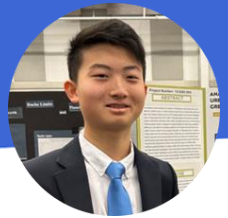
MIT APP INVENTOR

WEATHERGUARDGPT



Roy Zhao

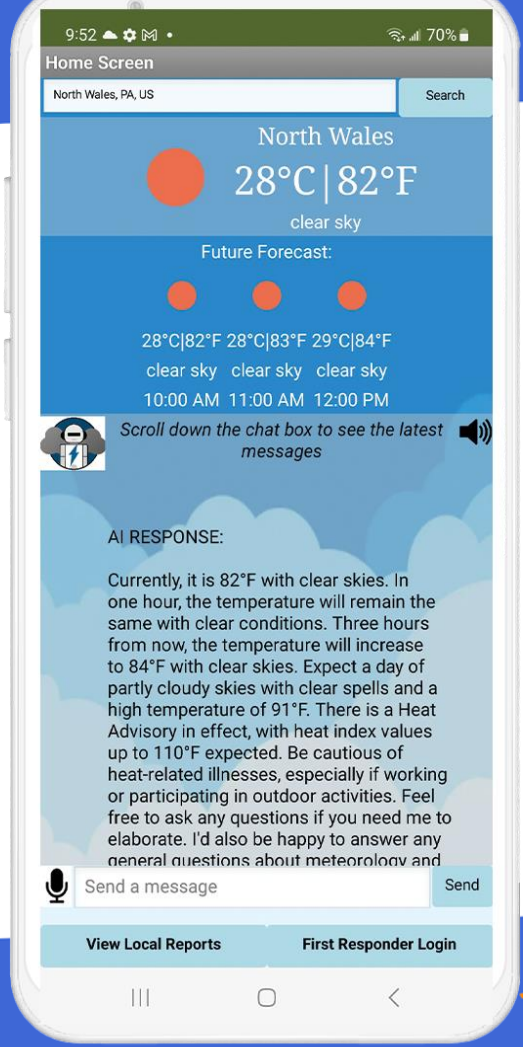
SUMMER APPATHON

OVERVIEW

- **App Name: WeatherGuardGPT**
- **App Description:**

  WeatherGuard GPT is a user-friendly app that utilizes AI technology to keep people well-informed and safe from weather hazards in their area. It has GPT-generated weather summaries and alerts, crowdsourced weather reports, and first responder aid management all easily accessible on one app.

- **Track:** Youth Individual
- **Category:** Climate & sustainability



THEME

During **severe weather events**, trageties often occur because **people are unaware and unprepared for weather hazards**, resulting in wrong decisions that lead to avoidable losses.

As the world's **climate changes**, damages from natural disasters will increase unless something is done to improve the people's ability to take precautionary measures, call for help, and avoid dangerous areas.

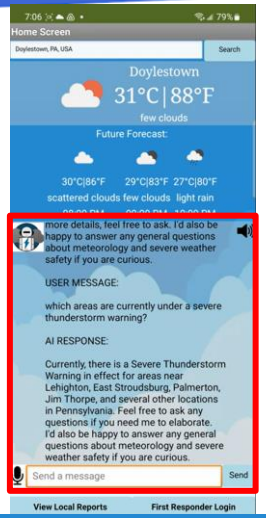
To address this issue, I developed the **WeatherGuard GPT**, a user-friendly app that utilizes AI technology to keep people well-informed and safe from weather hazards.

HOME SCREEN

LOCAL WEATHER CHATBOT & WEATHER INFO

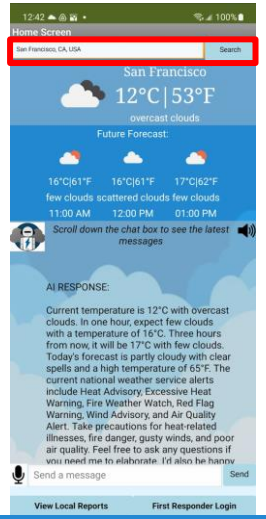
1. View Local Weather Information

When location settings are enabled for MIT app inventor, your location will automatically be detected when you open the app. Using that location, the current and forecasted weather conditions from OpenWeather API will be displayed along with the GPT-generated summary of the key local weather information.



2. Talk with AI Weather Chatbot

Since local weather information is fed into the system prompt of the weather chatbot, the bot can answer any specific questions about local weather that wasn't covered in the summary. You can ask questions by typing a question into the input box or using the speech to text button to verbally ask a question.



3. Switch Locations

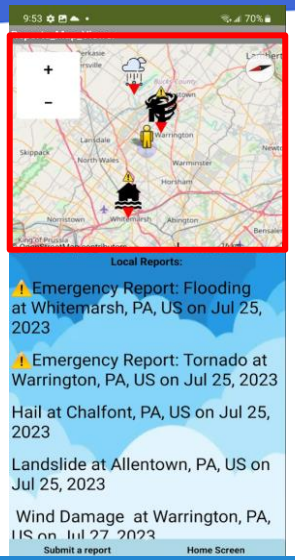
You can also get weather information for other regions of the USA by typing in a location into the search bar in the following format: town/city name, state, country name.

4. Change Screens

Go to the crowd-sourced reports screen by pressing on the "View local reports" button. If you are a first responder, press on the "First Responder Login" button to log in

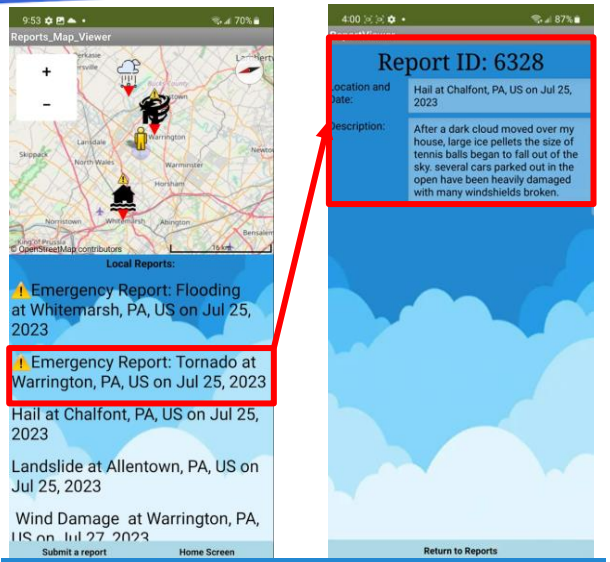
CROWDSOURCED LOCAL REPORTS

WEATHER AWARENESS THROUGH COLLECTIVE ACTION



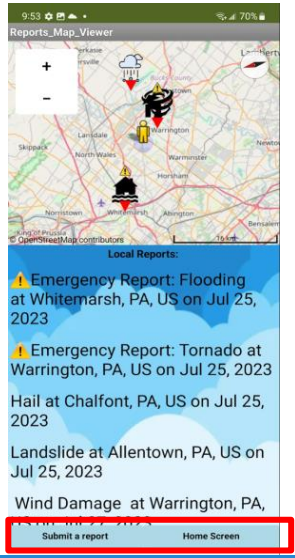
1. View Crowdsourced Local Report Map

Upon loading up the local reports screen, markers will start to appear one by one on the map. Only reports within a 30-mile radius of your location will appear. **If you are not near Philadelphia, no reports will be shown, since all the demo reports I entered are currently located near Philly.** Click the "+" or "-" signs on the top left of the map to zoom in or out.



2. View Local Report Details

When you click on a report in the list view, you will be taken to the report's details. Here, you will find the report ID, its location, and the event description. Click on the "return to reports" button to return to the reports map viewer



3. Change Screens

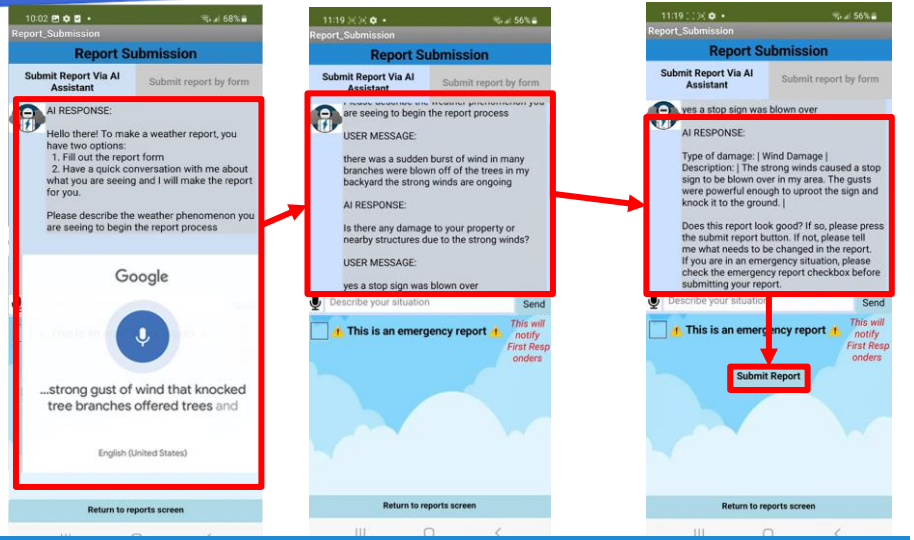
To go back to the home screen, press on the "Home screen" button. To go to the report submission screen, click on the "submit a report" button

REPORT SUBMISSION

GPT-POWERED USER FRIENDLY REPORTING

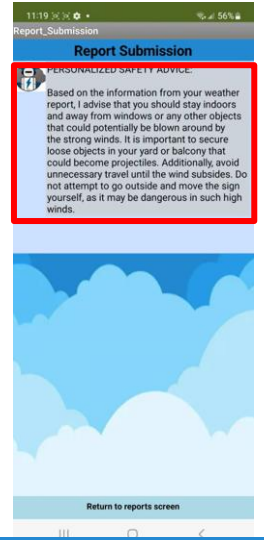
1. Submit a Report by Form

One way you can submit a report is by filling out the report form. To begin, click on the “submit report by form” button. Then, selected the type of damage you are observing. If you have location and time enabled for MIT app inventor, the date and location will autofill. Finally, write a description that provides additional details on the weather phenomenon or hazard you observe.



2. Submit a Report via AI Chatbot Conversation

Another easier way you can submit a report is by having a conversation with the weather chatbot, which simulates a conversation with a first responder. Begin the conversation by describing the weather phenomenon are seeing/experiencing using the speech recognizer. The chatbot will continue to ask you different questions until it has enough information to determine the type of damage and have details for the description. This way, your reports will have an comprehensive amount of detail. Once it has enough information for a report, it will print the the report out and ask you if it is good. Press the submit report button if the report looks right.



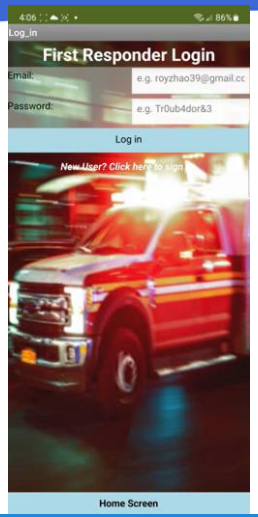
3. View AI Safety Advice

After submitting your report, the chatbot will give personalized safety advice based on the information in your report

WEATHERGUARDGPT

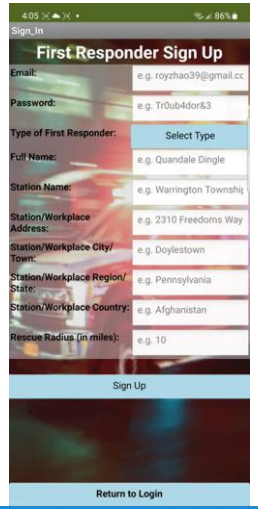
FIRST RESPONDER PAGE

COORDINATE AND ACCELERATE FIRST RESPONDER ACTION



1. First Responder Authentication

First responder authentication is required to enter the first responder page. If you already have a first responder account, you can log in by entering your email and password. If not, click on the “New User? Click here to sign up” button to sign up.

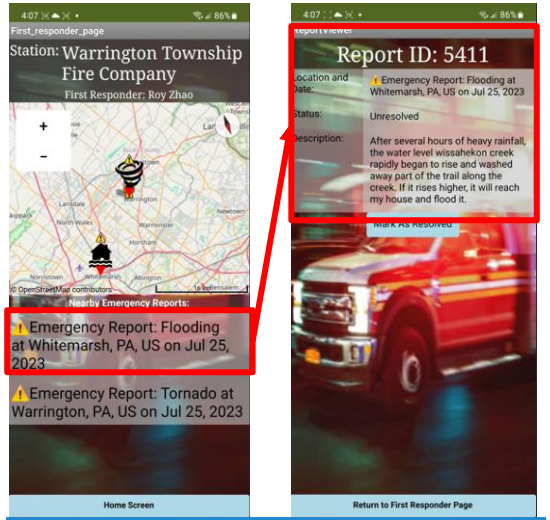


2. First Responder Signup

Create a first responder account by filling out all the fields in the sign up. The rescue radius is the maximum distance away from their station that the first responder can provide effective assistance.

3. View Emergency Report Map

After logging in, user will be taken to the first responder page with the emergency reports map. Only the emergency reports within your specified rescue radius will be displayed.

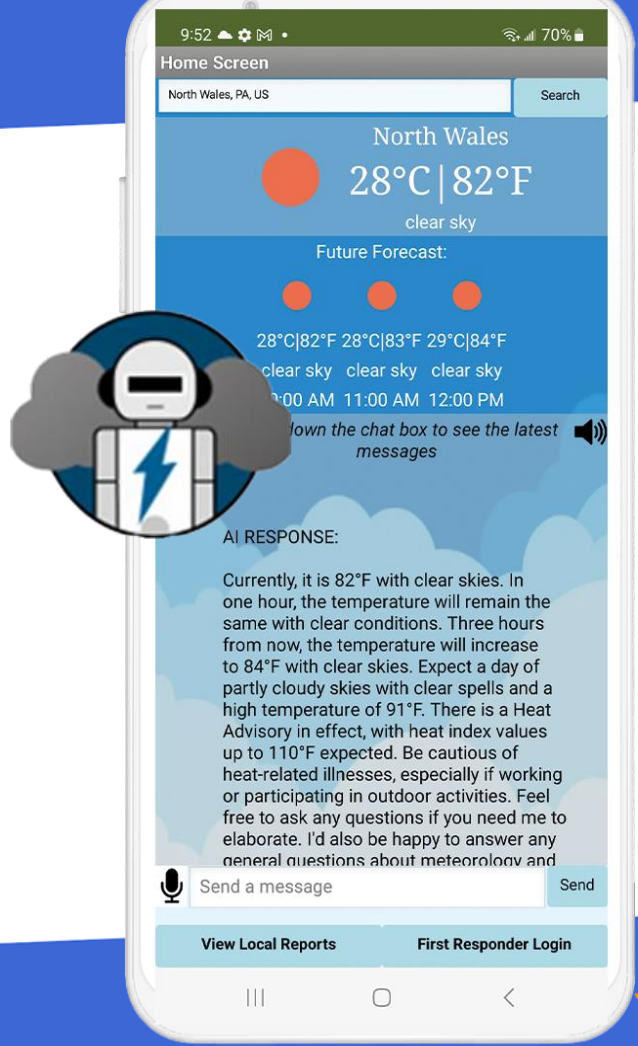


4. Change Emergency Report Status

When you click on an emergency report in the list view, you will be taken to the report’s details. Here, you can mark the report as resolved by pressing the “mark as resolved” button and the report will appear as resolved on the emergency reports page

LIMITATIONS

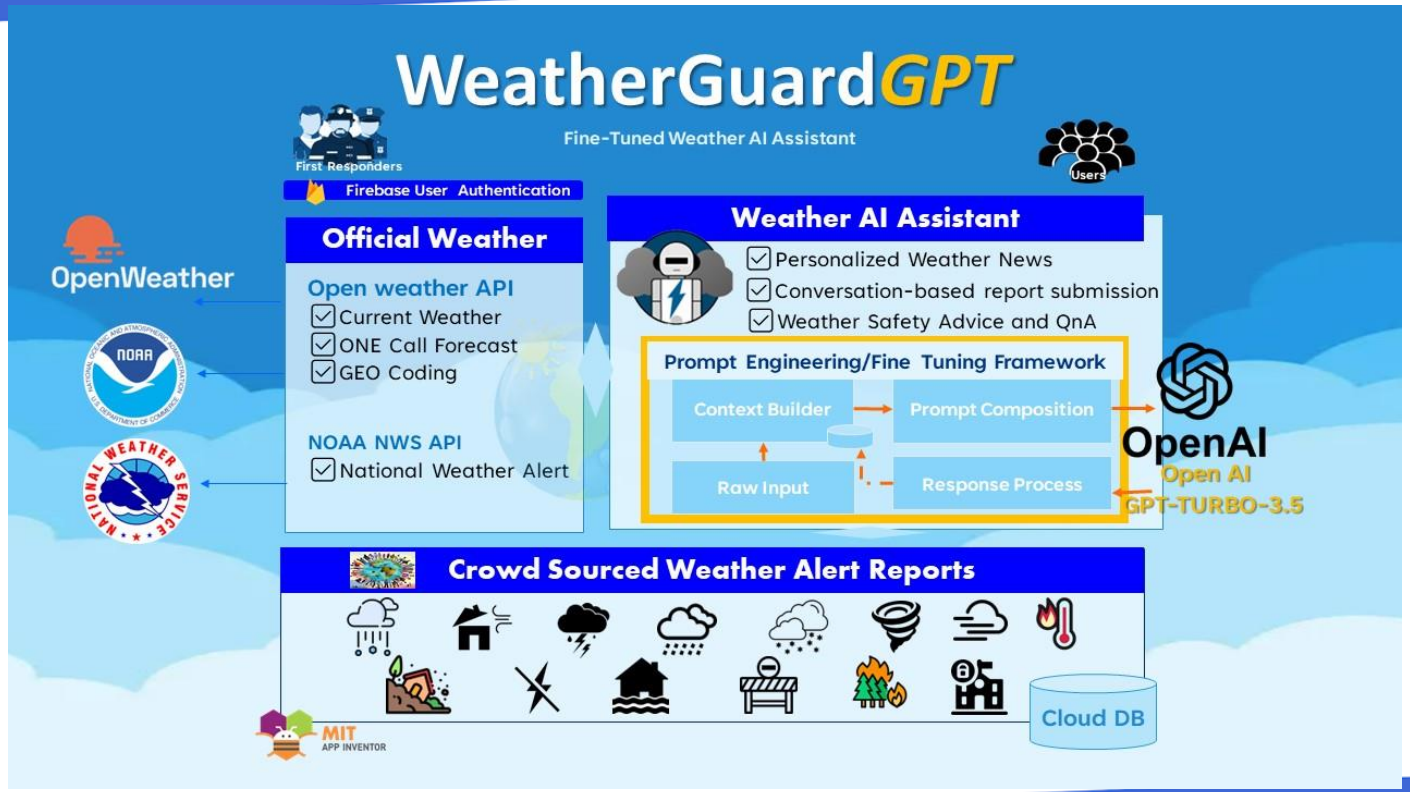
1. Weather warnings are only mentioned by the summary chatbot if the user is in the USA, since the weather warning data is retrieved from the national weather service API that only covers locations within the USA.
2. If you switch screens quickly without waiting for everything to load (which can take up to 10 seconds), the app will crash.
3. Due to OpenAI's character limit for system and user prompts, the weather chatbot will start to forget past conversations if the conversations exceed this limit since past conversations are fed in through the system prompt. As a result, the weather chatbot might ask the same questions repeatedly if the conversation gets too long. If this happens, please refresh the screen and restart the conversation.



APPENDIX

SUMMER APPATHON

ARCHITECTURE OVERVIEW



VIDEO SOURCES

Heavy rains swamp Northeast again as flash flooding claims at least 5 lives in Pennsylvania - https://apnews.com/article/flash-flooding-pennsylvania-deaths-c0b3fc0c9c3e40b4cd33c8dc0ad50c14

4 dead, 4 missing in Bucks County, Pa. as severe flooding sweeps through area - https://www.youtube.com/watch?v=3xPIGV2za80

Climate Change 2023 Synthesis Trailer - https://www.youtube.com/watch?v=T9CeECpxtx8

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THANK YOU!

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