



# RescueHub

Cover	
Description	RescueHub is a platform for disaster response and recovery, allowing emergency teams to submit real-time data through a user-friendly mobile app. With machine learning for automated assessments and interactive GIS mapping, it enhances situational awareness, prioritizes response efforts, and improves efficiency in crisis management.
Tools	<a href="#">AWS</a> <a href="#">Node.js</a> <a href="#">React.js</a> <a href="#">TensorFlow</a>
Skills	<a href="#">Cloud Computing</a> <a href="#">Full Stack Development</a> <a href="#">GIS Mapping</a> <a href="#">Machine Learning</a>

## RescueHub App

### Idea:

#### **RescueHub – A Disaster Response and Recovery Platform**

RescueHub is designed to enhance emergency response capabilities by using cloud computing, machine learning, and mobile technology. The platform automates damage assessment in real-time, enables responders to send data from the field, and offers GIS mapping for improved situational awareness. It reduces response times and helps coordinate disaster recovery efforts more efficiently, making it a vital tool in disaster-prone regions.

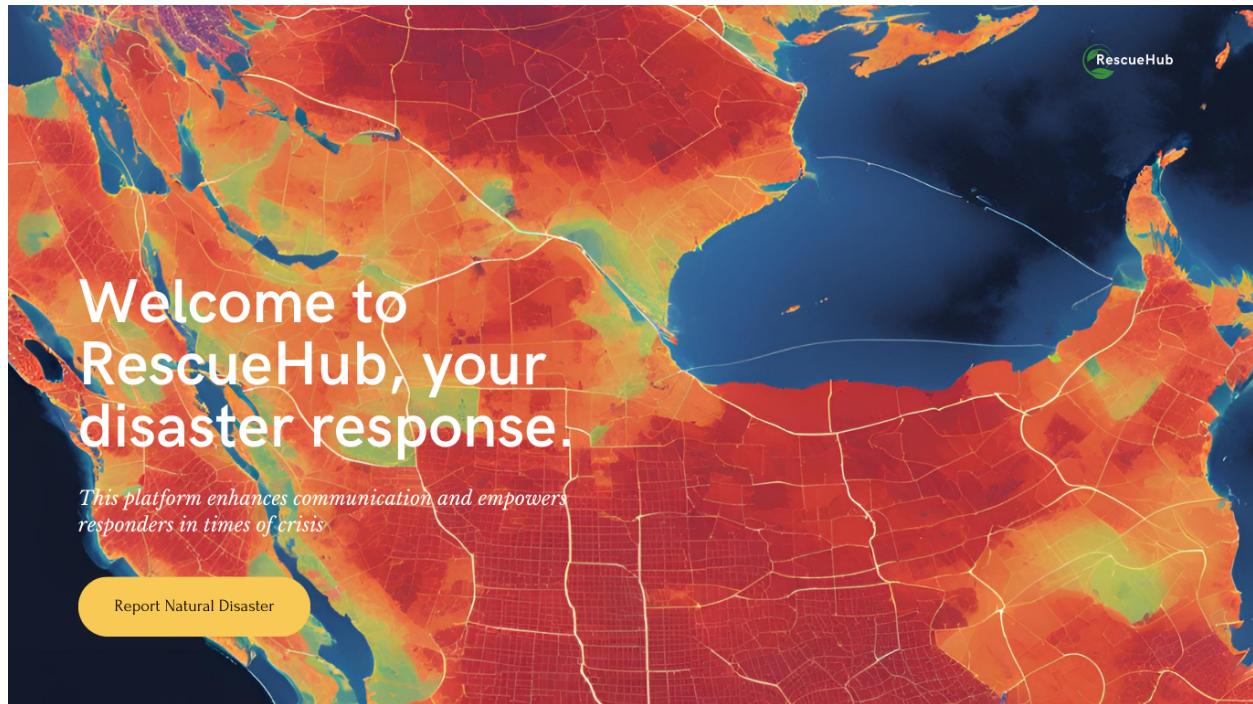
## Challenges:

- **Real-Time Data Processing:** Handling a high volume of data from multiple field responders, drones, and satellite sources, especially during peak disaster moments.
- **Scalability:** The platform needs to scale during disasters when hundreds of responders might send real-time updates simultaneously.
- **Reliable Communication:** Ensuring the platform works in regions with poor network coverage.
- **Accurate Damage Assessment:** Training machine learning models with enough accurate and diverse data for reliable damage evaluation.
- **Integrating GIS Mapping:** Providing real-time, interactive mapping features that work seamlessly with backend data while remaining intuitive for field workers.

## Results:

- **25% Faster Response Times:** By automating damage assessments and enabling real-time notifications, RescueHub reduces manual processes and response times by 25%.
- **Improved Decision Making:** Real-time GIS mapping and automated damage assessments allow responders to make data-driven decisions, improving coordination and resource allocation.
- **Better Field Communication:** The mobile-first approach ensures field responders can easily submit data from disaster zones, even in remote locations, helping authorities respond more quickly.

## Web App:



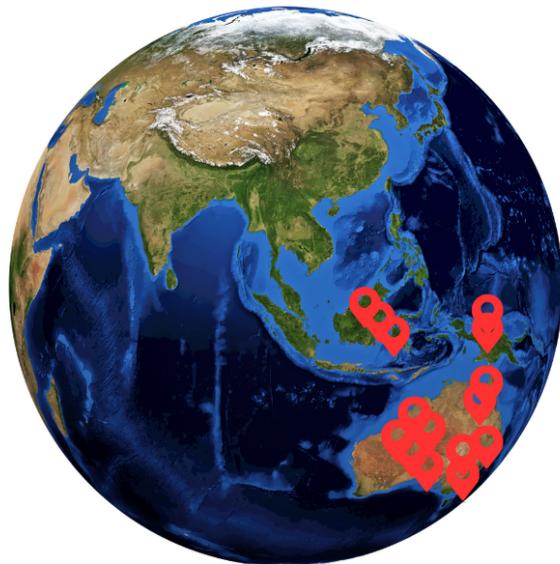
## Real-time Satellite updates

RescueHub provides real-time alerts about natural disasters and displays satellite images, allowing users to monitor evolving situations and assess impacts effectively

Check Your Region

# Earthquake Alerts

Reports of earthquakes have been reported in various regions of **South America**, providing critical information for responders and coordinators.



## Earthquakes reported in your region.

Reports indicate that a magnitude 5.0 earthquake was felt in regions near you.

[View Damage Assessment](#)

[Request Help](#)

[Report Natural Disaster](#)

[Safety Guidelines](#)

## Project Architecture:

The platform's architecture leverages the power of cloud services, machine learning, and mobile development. Here's an outline:

### Frontend (Mobile & Web):

- **React Native:** Cross-platform mobile app for Android and iOS to allow responders to send real-time data (photos, messages, GPS locations).
- **Web Interface:** For admins and coordinators to view reports, maps, and analytics.

### Backend:

- **Node.js:** The server-side logic handling the REST APIs, authentication, and data management.
- **AWS Lambda:** Serverless functions to handle various tasks like receiving reports, processing images, and sending notifications.
- **Amazon SNS:** For pushing real-time notifications and alerts to responders.
- **TensorFlow (ML Engine):** Used to analyze incoming images from field responders and generate damage assessments using pre-trained models.

### Cloud Infrastructure:

- **Amazon S3:** Storage for images, reports, and disaster data.
- **Amazon RDS:** For managing relational data like user details, reports, and analytics.
- **CloudFront:** For fast content delivery and better performance across the platform.
- **Amazon Route 53:** For domain management and routing traffic.

### GIS Mapping:

- **Mapbox/Leaflet.js:** For displaying disaster zones, damage reports, and other critical information in real-time on an interactive map.

### Project Highlights:

- **Real-Time Damage Assessment:** Machine learning automates damage assessments from drone and satellite images.
- **Cross-Platform Mobile Application:** Built using React Native to allow responders to access and send reports quickly.
- **Cloud-Connected Backend:** AWS services handle the storage, processing, and scalability of the platform.
- **Interactive GIS Mapping:** Integrated with geospatial data for enhanced situational awareness.
- **Real-Time Alerts:** Instant notifications are sent to responders and authorities when critical updates are made.
- **Scalability and Performance:** AWS Lambda ensures the backend is highly scalable and cost-efficient.

## RescueHub Flowchart:

