

Analytics Based On GLIS Data

Team – HackSquad
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Brief

<u>Understanding the Problem</u>	Identify various factors of GLIS which will help in development of a sustainable framework
<u>Solution</u>	Web-based interactive dashboard for decision-making through advanced analytics
<u>Business Model</u>	Provide analysis of land data for target audience
<u>Tech Stack Used</u>	Python flask,HTML,CSS,ESRI,Google earth engine
<u>Current Progress</u>	State of the prototype
Conclusion	GLIS aids analysis of spatial data for software development

Understanding the Problem

Urban Planning

- Overcrowding and Congestion
- Solid Waste Management
- Land Use Planning
- Traffic Congestion
- Housing Shortages
- Disaster Preparedness
- Water Scarcity

Infrastructure

- Water Supply and Sanitation
- Port and Shipping Infrastructure
- Inadequate Transportation Networks
- Public Transit Deficiencies
- Power and Energy Deficits



Understanding the Problem

Environment Conservation

- Deforestation
- Resource Management
- Environmental Risks
- Habitat Destruction

Socio-Economic

- Land Ownership and Tenure Issues
- Slum Rehabilitation
- Urbanization and Housing Shortages

Land Management and Governance

- Land disputes
- Transparency and Corruption
- Land Encroachments
- Public Land Management
- Land Valuation and Taxation





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Proposed Solution

Web-Based Interactive Dashboard

Harnesses the potential of GLIS data to provide actionable insights and analyze demographic trends.

- Geospatial Web based Interactive Map
- Information Interactive Dashboard
- Data shown with the use of various layers



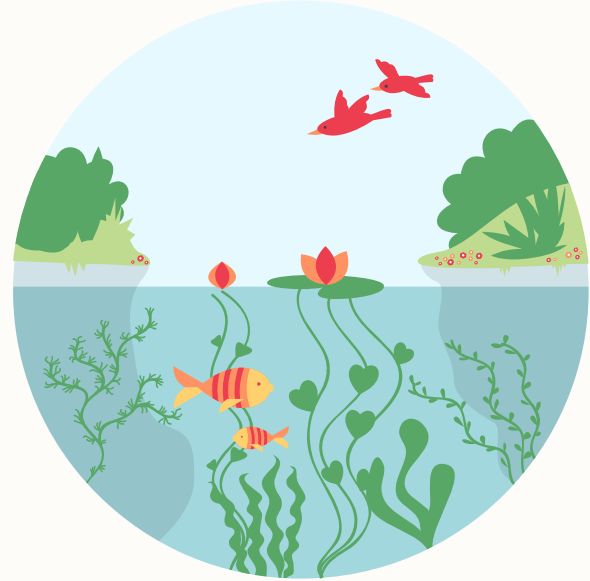
Decision support system/ Recommender system

using Machine Learning integrated in the dashboard

1. **Population Density Analysis**
2. **Infrastructure Location Prediction** to find the optimal location as per the requirements of user.
3. **Land Price Predictor** according to the location.
4. **Land Records Digitization** that reduces land disputes, streamlines transactions, ensures transparency, and supports efficient land management and taxation. (Building Detection, Road Detection)
5. **Land use types classification** using Deep Learning based semantic segmentation techniques using high-resolution satellite imagery

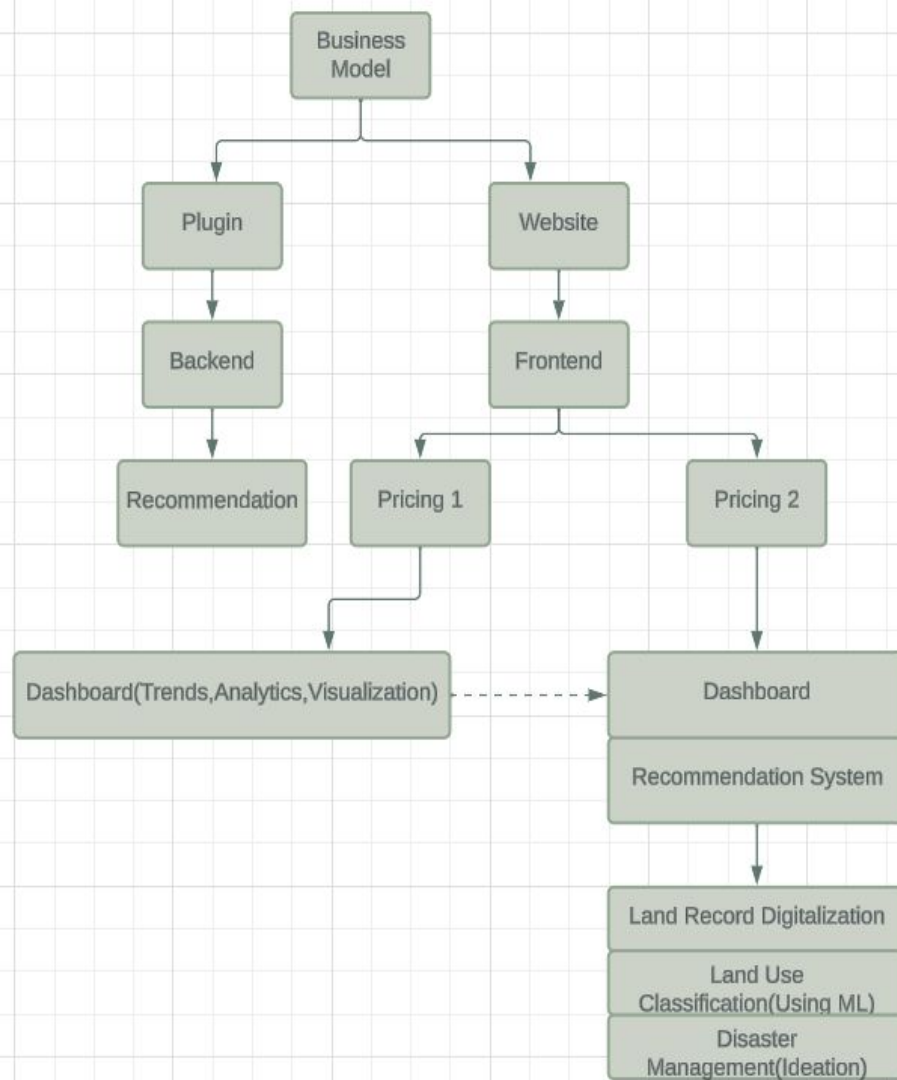
Disaster Risk Assessment

- Integrating GIS and GLIS data.
- Prepares and minimizes casualties during emergencies (e.g., floods, earthquakes).
- Enhances emergency response plan
- Damaged Building Classifiers



The background features a minimalist, stylized landscape. It includes several light green, rounded hills of varying sizes. Scattered throughout are small, fluffy blue clouds. In the bottom left corner, a single yellow flower with a green stem and leaves grows from a small green mound. The overall aesthetic is clean and modern, with a soft color palette.

Business Model



Customer Segments



Government Agencies

Land information provided for urban planning, zoning, and other decision-making.



Environmentalists

Enable monitoring and analysis of land data for environmental impact assessment and conservation efforts.



StakeHolders

Aid in informed decision-making for development projects and investments.



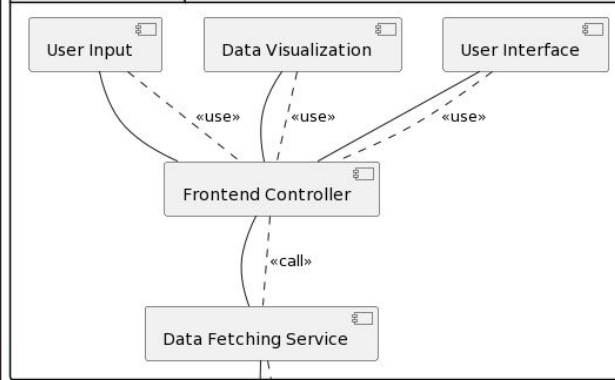
Students and Researchers

Facilitate academic research and analysis related to land use, geography, and urban studies.

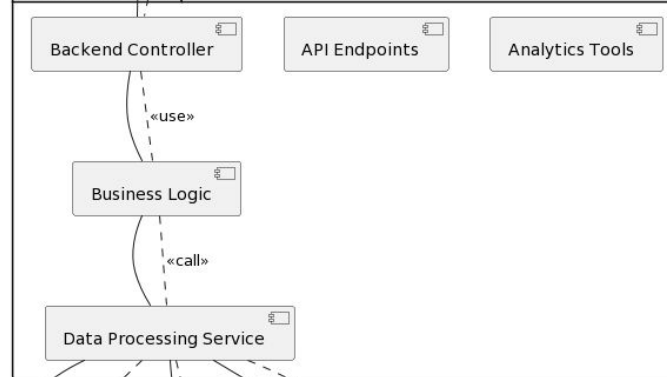
The background features a light cream color with stylized, rounded shapes in light green and light blue representing hills and clouds. A small yellow flower with a green stem is located in the bottom left corner.

Current Progress

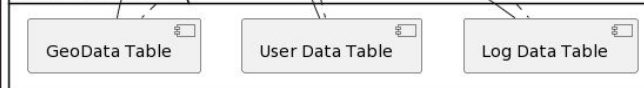
Frontend Module



Backend Module



Database Module



GLIS System

Frontend

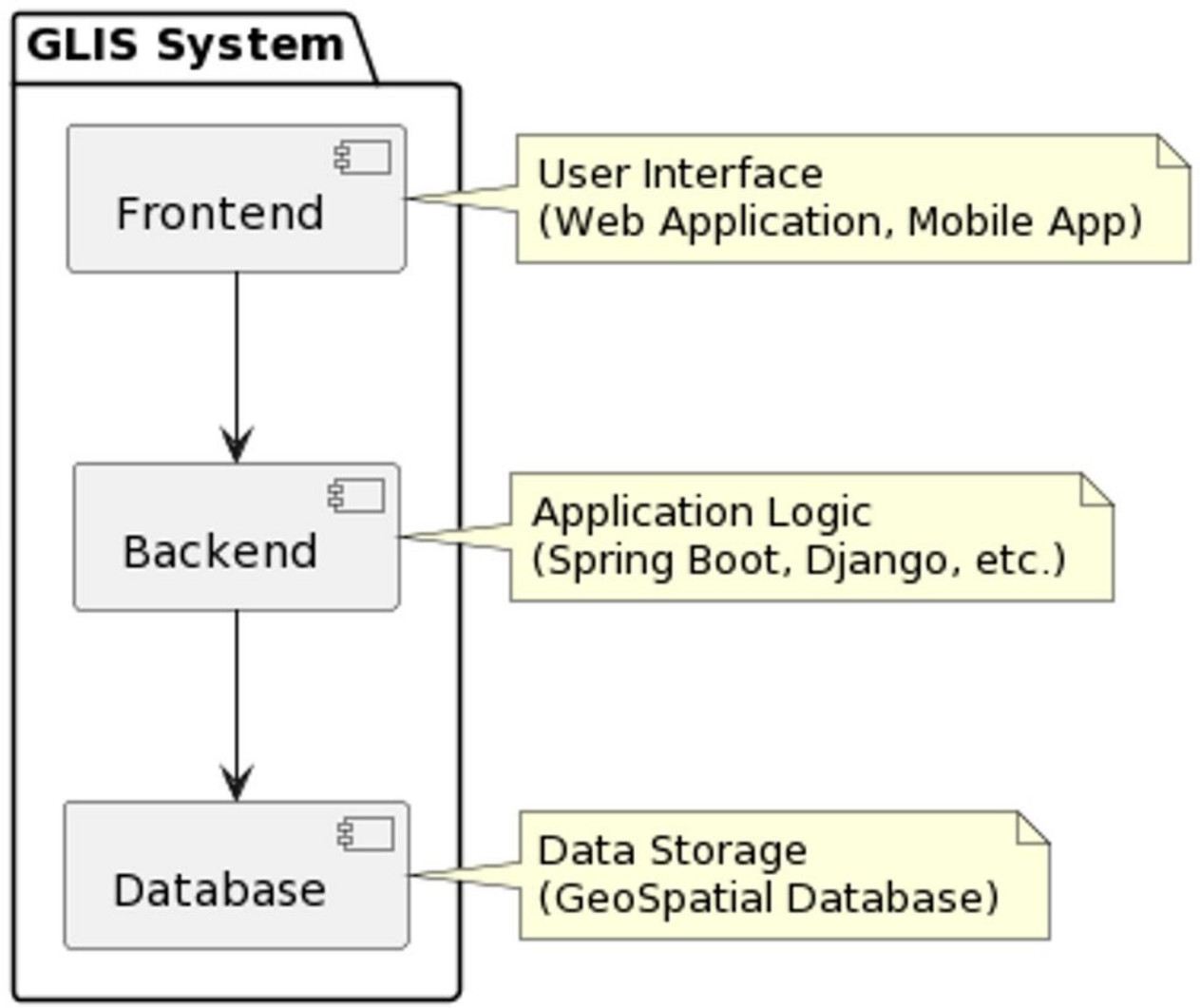
User Interface
(Web Application, Mobile App)

Backend

Application Logic
(Spring Boot, Django, etc.)

Database

Data Storage
(GeoSpatial Database)



Tech Stack Used

The background is a light cream color. It features several stylized, rounded shapes in light green and light blue, representing hills and clouds. In the bottom left corner, there is a small green bush with a single yellow flower with a brown center. The text 'Tech Stack Used' is centered in a bold, dark grey font.

Environmental awareness



HTML & CSS

For front end
development



Python Flask

For backend
development



ESRI

For displaying spatial
data



Google Search Engine

For performing analytics on
spatial data

The background features a light cream color with stylized green hills in the corners and blue clouds scattered throughout. A small yellow flower with a green stem is in the bottom left corner.

Thank You

Any Suggestions?