NASA INTERNATIONAL SPACE APPS CHALLENGE

Managing Fire: Increasing Community-based Fire Management Opportunities

FireArchive

FIRE ARCHIVE

Our mission was to develop solutions to address **fire and natural resource monitoring through innovative use of technology and publicly available data**. Fire Archive is an interactive app designed for **easy identification and marking of fire hotspots** in the vicinity.

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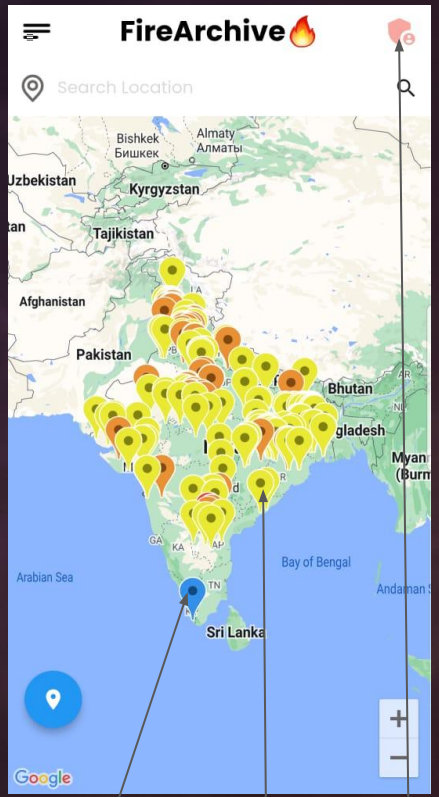
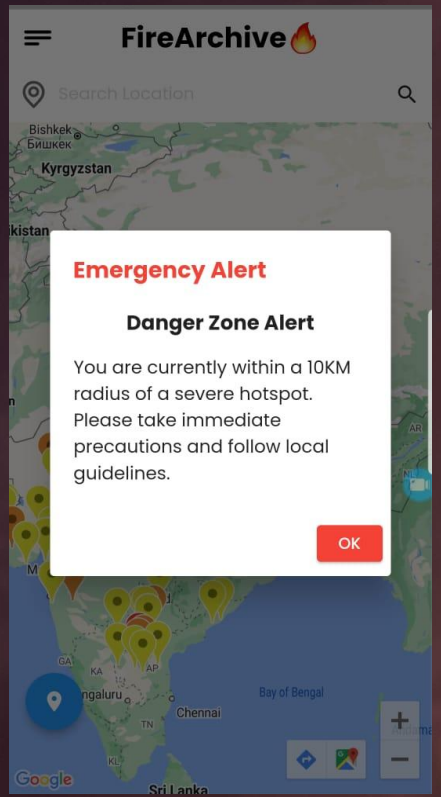
FEATURES OF OUR APP :

- The app displays fire hotspots on Google Map, allowing users to visualize areas with active fires.
- Users receive alerts when they are near a fire hotspot.
- The app provides real-time information about the air quality index of hotspots.
- The app provides information on safety standards and guidelines for fire prevention and response.
- It offers access to emergency helpline numbers, enabling users to quickly contact relevant authorities in case of emergency.





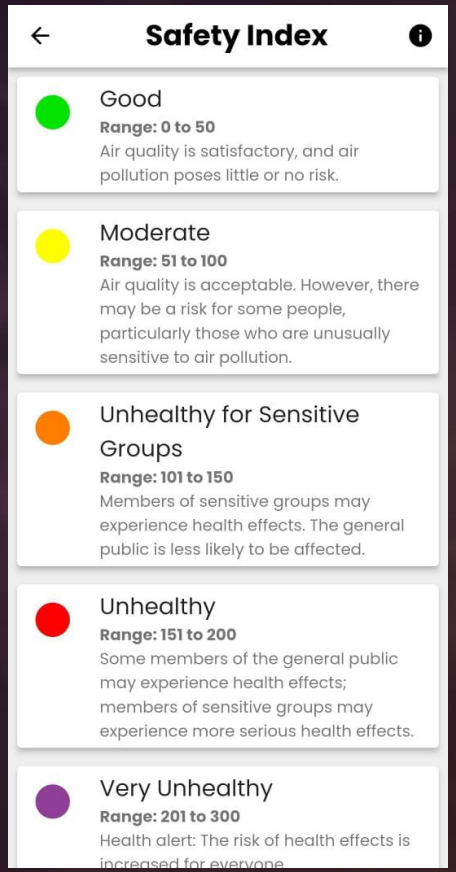
User's Location

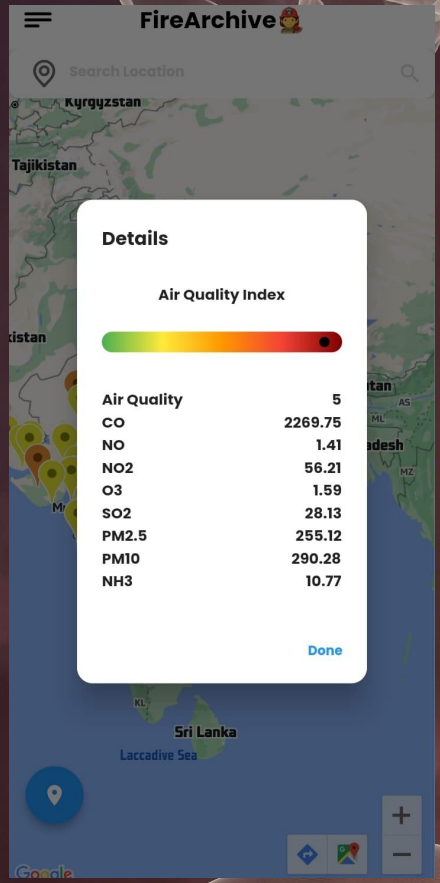
Active Hotspot

Alert Button

APP OVERVIEW

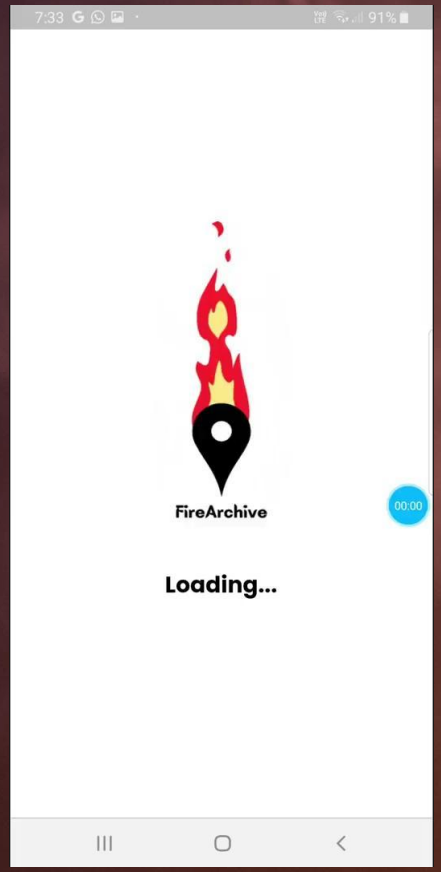
- On opening the app, all the active fire hotspots are displayed
- The temperature of fire is determined by the color of the marker. Dark Red indicates presence of high temperature in that area (> 355K)
- Hotspots are determined from NASA FIRMS API and plotted on google maps
- Current location is determined by clicking the blue hover button (depicted by blue marker)
- If the user is in a 10km radius near a fire hotspot the top right alert button blinks.





- On clicking the marked hotspots , the air quality of that area is shown with different attributes in air
- The data is fetched from Open weather map API and is represented accordingly
- Air quality varies from 1 through 5 (1 is Good and 5 is Very Unhealthy)

APP DEMO



To show the alerting feature we have hardcoded the user's location near to a hotspot.

For demonstration purposes we decided to only mark hotspots in India but can be used to display global hotspots.

We have used some placeholder numbers for emergency contacts but can be changed with real one.

Future Plans

- The introduction of a real-time notification system will keep users informed with instantaneous alerts regarding fire incidents, air quality fluctuations, and safety recommendations
- Allowing users to report potential fire hotspots or share real-time information about local conditions, creating a more dynamic and interconnected user community
- Enable users to access critical information and maps even in areas with limited internet connectivity, ensuring the application's utility during crucial times
- Allowing users to create personalized safety plans based on their location and preferences can be beneficial. This feature could encompass evacuation routes, emergency contacts, and tailored safety recommendations, offering users a proactive tool for preparedness.
- Enabling features like screen readers, voice commands, and other accessibility standards, making the application inclusive for all users.
- Collaboration with local emergency services for integration with their systems can streamline emergency response efforts. This collaborative approach facilitates a more coordinated and efficient response to fire incidents.
- Features like quizzes, challenges, or rewards can encourage user engagement and active participation in fire prevention initiatives.

~ Resources

- Open weather API
  - https://api.openweathermap.org/data/2.5/weather?lat={lat}&lon={lon}&appid={API key}
- NASA Firms API -
  - https://firms.modaps.eosdis.nasa.gov/api/
- Flutter Docs - https://docs.flutter.dev/
  - Geolocator 10.1.0
  - Google_maps_flutter 2.5.0
- AQI https://www.airnow.gov/aqi/aqi-basics/
- SVG Icons

~ Tools

- GITHUB
- VS CODE
- ANDROID STUDIO
- FIGMA