Team Bits Please

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Fourcast

Location based air pollution index application for android.

Problem Statement

With increasing level of air pollutions each day, people are becoming more prone to respiratory diseases. Create an application to visualize users the level of different air pollutants in their current location. The application should:

1) Detect user's location every 3 hours and send them a notification alert

2) Clicking on the notification will launch the application

3) The main screen of the application will consists of a Google Map and filter options that are primary air pollutants

4) The map should display the level of the air pollutant that the user chooses in his current location

Our Solution

A simple android application which detects the user's location based to GPS geolocation, and displays the air quality index and other pollution details.

Primary Goal

The primary goal is to let a person become scientifically and medically aware of the pollutants that could harm them so that they could take necessary precautions before it's too late for them. We have targeted the user base of Android mobile phones by creating an Android Application that could aptly suit our needs. The Android Application,

referred to as "app" here on, will provide a real time and interactive interface to an individual who can check for the pollution indices of various pollutants in his locality, or any location he chooses to. The app not only provide a raw pollutant level information, but also suggest precautionary measures to avoid any respiratory inconvenience during the day.

The app shall also warn the user periodically if a pollutant concentration gets dangerously high, via a convenient notification on their phone, upon seeing which the user can interact with it to know more.

The bottomline remains:

Providing right information at the right time to make our users medically conscious and aware.

What's new?

Fourcast unlike other pear application of this genre, not only displays the air quality index and other pollutant data, it also displays the how much if differs from normal air quality index and also what precautions could be taken against them. Thus, not just displaying random data which is meaningless to a normal person and conveying the meaning of those data directly to them and what can be done about it.

Key Features

1. Display the air quality index to the user and with vivid visual feedback conveying its meaning.
2. Synchronizing data automatically when the user’s location changes.
3. Live notification service to alert the user of the air quality and primary pollutant present.
4. Brief details on the air pollutants present in its location.
5. Precaution against each pollutants than can be taken.
6. Checking pollution index in other locations.

Implementation

The application first gets the user's current location from the android phone GPS module. Upon retrieving the geolocation location, the app displays the user live location on the Google Maps Activity Screen and simultaneously gather the air quality data from aqicn.org via a asynchronous HTTP request.

Upon retrieving the data from the server it displays the following data:

- Air pollutants concentration
  1. Particulate Matter 2.5
  2. Particulate Matter 10
  3. Carbon Monoxide (CO)
  4. Nitrogen Dioxide (NO2)
  5. Sulphur Dioxide (SO2)
  6. Ozone (O3)
- Weather details
  1. Relative Humidity
  2. Atmospheric Pressure
  3. Temperature
- Air Quality Index
- About each air pollutant
- Precaution against each air pollutants

The app also sends a notification every 3 hours alerting him/her about the current air quality.