CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

Landslide Predection Using IoT

Project Presentation

by

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II MCA-A

Phase-I

Project Guide

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AGENDA

- Introduction
- Need for the Project
- Social Impact
- Alignment with SDG Goals
- Existing Systems and Limitations
- Proposed System and Advantages
- Module Description
- Demo of the project
- Limitations and Future Enhancements
- Conclusion
- Project Publication Details

1. Introduction

- Landslide - a natural disaster that threatens life and property.
- Several factors, such as amount of rain, soil moisture, humidity, etc become the cause of landslide.

Objectives of the system:

1. To monitor landslide prone areas.
2. To predict landslide at an early stage.
3. To sent alerts to residents of the area via app.

Need for the Project

- Landslides often occur suddenly, leaving little time for evacuation.
- An IoT-based detection system can continuously monitor environmental factors such as rain, humidity, soil moisture, etc.
- Sensors collect real-time data and send it to a cloud-based platform.
- Alerts can be sent via SMS, mobile apps to warn people in affected areas.
- Authorities can remotely monitor landslide risks from anywhere.
- Crucial for mitigating disasters and minimizing loss of life and property,

Social Impact

The social impact of an IoT-based landslide prediction system is significant and multifaceted, especially in regions prone to such disasters.

1. Saving Lives
2. Enhancing Disaster Preparedness
3. Economic Stability
4. Empowerment Through Technology
5. Promoting Sustainability
6. Community Collaboration
7. Psychological Benefits
8. Long-Term Social Benefits

Alignment with SDG Goals

Existing System and Limitations

Existing landslide prediction systems use IoT leverage sensors, data collection, and real-time monitoring to detect changes in environmental factors that could indicate potential landslides.

Limitation:

- Setting up a network of sensors, especially in remote terrain, can be costly and challenging.
- Data accuracy is sometimes compromised.
- Landslides are complex phenomena influenced by various unpredictable factors like extreme rainfall, earthquakes, and human activity.
- Each region has unique geological, climatic, and environmental factors, requiring customized models.

Proposed System and Advantages

- We have connected various sensors which detects real time data from the atmosphere and display it to the user.
- If the data from sensors go beyond the set threshold, then alert would be sent via the app.
- Our system will detect landslide and alert the user via mobile app.

Advantages

- Integration of IoT and image processing offers a very strong approach for real-time monitoring .
- Data from sensors such as soil moisture sensors can be integrated with data from other sensors to predict any chances of landslide .
- If predicted, natives will be notified via mobile app.

Module Description

Sensor Module

- Consists of sensors to collect data such as rain guage sensor, soil moisture sensor, etc
- The collected data is then passed to cloud via wi-fi.

Cloud Module

- The data obtained from sensor is collected and sent to app.

App

- Displays the parameter values that the sensors collected.
- Alerts the authorities if data value goes beyond the set threshold.
- Notifies user if authorities find the alert valid.

Authorities

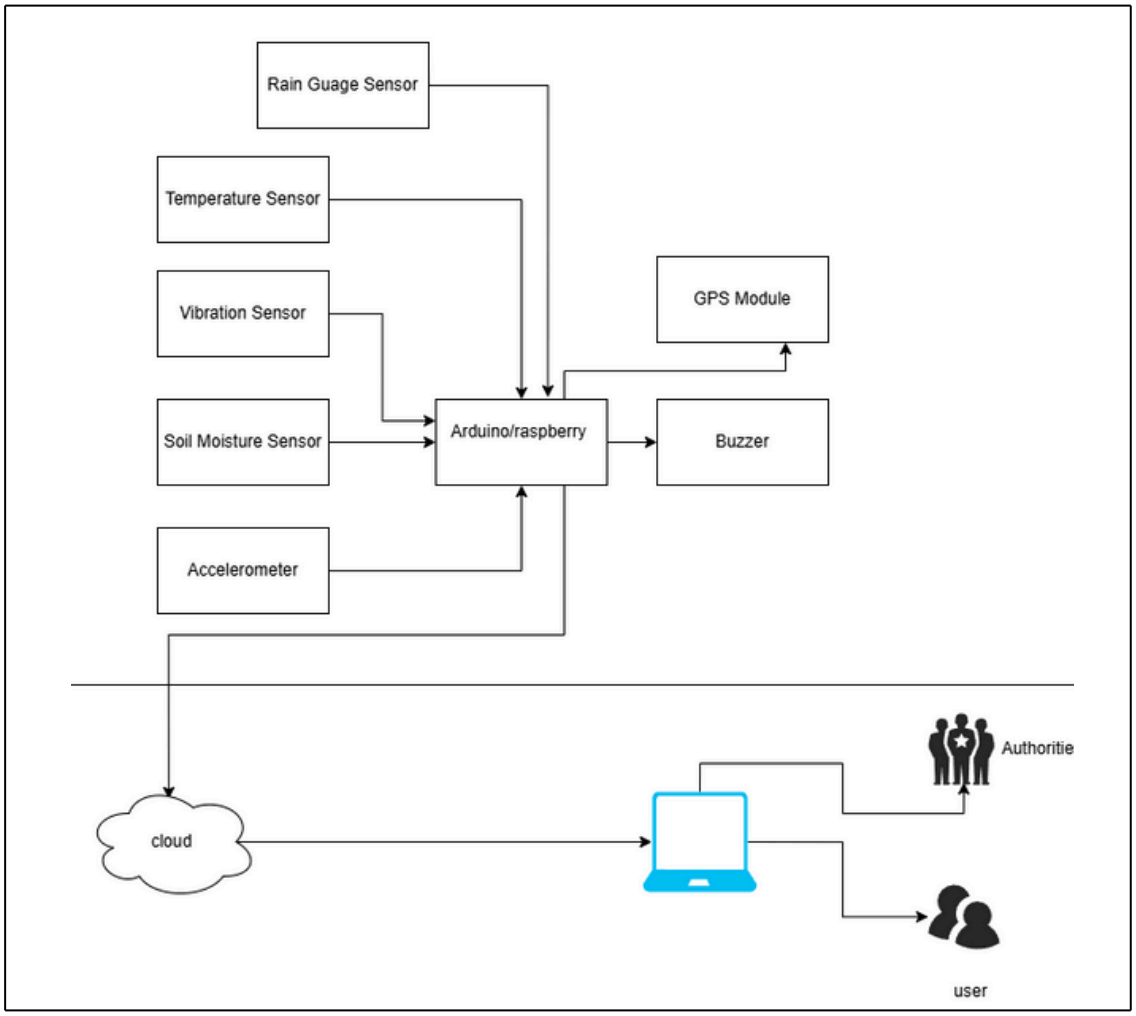
- Monitors the app.
- Verify alert given by app.

User

- Get alerts from app.

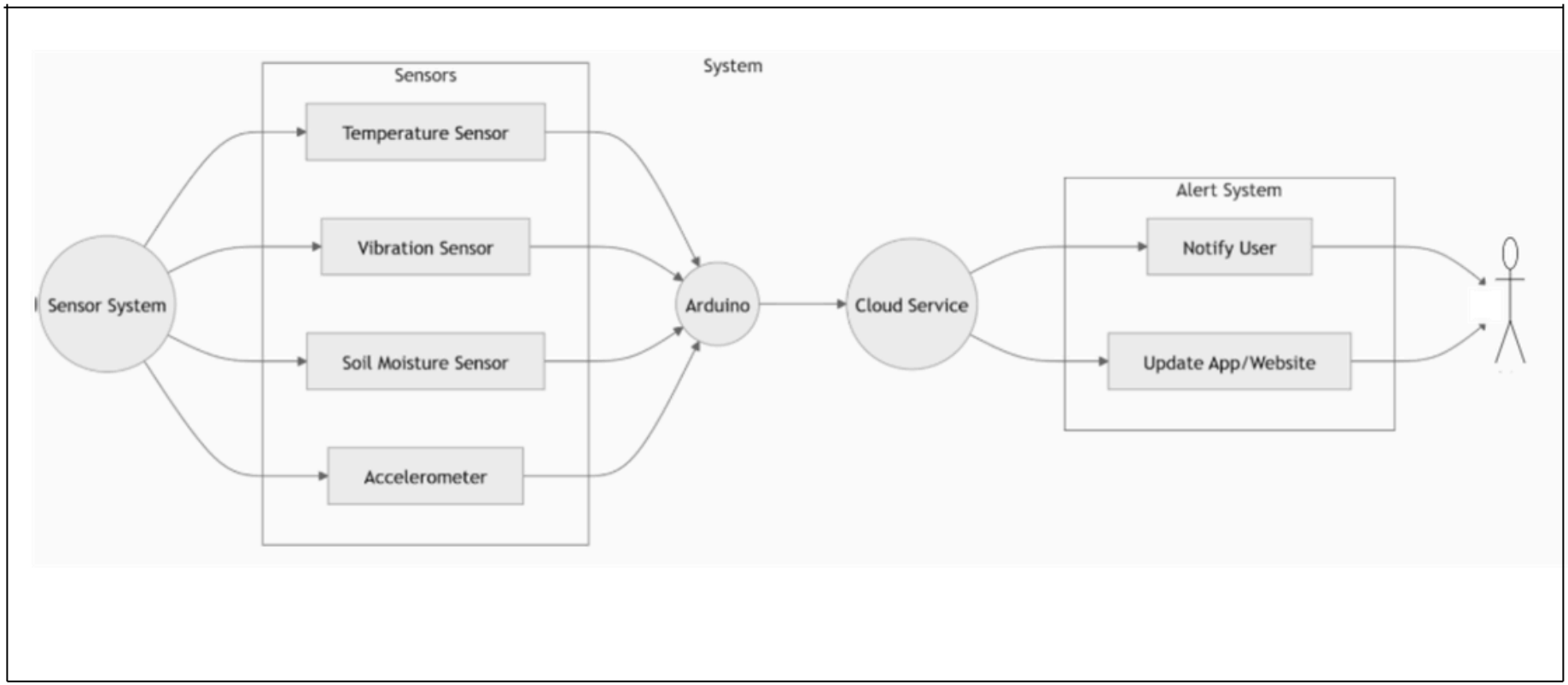
Analysis Modelling

i) Architecture Diagram



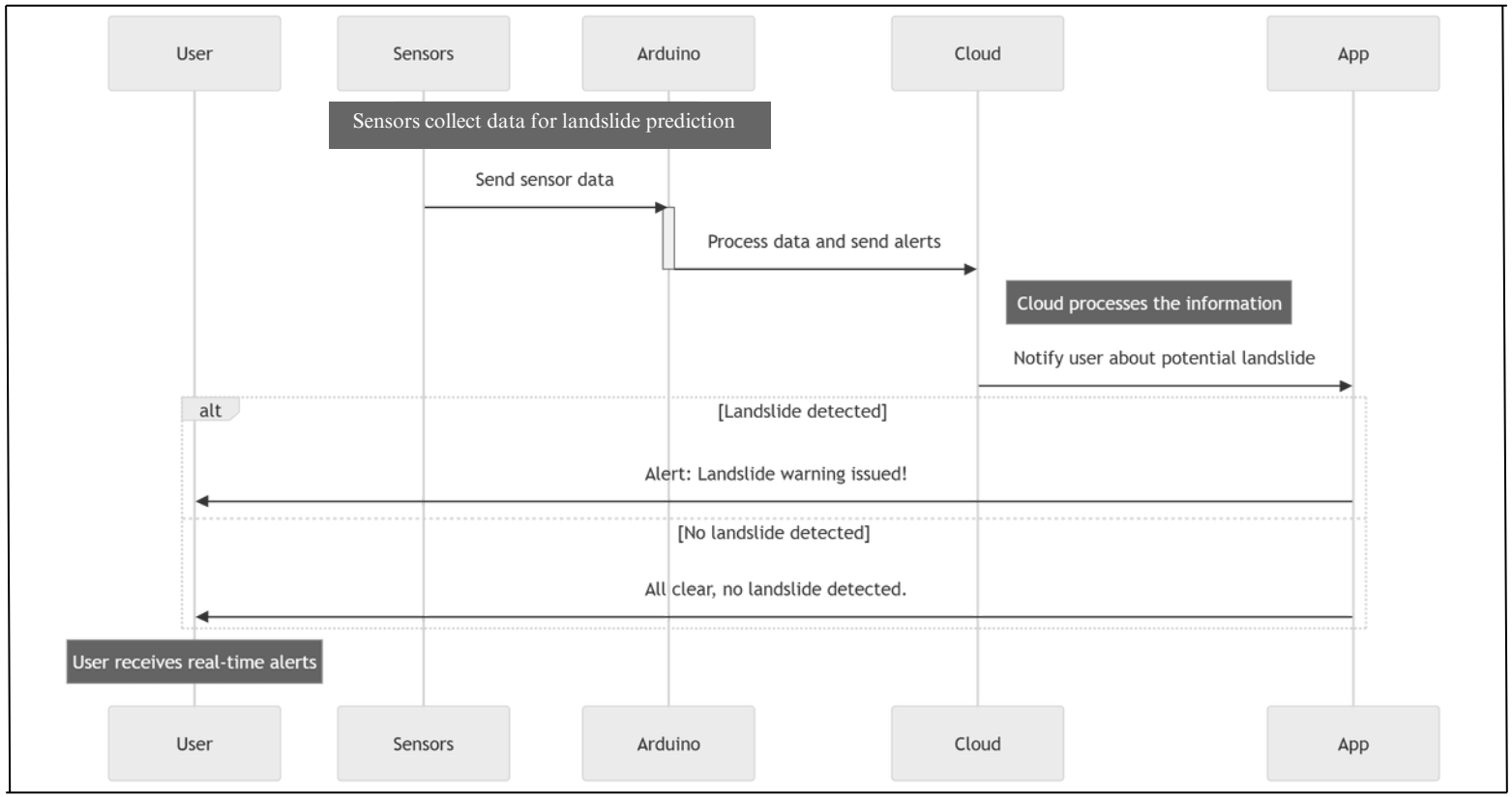
Analysis Modelling

ii) Use Case Diagram

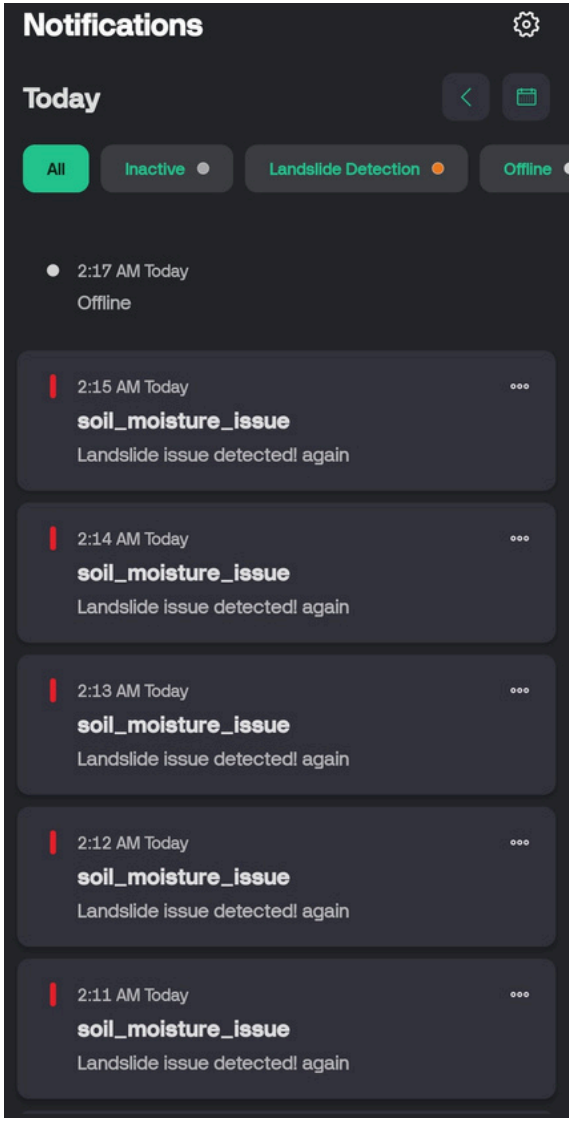


Analysis Modelling

iii) Sequential Diagram

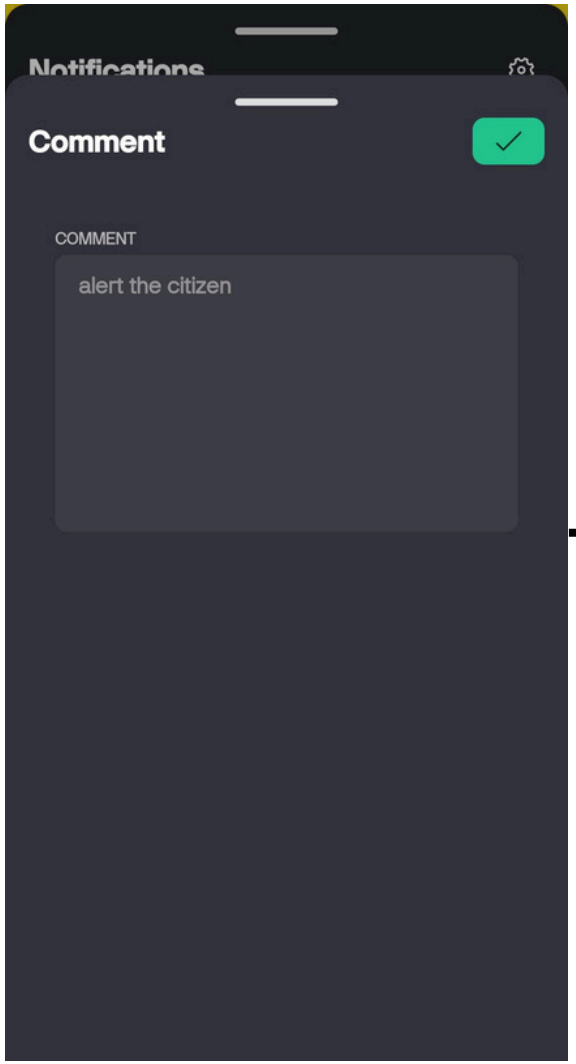


UI


Notifications
Today
All
Inactive
Landslide Detection
Offline
2:17 AM Today
Offline
2:15 AM Today
soil_moisture_issue
Landslide issue detected! again
2:14 AM Today
soil_moisture_issue
Landslide issue detected! again
2:13 AM Today
soil_moisture_issue
Landslide issue detected! again
2:12 AM Today
soil_moisture_issue
Landslide issue detected! again
2:11 AM Today
soil_moisture_issue
Landslide issue detected! again

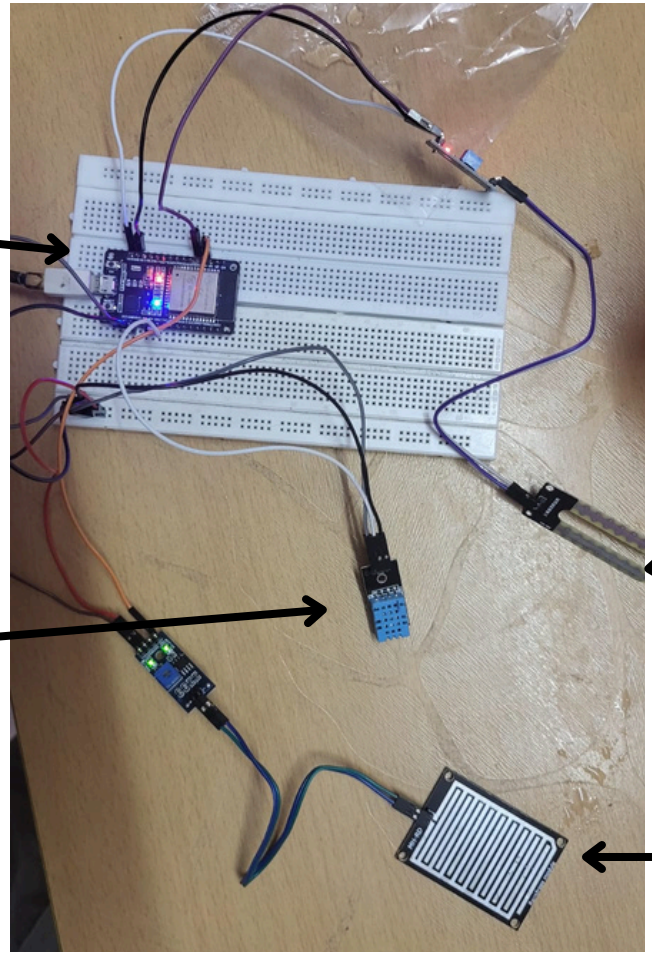

Landslide Detection
0kg/m²
0
1000
2000mm
23.8°C
0
100
72°F
0
100

UI



A COMMENT SECTION FOR AUTHORITIE S TO VERIFY THE NOTIFICATION

Hardware Components



Conclusion

The IoT-based landslide detection system we developed has integrated various sensors to monitor critical parameters like soil moisture, vibrations, and weather conditions, and transmitting this data in real-time to a mobile app. The system focuses on timely detection of landslide and alerting the user of the same.

- Collects data from sensors.
- Displays it on the app.
- If values from sensor goes beyond the threshold, then give warning.
- Authorities verify the alert.

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NoBait : An AI driven Chatbot for Phishing Detection and User Awareness

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Phase-II

Project Guide

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1. Introduction

- Phishing is a cyber threat that puts user's sensitive information at risk.
- Attackers use deceptive tactics, such as fake websites and emails, to steal personal data like passwords and financial details.
- With the help of advanced detection algorithms, NoBait analyzes suspicious links and informs users about potential phishing threats.

Objectives:

1. Detect phishing links.
2. Explain why that specific link is fraudulent.
3. Give answers to phishing related queries.

Need Analysis

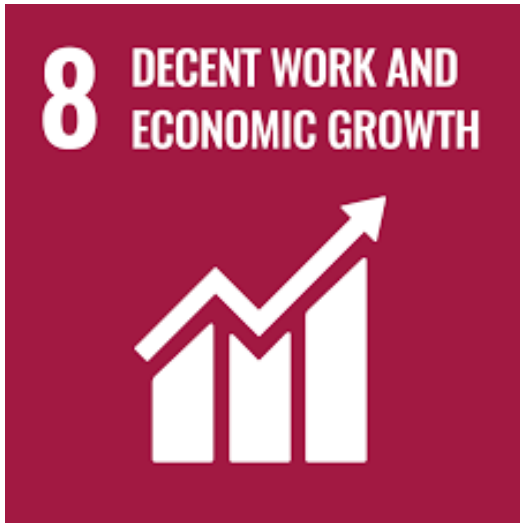
- The chatbot can answer questions about phishing that helps to educate users .
- Raises awareness about evolving cyber threats.
- Users can paste suspicious links, and the chatbot can instantly analyze whether the link is genuine or a phishing attempt.
- Encourages people to verify links before clicking, reducing cyber risks.
- Reduces the risk of falling victim to scams.

Social Impact

The social impact of an AI-driven phishing detection system like NoBait is significant and multifaceted, especially in the digital age where cyber threats are on the rise.

- Protecting Users from Cyber Fraud – Prevents financial and identity theft by detecting phishing attempts.
- Enhancing Digital Awareness – Educates individuals on recognizing phishing attacks and staying safe online.
- Economic Stability – Reduces financial losses caused by scams and fraudulent activities.
- Empowerment Through Technology – Equips users with the tools to identify and avoid cyber threats.
- Promoting Cybersecurity – Encourages safer online practices for individuals and organizations.
- Community Collaboration – Helps build a cyber-aware society where people report and share threats.
- Psychological Benefits – Reduces anxiety and stress related to online security threats.
- Long-Term Social Benefits – Strengthens overall trust in digital platforms and transactions.

Alignment with SDG Goals



Existing System and Limitations

Existing phishing detection systems use databases, AI, and cybersecurity protocols to identify malicious links, emails, and websites. While these tools help mitigate phishing threats, they come with limitations.

Limitation:

- Many platforms focus only on email phishing detection, leaving other attack vectors unchecked.
- Cybersecurity websites provide general information but lack interactive, real-time assistance.
- Phishing tactics constantly evolve, making static detection methods less effective.
- Users often lack awareness of how to verify suspicious links or protect themselves from scams.

Proposed System and Advantages

NoBait analyzes the URL given by user to detect phishing threats and alert users instantly. We have set a detection threshold—if a link exhibits suspicious patterns beyond this threshold, PhishBot immediately warns the user

How It Works:

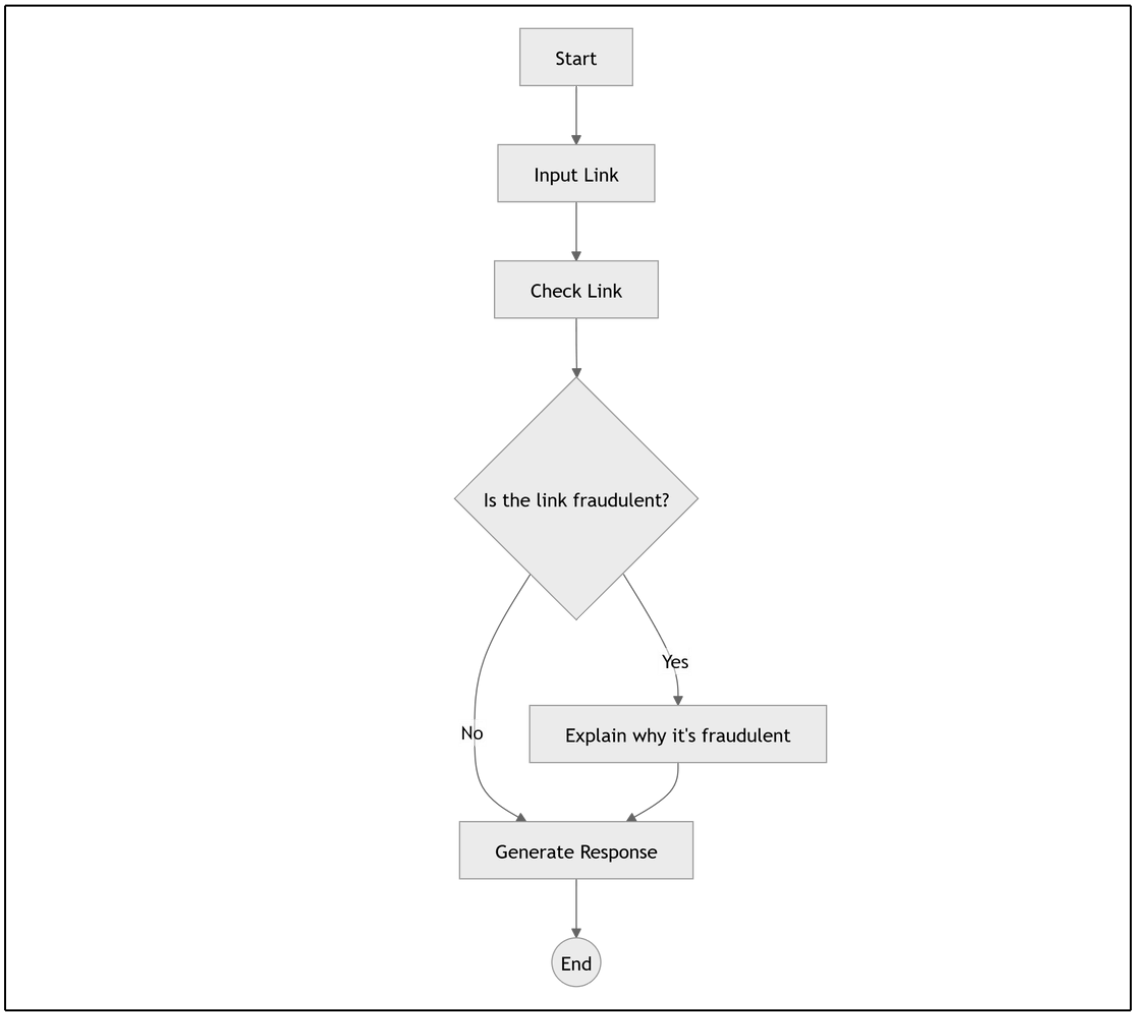
- **U**sers paste a link into the chatbot.
- NoBait checks the link against a set threshold..
- If the link is flagged as suspicious or fraudulent, an immediate warning is sent.
- Users receive guidance on why the link is dangerous and how to stay safe.

Advantages of NoBait :

- **I**nstantly detects phishing links when users paste them.
- User Alerts – Notifies users immediately if a link is unsafe.
- Provides safety tips and best practices to avoid phishing scams.

Analysis Modelling

i) Architecture Diagram



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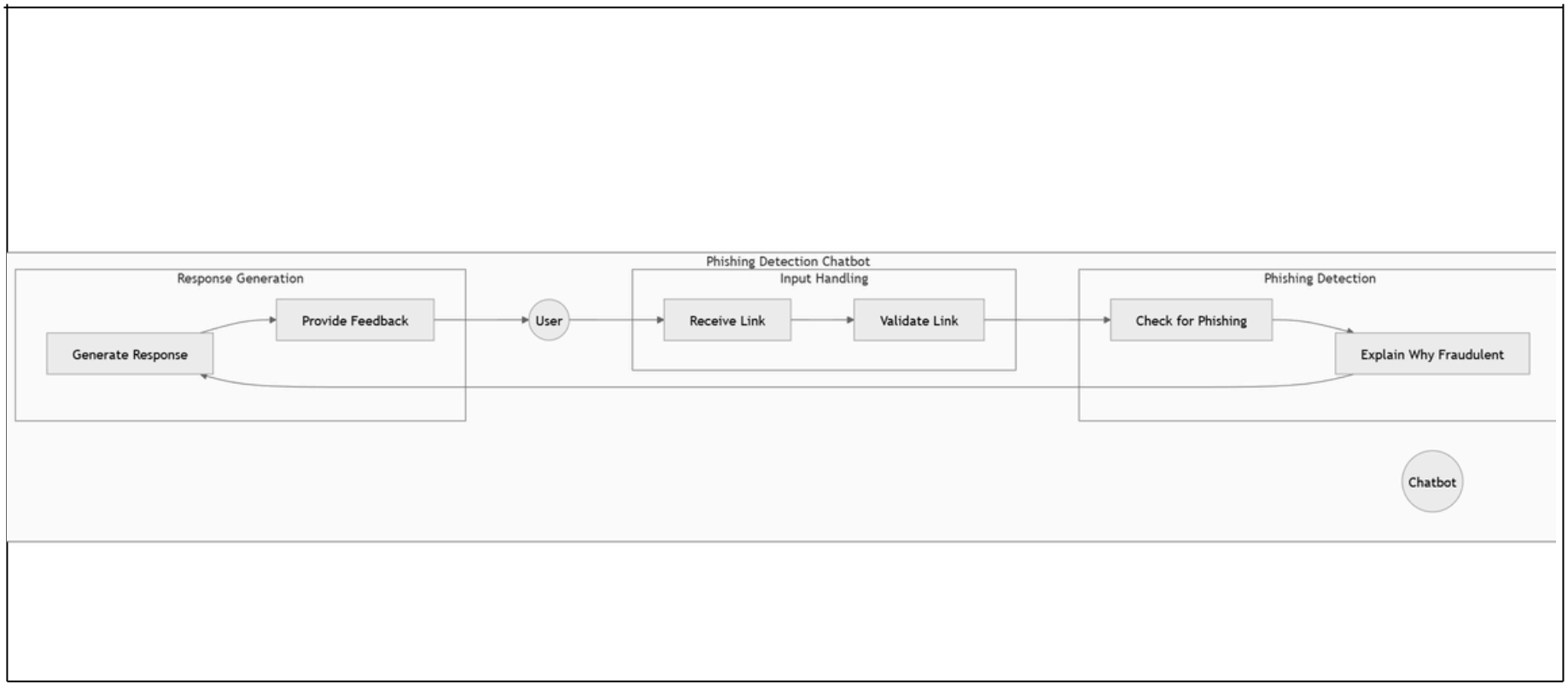
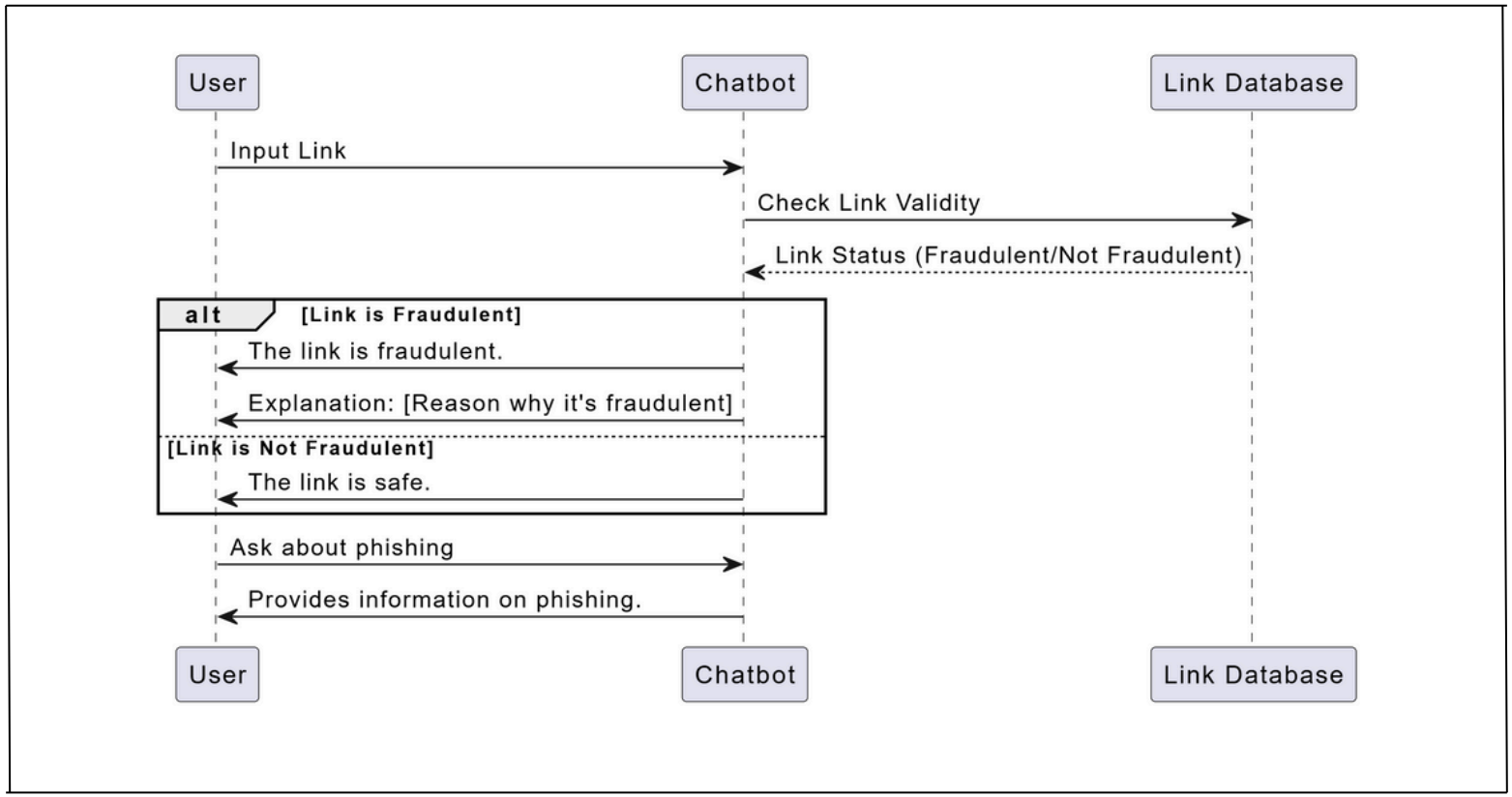
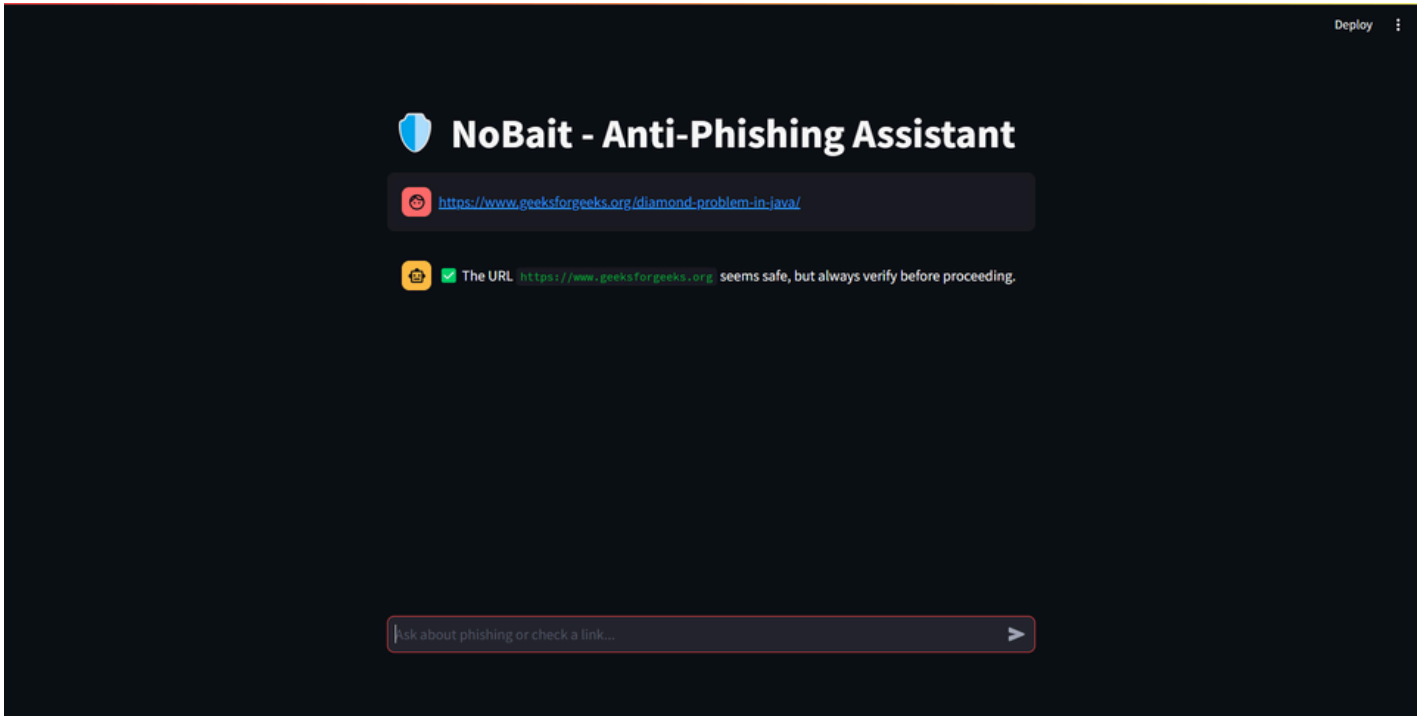


Analysis Modelling

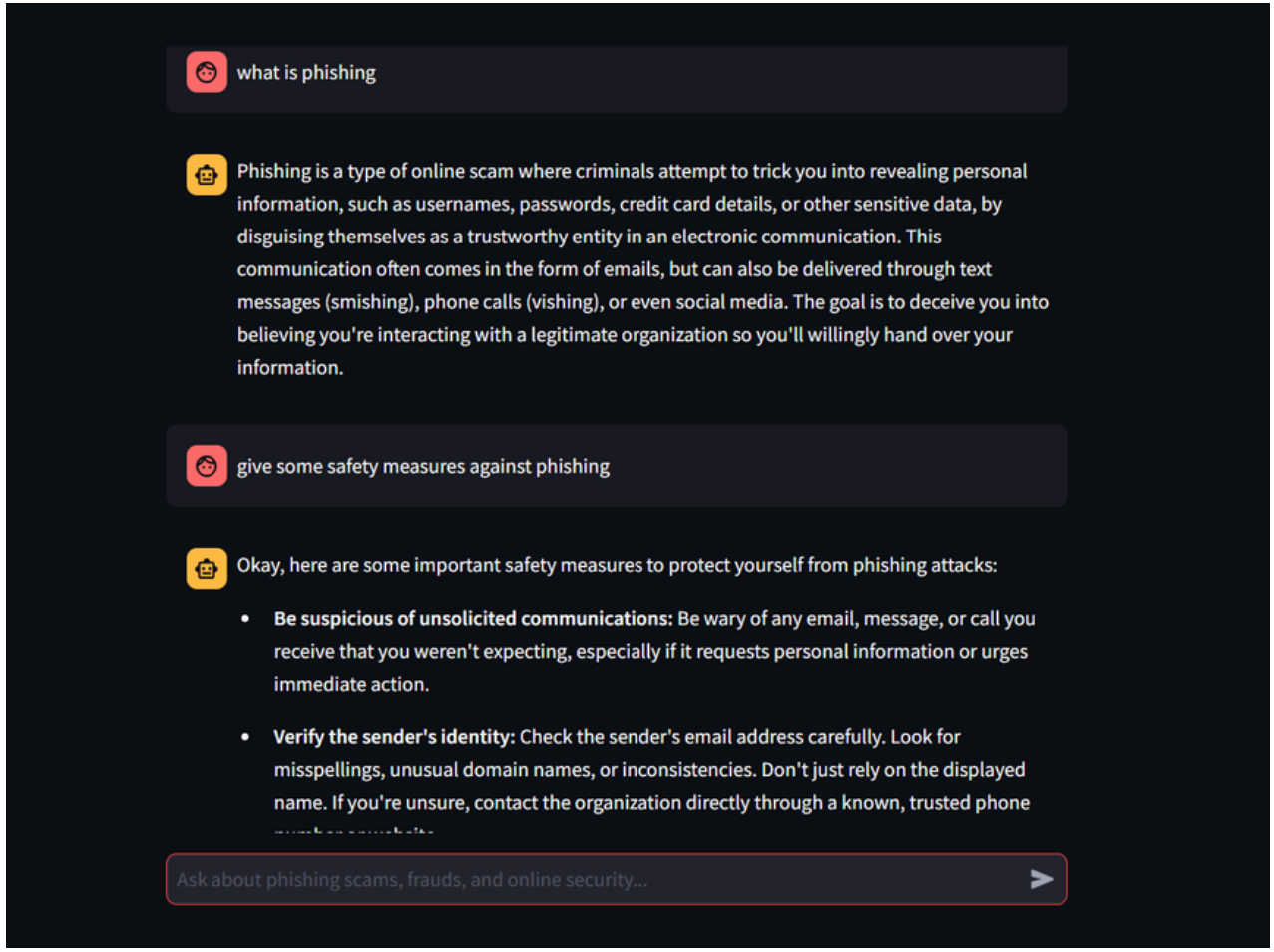
iii) Sequential Diagram



IMPLEMENTATION



IMPLEMENTATION



Future Enhancements

Future Scope

- As a future scope, the system will incorporate a camera feature using which user can scan QR code.
- If the QR code leads to a fraudulent site, the chatbot will notify user.
- A faster Response to user

Conclusion

NoBait is an intelligent chatbot designed to detect phishing links in real-time, helping users to stay safe from online scams. It analyzes URLs for potential threats, ensuring cybersecurity awareness and protection.

How It Works:

- **C**ollects Data from User Input – Users paste a suspicious link into the chatbot.
- Analyzes & Displays Results – NoBait scans the link and provides instant feedback.
- If the link is flagged as phishing, users receive a explanation.
- User ask queries related to phishing to which the bot replies.

Project Publication Details

Submitted, waiting for acceptance.


Goodbye!
& THANK YOU