

ABSTRACT

Real Time Air Quality Monitoring & Weather Forecasting System

General description:

It has become increasingly difficult to anticipate the weather using traditional apps and methods that rely on outdated prediction basics. As climate change is on the rise and there has been an extraordinary change in the climatic circumstances around us, such as frequent change in weather conditions within a short period of time.

The goal of a good weather prediction is to provide information people and organizations can use to reduce weather-related losses and enhance societal benefits, including protection of life and property, public health and safety, and support of economic prosperity and quality of life. The work will focus at providing real time air quality and general weather forecasting through a web or mobile app with easy-to-use interface. Overall, it will improve both the personal and professional quality of life in society.

Novelty / Uniqueness:

As pollution levels rise daily and current applications and services do not include such information in the predictions and statistics of weather prediction. Due to the inclusion of weather and air quality aspects like the AQI (Air Quality Index) in the information and analytics provided, the suggested application would offer users a unique weather forecasting experience.

In addition to offering advantages over conventional weather forecasting systems thanks to its dual factor functioning mechanism, the software will also advance in terms of user interface, user experience & ease of access.

Business / Social Impact:

The travel, tourism, and business industries will benefit greatly from the application. Information would be made available that people and organisations might use to lessen weather-related setbacks and increase societal advantages including the preservation of life and property, promotion of public health and safety, and advancement of economic well-being and quality of life. It will improve both the personal and professional quality of living

among people by providing them with a dependable and effective system to monitor weather and air quality

Technology Stack:

The project will utilise the most recent tech stack currently available, for its frontend, backend, APIs and services.

Among which are the following:

Application Design and Development: JAVA Programming Language, Android SDK (version 21 - Android 5.1 or sooner), Material UI Design Library.

Tools: Android Studio, Android AVD (Virtual Device).

APIs and Services: Open Weather & AQI APIs and webhooks for real time forecasting data and analytics.

Scope of Work:

The job will primarily consist of the front end, back end, and integration of services, which are the fundamental components of a project.:

1. Frontend UI:
 - a. Wireframe Design
 - b. Design Conversion
 - c. Development in tech stack
2. Backend:
 - a. Planning The Structure
 - b. Designing Schemas
 - c. Deployment and workflows
3. Integration of services:
 - a. Third Party Service integration
 - b. Backend APIs integration in UI

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