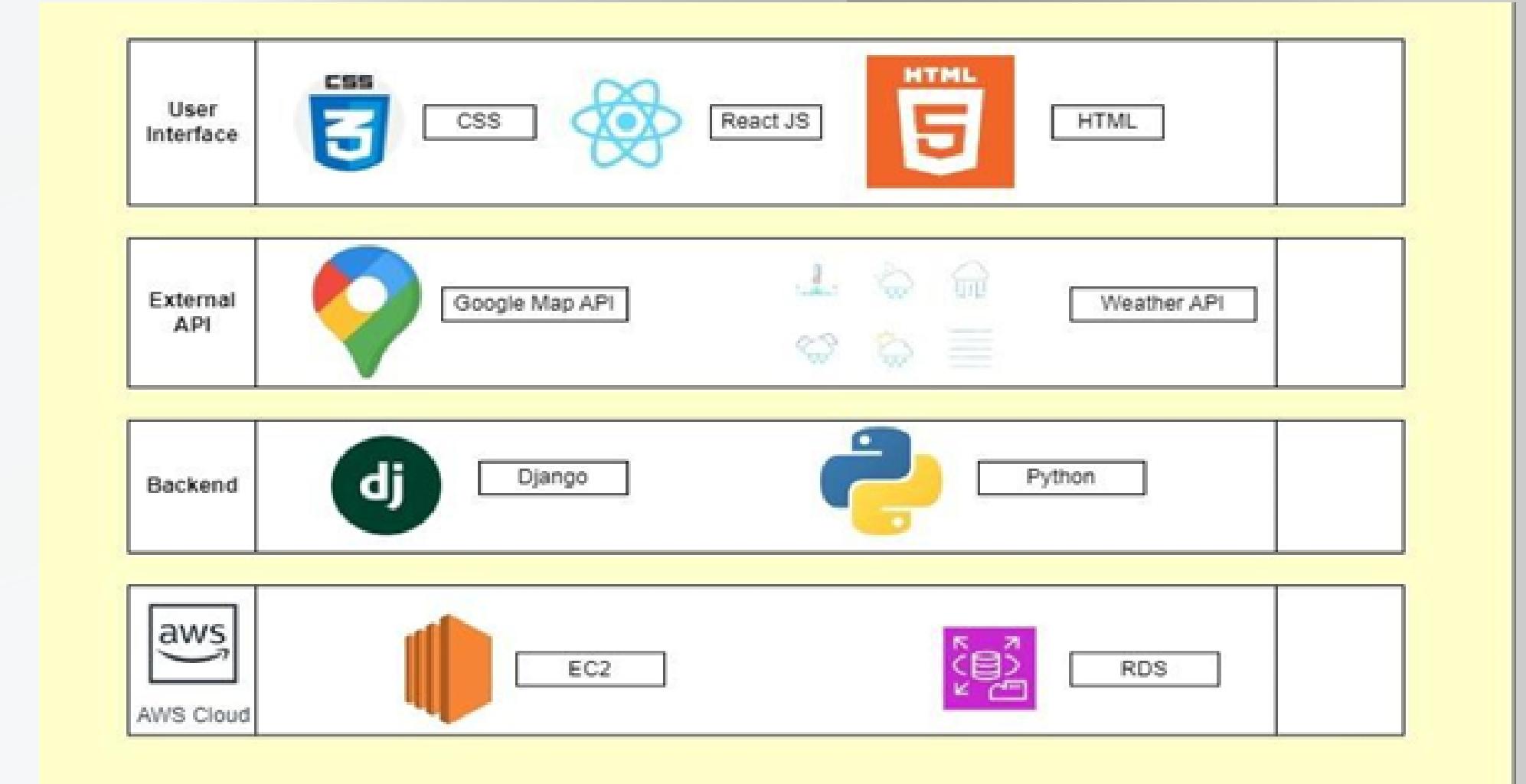
The system is hosted in AWS, leveraging cloud infrastructure for enhanced scalability and flexibility.

DATA MANAGEMENT AND INTEGRATION

Amazon web services is employed for a seamless integration of disparate data sources.

ROUTING AND SAFETY

Google Maps and Amazon Location service aid for safe routing. AWS security measures for data



FEATURES

The screenshot shows the Home Page of a disaster management system. At the top, there's a navigation bar with links for Home, Incidents, Report, Resources, and Help. Below the navigation is a map of Ireland with various locations labeled. A legend indicates different incident types: Transportation Accident (red), Landslide (blue), and Industrial Accident (green). Below the map is a section titled "Most Recent Incident" containing a table:

Location	Type	Description	Date	Status
Dublin	Transportation Accident	qwerty	April 19, 2024, 8:14 p.m.	active
Dublin	Landslide	Test	April 19, 2024, 2:06 p.m.	active
Dublin	Industrial Accident	hgf	April 16, 2024, 6:08 p.m.	active

Below this is a section titled "Disaster Detection Results" with another table:

Location	Sub-Location	Disaster Status	Predicted Disaster Status
Dublin	City Centre (O'Connell Street)	None	None
Dublin	Dublin Docklands (Grand Canal Dock)	None	None
Dublin	Phoenix Park	None	None
Dublin	Malahide	None	None
Galway	City Centre (Eyre Square)	None	None
Galway	Salthill Promenade	None	None
Galway	University Campus (NUIG)	None	None
Galway	Claddagh	None	None

Home Page:

User:

- Display all active Incidents on map.
- Latest 3 Incidents details.
- Incident Warning & Prediction details.

Staff:

- Display all active Incidents on map.
- Latest 3 Incidents details.
- Incident Warning & Prediction details.

FEATURES

Location	Description	Images	Incident Type	Timestamp	Status	Traffic	Impact	Refresh
40 Pearse St, Dublin 2, Ireland	fire breakage	No image available.	Fire	April 16, 2024, 5:48 p.m.	dada	Light Congestion	Mild	
18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	thunderstorm		Storm	April 16, 2024, 6 p.m.	active	Light Congestion	Mild	
8PQR+59 Dublin, County Dublin, Ireland	hgf		Industrial Accident	April 16, 2024, 6:08 p.m.	active	No Impact	Mild	
18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	xx	No image available.	Fire	April 18, 2024, 1:34 p.m.	Inactive	Light Congestion	Mild	
18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	rain		Storm	April 18, 2024, 2:03 p.m.	Inactive	Heavy Congestion	Mild	
7WW9+GR Dublin, County Dublin, Ireland	test	No image available.	Landslide	April 19, 2024, 2:06 p.m.	active	Light Congestion	Severe	
7WW9+GR Dublin, County Dublin, Ireland	test		Flood	April 19, 2024, 2:09 p.m.	false	Heavy Congestion	Severe	
7WW9+GR Dublin, County Dublin, Ireland	qweerty	No image available.	Transportation Accident	April 19, 2024, 8:14 p.m.	active	No Impact	Severe	

Incident Page: USER:

- Display all reported incidents.
- Displays necessary details such as Disaster type, status, traffic status and impact scale.
- Refresh button to synchronize updated incidents.

ID	Location	Description	Images	Incident Type	Timestamp	Status	Traffic	Impact	Modify
1	40 Pearse St, Dublin 2, Ireland	Fire breakage	No image available.	Fire	April 16, 2024, 5:48 p.m.	dada	Light Congestion	Mild	<button>Update</button> <button>Confirm</button>
2	18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	thunderstorm		Storm	April 16, 2024, 6 p.m.	active	Light Congestion	Mild	<button>Update</button> <button>Confirm</button>
3	8PQR+59 Dublin, County Dublin, Ireland	hgf		Industrial Accident	April 16, 2024, 6:08 p.m.	active	No Impact	Mild	<button>Update</button> <button>Confirm</button>
4	18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	xx	No image available.	Fire	April 18, 2024, 1:34 p.m.	Inactive	Light Congestion	Mild	<button>Update</button> <button>Confirm</button>
5	18-19 Lincoln Pl, Dublin 2, D02 VA43, Ireland	rain		Storm	April 18, 2024, 2:03 p.m.	Inactive	Heavy Congestion	Mild	<button>Update</button> <button>Confirm</button>

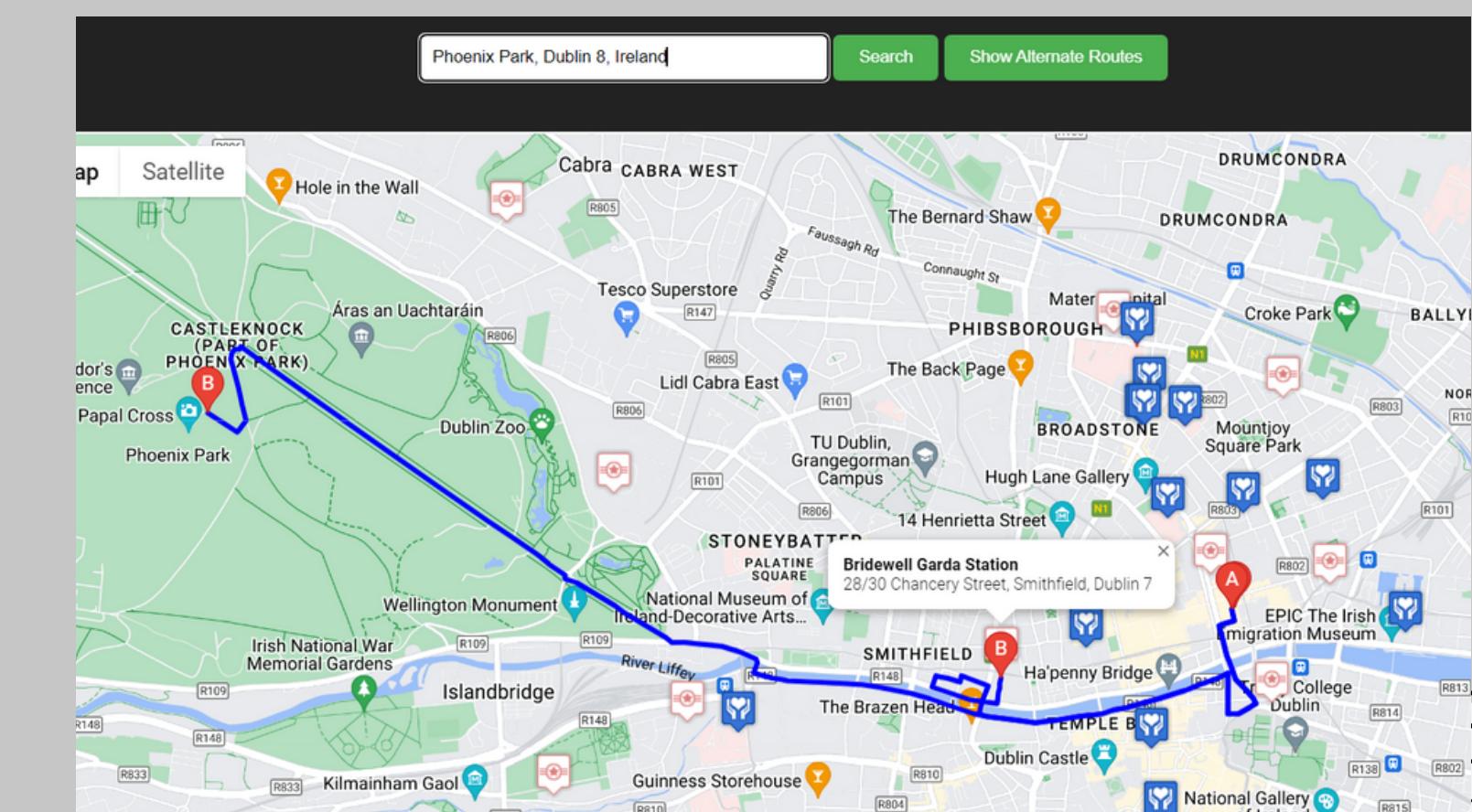
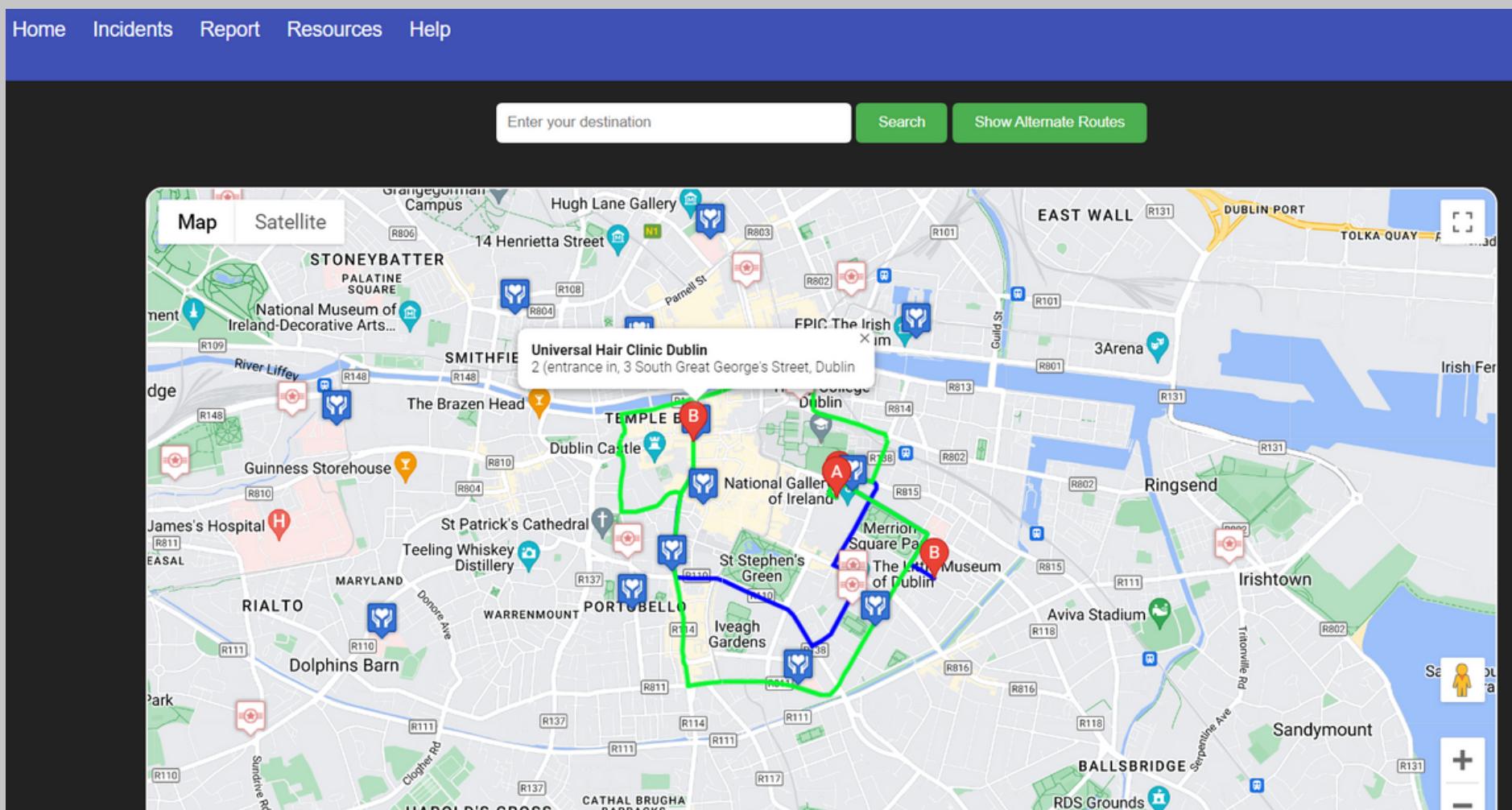
Incident Page: STAFF(ADMIN):

- Display all reported incidents.
- Super admin functions such as 'update', 'confirm' buttons to edit the incident status according to the real-time scenario.
- Refresh button to synchronize updated incidents.

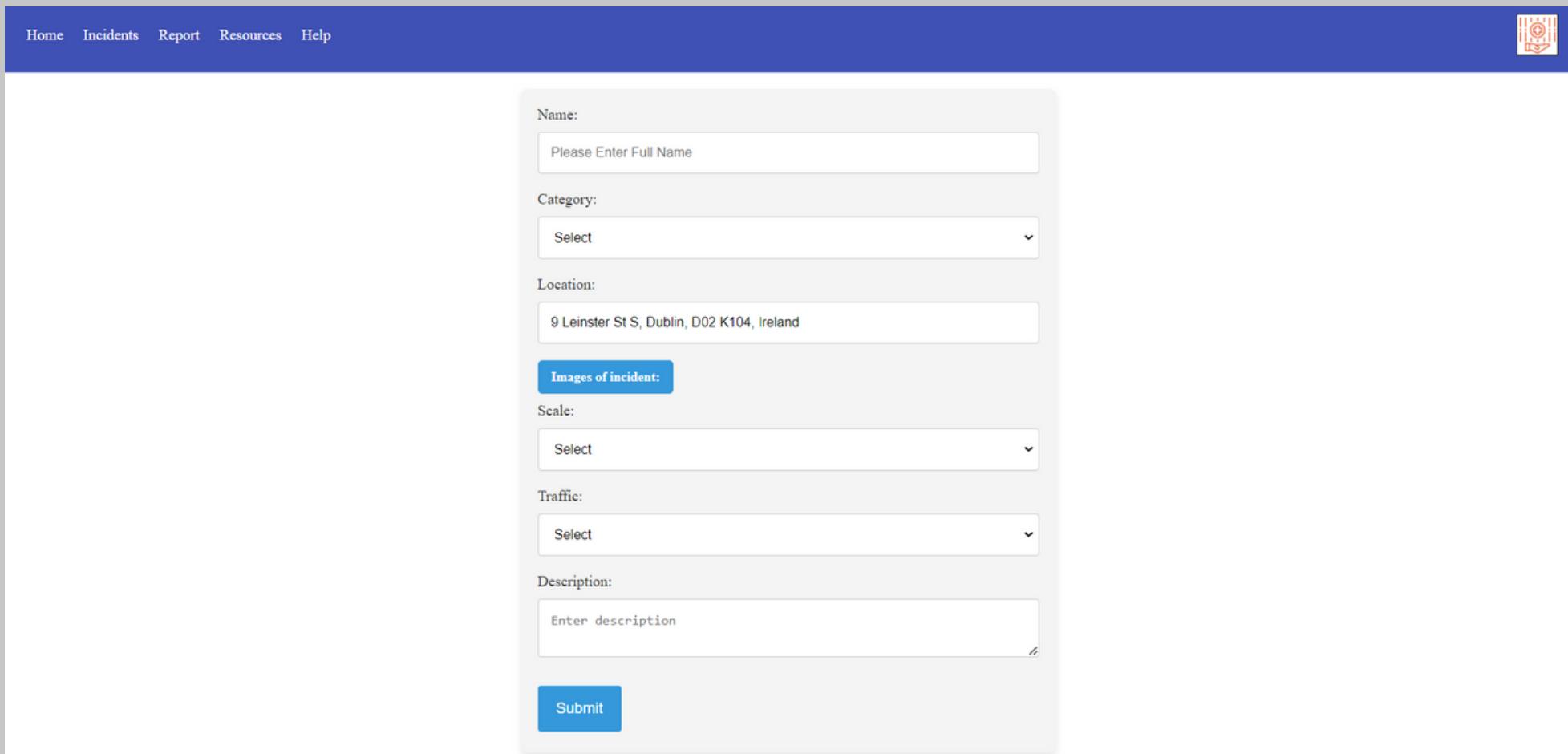
FEATURES

RESOURCES

Display of user-resources page. This page aids the user to find the nearby emergency resources, such as Garda and medical emergency entities for any disaster management. Note: The **Green** route is the proposed Alternate by the system to handle the disaster reported. The **Blue** route is the primary path proposed in first hand.



FEATURES



A screenshot of a web-based incident reporting application. The interface has a dark blue header bar with white text containing links for Home, Incidents, Report, Resources, and Help. On the far right of the header is a small orange square icon with a white emblem. The main content area is a light gray form with several input fields:

- Name: A text input field with placeholder text "Please Enter Full Name".
- Category: A dropdown menu with "Select" as the current option.
- Location: A text input field with placeholder text "9 Leinster St S, Dublin, D02 K104, Ireland".
- Images of incident: A blue button labeled "Images of incident".
- Scale: A dropdown menu with "Select" as the current option.
- Traffic: A dropdown menu with "Select" as the current option.
- Description: A text input field with placeholder text "Enter description".
- Submit: A blue button labeled "Submit".

The incident report form helps the user to report any active disaster and would be saved in the database for any further management of the incidents

FEATURES

The screenshot displays a user interface for managing incidents and disasters. At the top, there's a navigation bar with links for Home, Incidents, Report, Resources, and Help. Below the navigation is a map of a region with various locations labeled. A sidebar on the left lists "Most Recent Incident" and "Disaster Detection Results". The "Most Recent Incident" table shows three entries:

Location	Type	Description	Date
Dublin	Transportation Accident	qwert	April 19, 2024,
Dublin	Landslide	Test	April 19, 2024,
Dublin	Industrial Accident	hgf	April 16, 2024,

The "Disaster Detection Results" table shows locations and their disaster status:

Location	Sub-Location	Disaster Status
Dublin	City Centre (O'Connell Street)	None
Dublin	Dublin Docklands (Grand Canal Dock)	None
Dublin	Phoenix Park	None
Dublin	Malahide	None
Galway	City Centre (Eyre Square)	None
Galway	Salthill Promenade	None
Galway	University Campus (NUIG)	None
Galway	Claddagh	None

On the right side, there's a "Chat support" feature. It starts with a message from the bot: "Hi. My name is Levi ackerman. How can I help you?". The user responds with "hello". The bot then asks, "Good day! How can I help you today?". The user asks, "What should I do during an earthquake?". The bot replies with a safety tip: "For an earthquake: Stay indoors, under a table. Avoid windows." At the bottom of the chat window, there's a text input field with "Write a message..." and a "Send" button.

As part of the generalizable problem committed, the User webpage of the system would be accompanied with a custom chatbot to guide a user with necessary precautionary prompts for the incident conveyed .

The bot would also share any emergency contact details of official.

