

CAPSTONE PROJECT

PRESENTATION

1504314 Selected Topic in Digital and Communication Engineering
Section 1

ABOUT OUR PROJECT

Project Title

LIFELINK



TEAM MEMBERS



PHYOE THUTA

6531502011



ARKAR PYAE PHYO

6631502023



SWAN HTET

6631502028



AUNG MYINT MYAT

6631502055

PROBLEM STATEMENT

Natural disasters affect millions of people worldwide, but accessing historical disaster data and expert knowledge about disaster preparedness is often scattered across multiple sources. People struggle with:

- Finding historical disaster data quickly for research and analysis
- Getting accurate information about disaster patterns and trends
- Understanding disaster prevention and safety measures
- Accessing expert knowledge about weather and environmental science

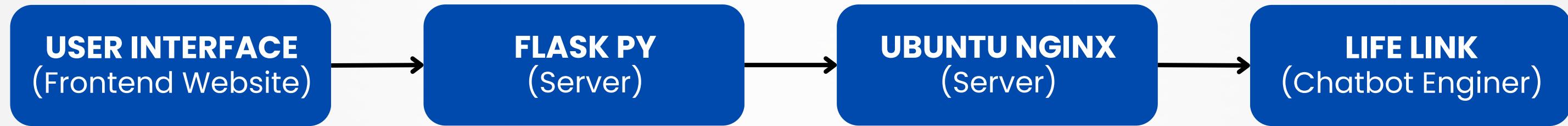
Our application consolidates “67,605 disaster records from 2000–2021” and provides intelligent answers through a dual AI system.

TARGET USERS



- Researchers & Students – Need quick access to historical disaster data for analysis and academic work
- Emergency Planners & Government Officials – Require historical patterns to prepare for future disasters
- General Public – Want to learn about disaster safety, preparation, and understand past events
- Educators – Teaching about natural disasters, climate change, and environmental science
- Journalists & Media – Researching disaster stories and historical context

SYSTEM ARCHITECTURE



CORE PROMPT

Prompt 1: GroqCloud (Dataset-Trained Responses)

```
python
context_text = """You are a Natural Disaster and Weather Information Assistant.
You have access to a comprehensive database of natural disasters.
```

RELEVANT DATA FROM DATABASE:

1. [Disaster Record 1 - e.g., "Type: Earthquake, Location: Japan, Year: 2011, Magnitude: 9.0, Casualties: 15,894 deaths"]
2. [Disaster Record 2]
3. [Disaster Record 3]

IMPORTANT: Answer ONLY using the data provided above.

If the data doesn't contain the specific information requested, say 'I don't have that specific information in my database.'

CORE PROMPT

User Question: [user's question]

Why This Design?

1. **Clear Role Definition**

- "Natural Disaster and Weather Information Assistant" establishes expertise
- Model understands its domain and limitations

2. **Explicit Context Provision**

- Top 5 most relevant records provided for each query
- Real disaster data in structured format (Type, Location, Year, etc.)
- Model can reference specific data points

3. **Strict Boundary Setting**

- "Answer ONLY using the data provided above" prevents hallucination
- Forces model to stay grounded in actual dataset
- Critical for factual accuracy with historical data

4. **Uncertainty Handling**

- Instructed to explicitly say "I don't have" when data is missing
- Triggers automatic fallback to Gemini
- Prevents making up information

5. **Few-Shot Learning Implicit**

- By providing 3-5 examples per query, model learns the format
- Understands how to extract and present disaster information

CORE PROMPT

Prompt 2: Gemini (General Knowledge Fallback)

```
```python
prompt = """You are a weather and natural disaster expert.
Answer this question with complete, detailed information.
```

DO NOT say "I can help" or ask for clarification.  
Just answer the question directly."



# CORE PROMPT

Question: {user\_message}

Provide a complete answer:"""

``` Why This Design?

1. **Assertive Instructions**

- "DO NOT ask for clarification" prevents unhelpful meta-responses
- We learned through iteration that polite prompts led to generic "I can help" responses
- Commanding tone forces substantive answers

2. **Expert Persona**

- "weather and natural disaster expert" establishes credibility
- Ensures responses are domain-appropriate

3. **Direct Answer Requirement**

- "Just answer the question directly" eliminates clarification loops
- Users get immediate value, not a conversation about having a conversation

4. **No Few-Shot Examples**

- Gemini is used for open-ended queries outside dataset scope
- Examples would constrain its general knowledge capabilities

5. **Simplicity**

- Shorter prompt = faster processing
- Gemini's base training is strong enough for general knowledge"

KEY CHALLENGES

Our Key Challenge: Relying only on a fixed training dataset creates critical knowledge gaps.

Problem: Disasters are unpredictable. A static dataset can't possibly cover every unique, real-time question a user might have.

Risk: If a user's question is "outside the dataset," a standard chatbot fails. In a disaster, a failed response is unacceptable.

Solution: We integrated Gemini to intelligently handle all "out-of-dataset" queries, instantly scaling our assistant's knowledge from a limited dataset to a comprehensive, real-time informa

ETHICAL IMPACT STATEMENT

Temporal Data Bias

Risk Identified:**

Our dataset only contains disasters from 2000–2021. Users might:

- Assume they're getting current disaster information
- Miss awareness of recent disasters (2022–2025)
- Make decisions based on outdated patterns

Example Harm Scenario:

A user asks "What floods happened in Pakistan?"

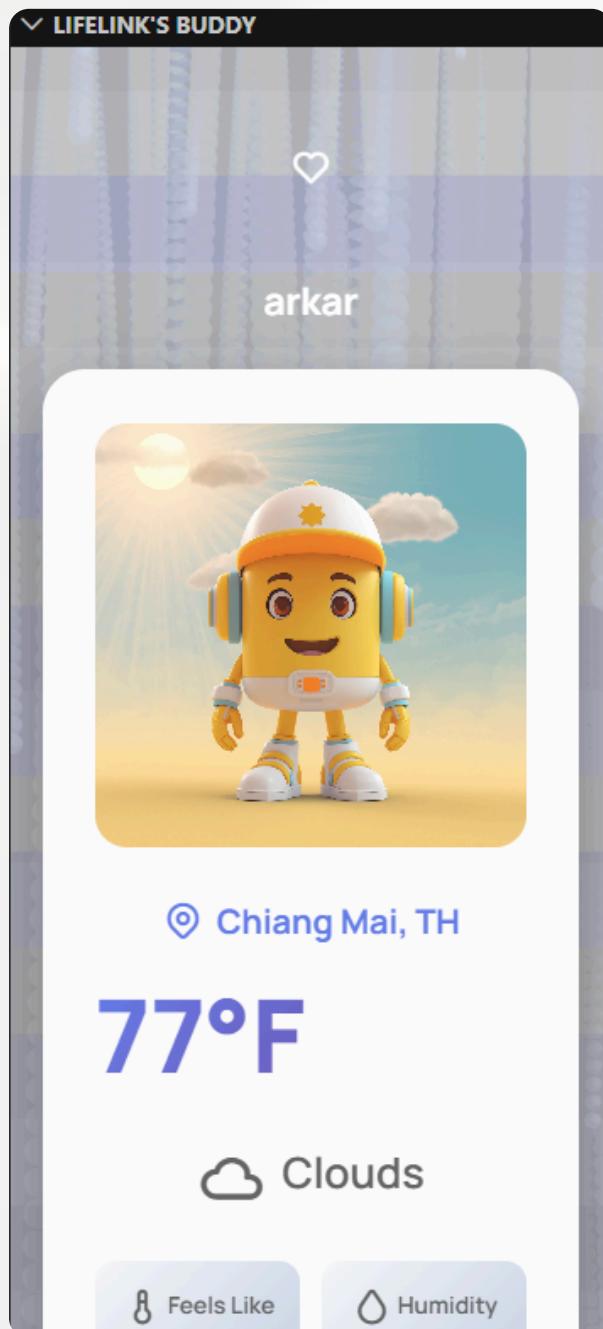
- Gets 2010 data
- Doesn't know about devastating 2022 Pakistan floods

ETHICAL IMPACT STATEMENT

Our Mitigation

1. Timestamp visibility – Disaster records include year
2. Gemini fallback – Can provide recent disaster information
3. Explicit uncertainty – System says "I don't have" when data missing
4. Source labeling – Users can see if info is from historical dataset

VS CODE EXTENSION FOR DEVELOPERS



LifeLink's Buddy - Weather Companion

Swan Htet | ⚡ 5 | ★★★★★(1)

Your friendly AI-powered weather companion! Get personalized weather recommendations from Google Gemini AI, 3 times daily with smart re...

[Disable](#) | [Uninstall](#) | Auto Update

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LifeLink's Buddy - Your Weather Companion

WEATHER COMPANION VS CODE EXTENSION AUTO UPDATES

Never forget your umbrella again! Get smart weather updates 3 times daily.

Your friendly weather companion with beautiful weather-based animations.

Developed by Swan Htet [Website: https://sh.skillfusion.tech](#)

Features

Smart Weather Updates

- Auto notifications 3 times daily (8 AM, 2 PM, 8 PM)
- AI-powered recommendations - Powered by Google Gemini AI for unique, personalized weather advice
- Smart daily limits - 3 AI recommendations per day with intelligent fallback system
- Context-aware suggestions - Weather advice tailored for developers and productivity
- Beautiful weather display with professional Tabler Icons
- Live updates directly in your VS Code sidebar

Auto-Location Detection

Installation

| | |
|--------------|--------------------------------|
| Identifier | skillfusion.lifelink-codebuddy |
| Version | 2.0.4 |
| Last Updated | 1 day ago |
| Size | 4.50MB |

Marketplace

| | |
|---------------|------------|
| Published | 1 week ago |
| Last Released | 1 week ago |

Categories

Other Education Snippets

Resources

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LIVE DEMO

174.138.27.13:5000





THANK YOU