



MDG Season of Code 2019

Lookout

October 12, 2019

Overview

The Following points include a summary of my project for the upcoming Season of Code 2019:

- **The Problem:** The Pollution level certain cities is just too high at times and can prove dangerous for many people. No strict measures of solutions are devised as of now to tackle the situation. Let's take the example of Delhi-NCR region which is already amongst the most polluted cities of the world and which also happens to be my hometown. Since the starting i'm sick of that pollution and always wanted to do something in this regard. Now i have apt information and knowledge that I can make some steps in the direction with the help of technology. I would be doing this not only for my parents who live in Delhi-NCR but also for everyone suffering from the problem in the hope that this solution may just ease their a little bit.

- **The Solution:** the Solution is to create a mobile application (named LookOUT). It will draw real time data and status of pollution index from government agencies and forecasting bodies and show the data on a map tile. It will then warn the users according to the pollution levels and measures to take to avoid the situation. 'Wearing a mask' and 'boarding a taxi' is one of the few advisable measures and various others can be added in the list. If possible, I'll also implement a feature which diverts the route to avoid high density pollution areas if the users signals no objection in doing so.
- **The Impact:** Even after the end of Season Of Code, I will continue working on this one of mine to enhance its functionality and make it even better as an overall application. Once ready and ripe, I would want to release it at a mass scale for the common public to use and i hope it benefits their daily lives.

App Specifications

- The mobile application would be named LookOUT.
- The app will basically collect info of the user's location. It will then monitor the pollution levels in the air around the user's region.
- It would do it by grabbing real time data from various monitoring agencies by using their APIs.
- The app would then provide notifications about suggestive measures to be taken before going out. Some of these measures include: using a mask and/or booking a taxi.
- It will contain a map tile. The map tile API can be used to show the real-time Air Quality index on a google, bing or openstreet map. It will indicate/mark various locations with information about air index.
- After gaining further technical knowledge I would implement some features like suggestion of other routes based on the pollution levels on different routes available, if the user permits(toggles the functionality on), to avoid high pollution areas.

- Also, if the route diversion is not possible, the app would book a taxi after asking for a confirmation from the user if the user has the apps installed in the device.

This is the basic overall summary of functioning of the app.

Milestones

As there are multiple phases in MDG SoC, I shall list down my timeline for the objectives mentioned in above previous sections. The timeline includes a planning/learning phase, coding phase and the final release phase for finishing up the project. The detailed schedule in mentioned below:

1. Project Planning Phase (21st October - 3rd November)

- Connecting with the mentors assigned to me.
- Learning UI/UX and working hands-on with tools like Figma, LucidChart for creating wireframes(which got left during proposal preparation) and overall app appearance.
- Learning all the essentials of mobile application development from resources from the mentor and the [official documentation](#) of android development from Google. Services like Google Firebase and getting familiar
- Detailed discussion with the mentors regarding the development and improvising on the plan.
- Making and Initialize GitHub repository with my project documentation. Further code will be pushed subsequently.

2. Coding Phase (25th November - 31st December)

- Pollution gathering API implementation through JAVA HTTPClient library and POST operation. The API may be sourced from [AQICN](#) agency based in Beijing, China.

- Using Places, Direction, Distance Matrix and Roads API for precise measurement of one's location and suggesting various routes according to his/her location under a given range of distance.
- Research on various norms and guidelines set by WHO for different pollution levels and suggestions cited by them and implementing the same in the data obtained the app's API and thus suggesting measures on travel to a specific location.
- Implementing the Cab booking feature if the users permits the apps to do so while avoiding the heavy density pollution areas.
- Debugging at regular intervals for any possible bugs.
- All doing this while keeping it pretty to the eyes.

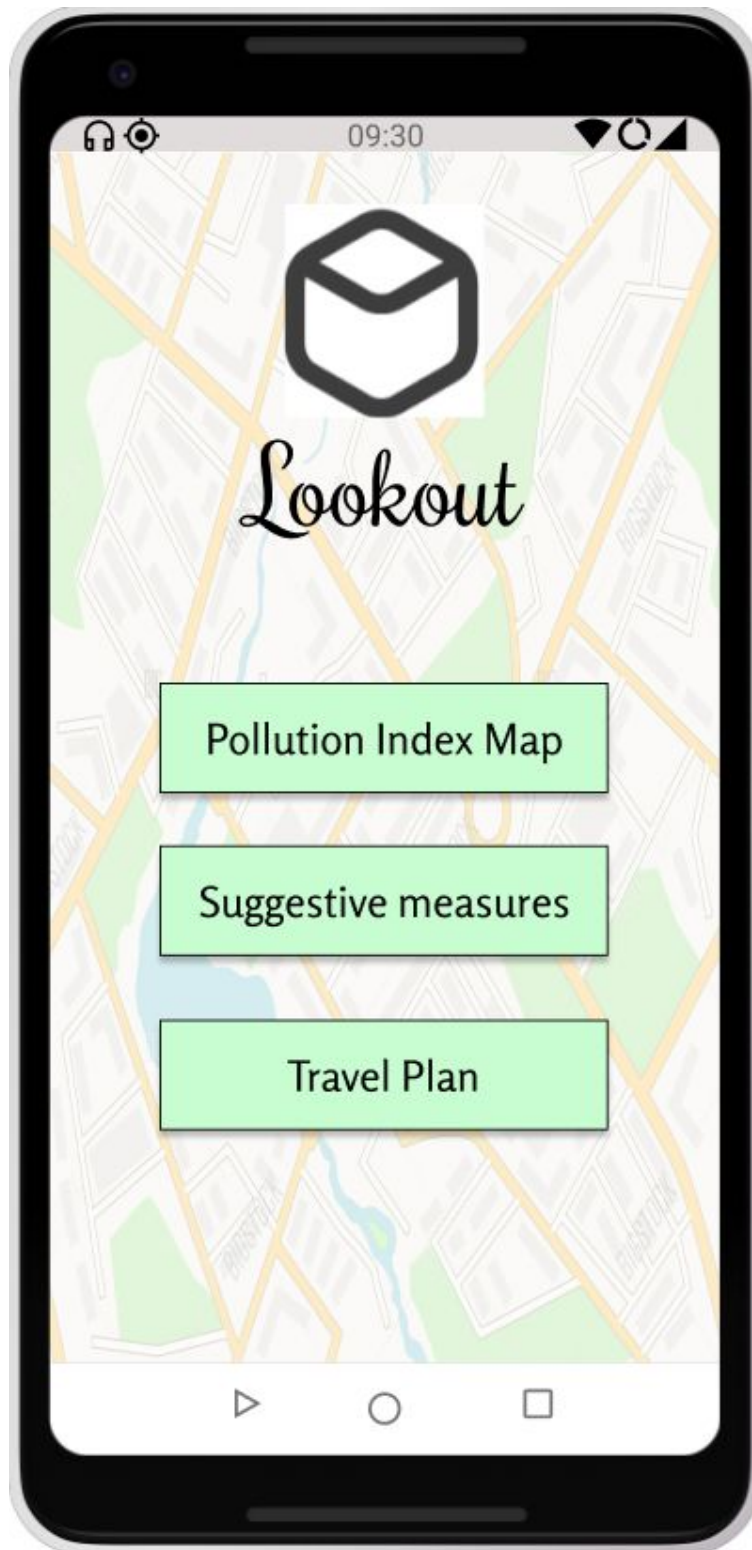
3. Release Phase (1st January - 14th January)

- Final debugging and polishing will be done during this period before releasing it at the mass scale. Final tweaks are made and proper functioning will be insured.

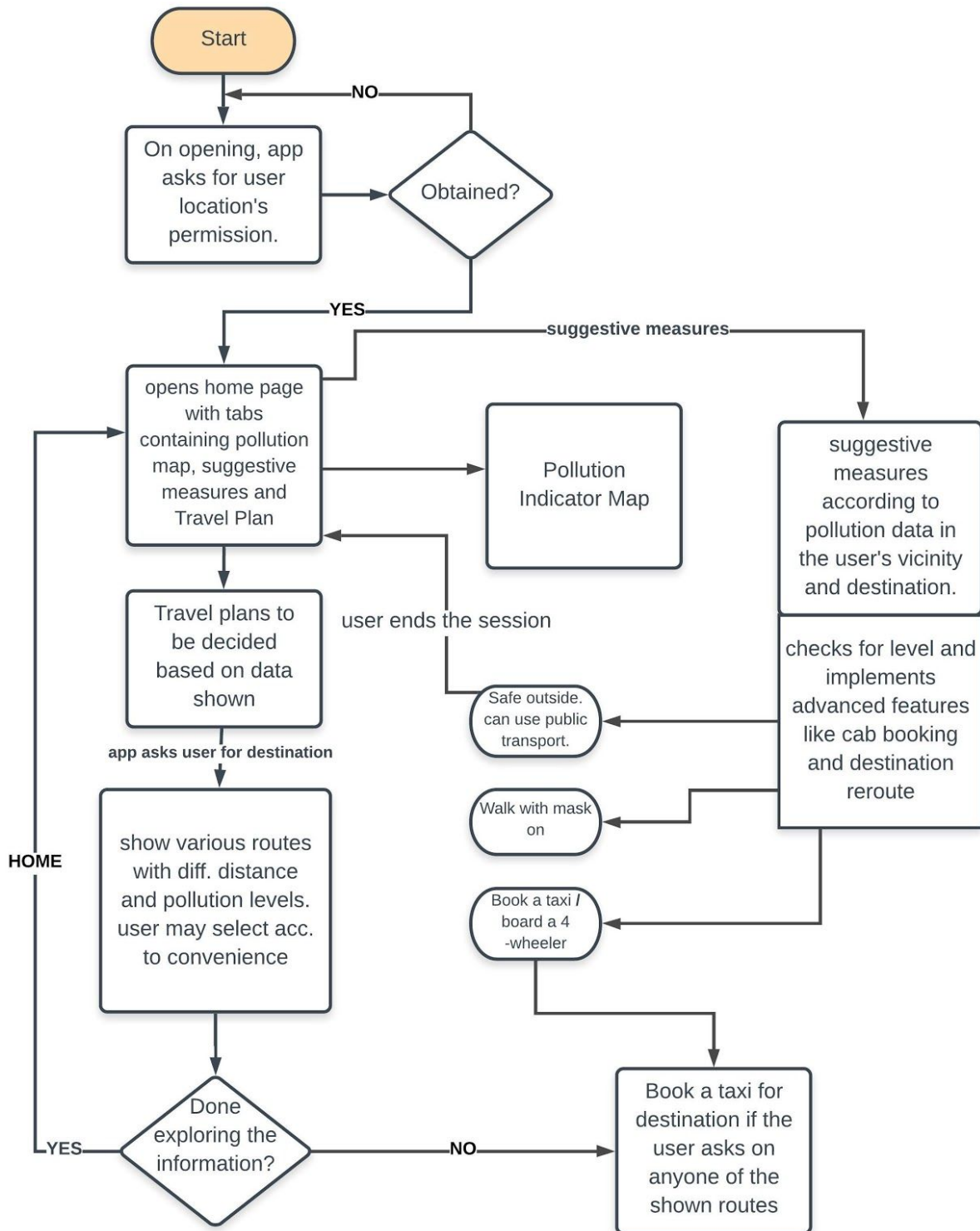
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UI/UX Mockups:

Due to paucity of time and much technical expertise, I could only make home page final mock page wireframe. But will add the others soon during the project planning phase.



Wireframe of the final app



About Me

I am a student of Indian Institute of Technology Roorkee and am currently in my second undergraduate year. My past technical experience has been in various domains. I had sound knowledge of c++ as I studied as a part of my syllabus in CBSE. then after coming in IITR I started attending meetings of InfosecIITR and started exploring the domain of information security and participating in CTFs. My very first CTF was the n00bCTF'19 organised by sdslabs. The experience was quite good and I stood at the third position in the entire first year. Felt Good. In the summers of my first year(summers 2019) I joined a startup involved in the export-import business as an intern in the profile of a software developer and there I learned many new things. It was this intern only that got me interested in the domain of development. I learned and worked on Java, specifically on the HTTP Client library used to make operations like POST, GET to an API. I also explored databases(PostgreSQL) and linking of those databases with the JAVA program. I made small-small things like date-time-year printer and nonce printer in JAVA. I worked on APIs of e-commerce websites and used them through OAuth Authentication using JAVA program and tools like ARC and Postman. Now I've started android development after the announcement of SoC. That's pretty much it.

Contact Details

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