JUNCTIONX ASIA 2020

Team HackovidX

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Web Development and Azure Integration

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Data preparation & transformation

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Marketing & Graphic Design

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UX research & UI design

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India

Ideation, Data preparation & transformation

02
Problem Statement

Introducing

Problem Statement

Decreasing Particulate Matter

Sometimes the source of air pollution of a region is in another region or country. Flowing air can carry the particulate matters along with it from the originating region to a completely different regions causing people to get affected by actions of other countries

Decreasing Carbon Emission

Extensive usage of personal vehicles contributed to the rise of carbon emission from an individual level. This causes various threats to the environment, other species and a healthy lifestyle

03

Target Audience

To help the most vulnerable in a post-COVID-19 world

Target Audience

People who have recovered from COVID-19

As their lungs are still weak, they need to stay protected from air pollution to avoid chances of infection

People with Respiratory Diseases

People having asthma or people dependent on respiratory devices, can be prepared for the air pollution by stocking medicines, refills etc. beforehand

Public Transport and E-commerce sites

By using our API, these companies may run promotions and offer reward points for using their services

Audience based on Geography

Robustness

As our app is highly scalable based on global data and powerful Microsoft Azure services, this app can be used anywhere in the world

Irregardless of Culture, Gender, Age

We gather all data with user's consent. This app does not discriminate against users based on culture, gender or age

04

Objectives

Predicting pollution that comes with airflow

and reward users for helping reduce the pollution

1

Predict airflow particles by world heatmap

Using Azure Maps with heatmap data to display airflow in a region and if any hazardous area falls in path of airflow

2

Gamified app to reward environmentally-friendly users

We show daily carbon emission by a user and incentivize them to reduce carbon footprint everyday through a reward-based system

3

Motivate users to use public transport on pollution alert days

When we get an alert for pollution, we increase the reward point by x3 to motivate them to use public transport

Key Objectives

1

Predict airflow particles direction

If we can predict an airflow and if a hazardous area falls to the path of the airflow, we can alert the people falling on the path of the airflow

Key Objectives

2

Incentivize users to lower carbon footprint through a reward-based system

We must reward the users to help them stay motivated to lower their daily carbon emission level to as minimum as possible

Key Objectives

3

Using special technique to motivate users on pollution alert days

When we get a pollution alert, we must aim to increase the motivation of the users to keep individual level carbon emissions at the lowest possible value

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Technologies Used

Technologies Used

Azure Maps

To plot the heatmap and airflow

Azure Functions

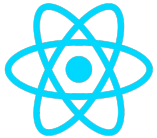
To get data as JSON API written in Python

Azure Container Registry

To host the Docker container running web app

Azure Web App

To access the web app running in Azure container



React JS

To render the web and app frontend

Python

To handle data and build an API

Figma

For Rapid Prototyping

06

Product

Demo Video of CarbonScape

Timeline of CarbonScape:

Jul ‘20 (kickoff)

- Product Development
- Partnerships (approach e-commerce sites & public transport authorities)

Aug ‘20 (Milestone 1)

- Test product with small sample audience
- Feedback survey and app improvements

Oct ‘20 (Milestone 1)

- Launching it in first city with a goal of getting 1000 active users

Jan ‘21 (Milestone 1)

- Launching it in 5 most wors pollution affected cities of the nation with a goal of getting 10000 active users.

May ‘21 (Milestone 3)

- Launching it nationally While having a stable user-base

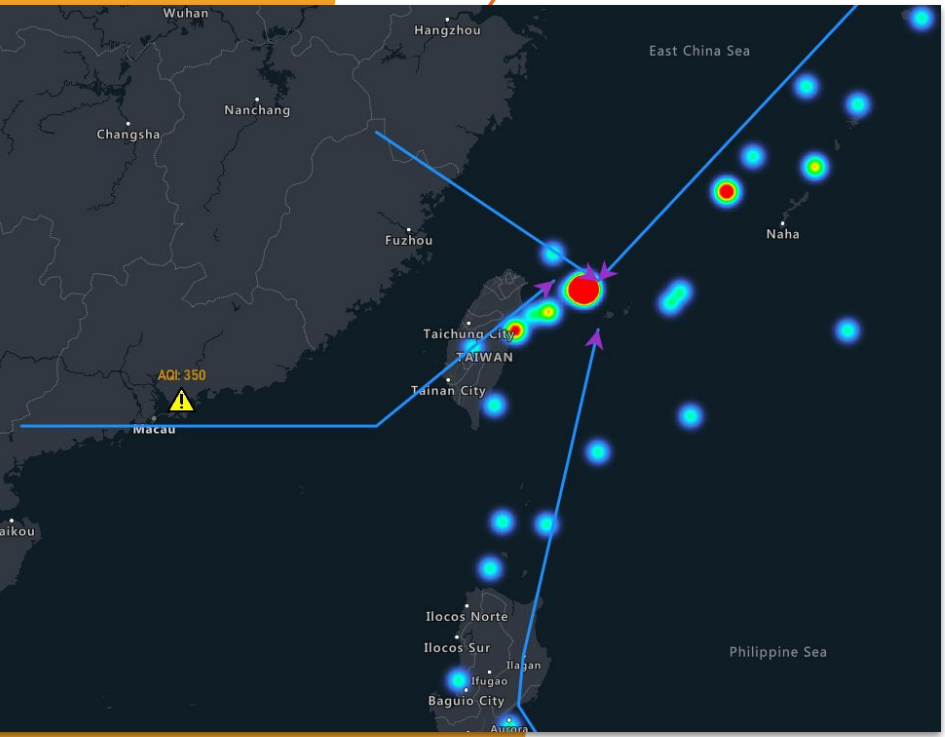
Introducing Carbonscape

Predicting flow of air pollutants

Gamification for motivation to reduce carbon footprint

Motivate the user to reduce carbon footprint on pollution alert days

Predicting flow of air pollutants



Data shown is for visualization only, does not represent present values

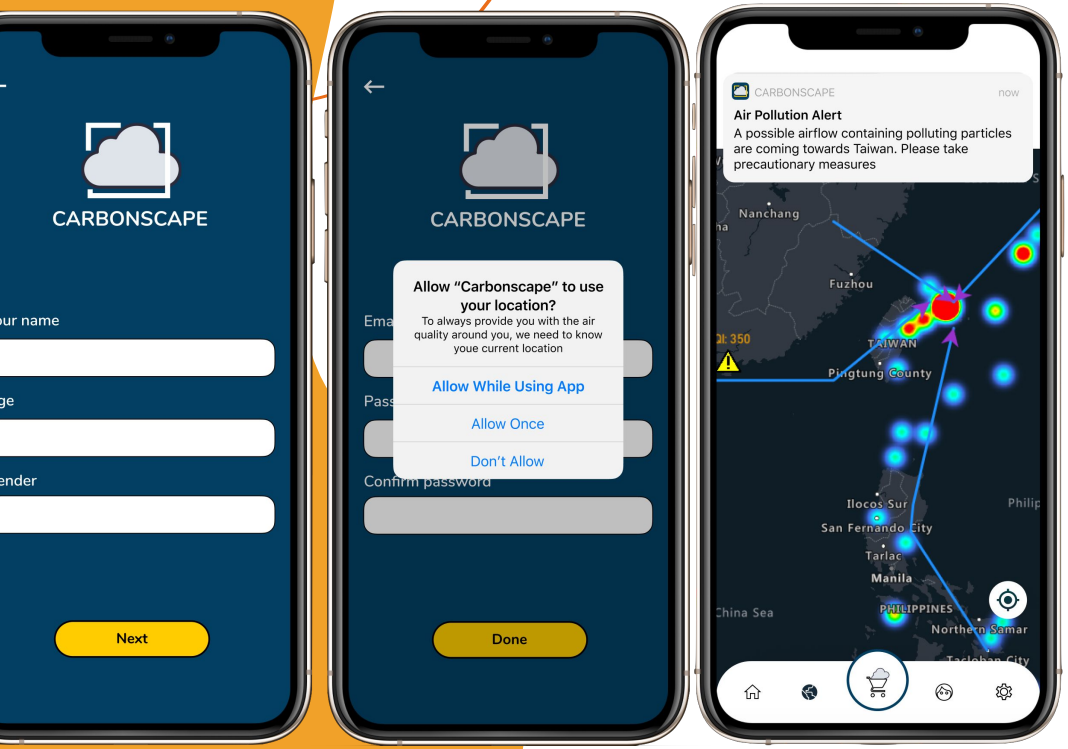
From **Azure Maps** heatmap, (shown in red and blue circles) we get an idea of where a possible airflow may happen

The arrows represent the airflow direction from colder places to hotter places, as airflow tends to happen from colder to hotter regions

The alert symbol shown near Hong Kong represents bad air quality and there is a high chance that, the flowing air will carry pollutant along with it from Hong Kong towards Taiwan

Alert the people in Taiwan that polluted air might be coming their way so they can be prepared by taking precautionary measures.

Notify users to stay protected



Data shown is for visualization only, does not represent present values

On opening the app for the first time, it asks for User Location, Age and Gender related information. After that, the user gets a notification regarding his/her present location only

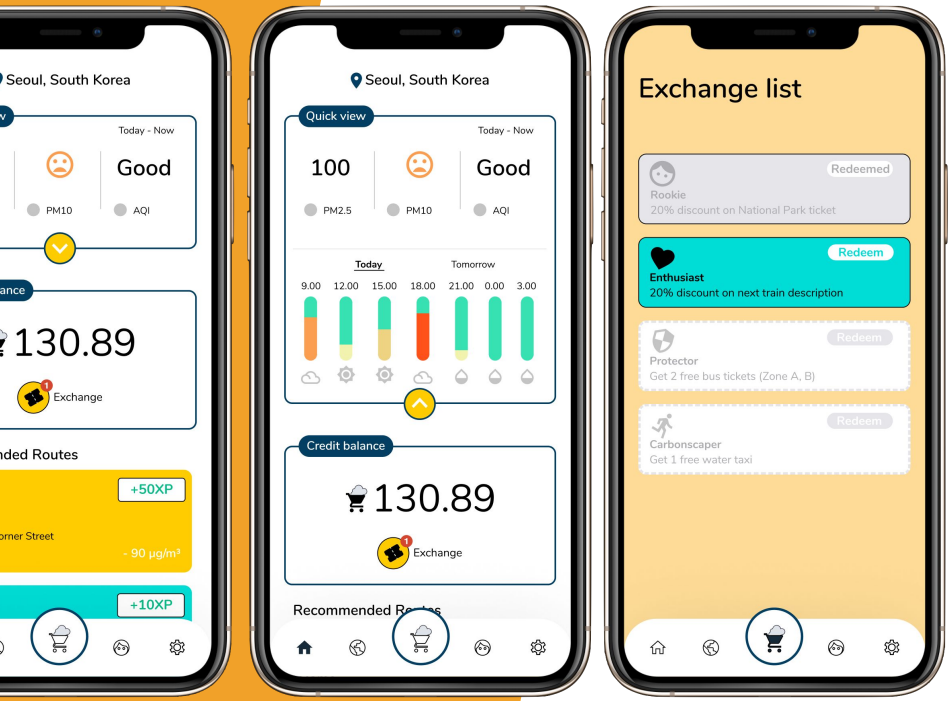
Users who have installed the Carbonscape app, can get pollution alert notifications without registering

Helps the user if...

He has recently recovered from COVID-19 and has weak lungs and a weak respiratory system

He is a patient of respiratory problems such as asthma etc. and can be prepared ahead with required medicines and checkups

Potential Gamification to incentivize reduction in carbon footprint



The app has an extensive list of appliances and vehicles with CO_2 emission levels by which the user can know the amount of emission caused by him in a day

If the value is under a specific threshold value, he is rewarded certain number of points

Motivates...

- Use of public transport
- Efficient use of appliances

Points can be redeemed as...

- Online shopping coupons & cashback
- Public transport passes
- Store discounts

Motivate user to reduce carbon footprint on pollution alert days

If the user gets an alert for air pollution, the reward point amount also increases, however it can only be redeemed after the app verifies that the user has reduced their carbon emission levels. The app determines a reduction as at least 10% from the original carbon emission levels

Motivates user to...

The idea behind crediting a user's account on pollution alert days is that if the user can see the benefits they could redeem, just a touch away...they would be more incentivized to adopt more eco friendly practices to redeem them.

Helps Environment...

By lowering particulate matter in the air at an individual level

To be more resilient against the upcoming air pollution in a user's country of residence

What Sets Us Apart?

Unique Airflow Map From Heatmap

As airflow happens because of temperature difference, we can predict the airflow direction based on the global heatmap.

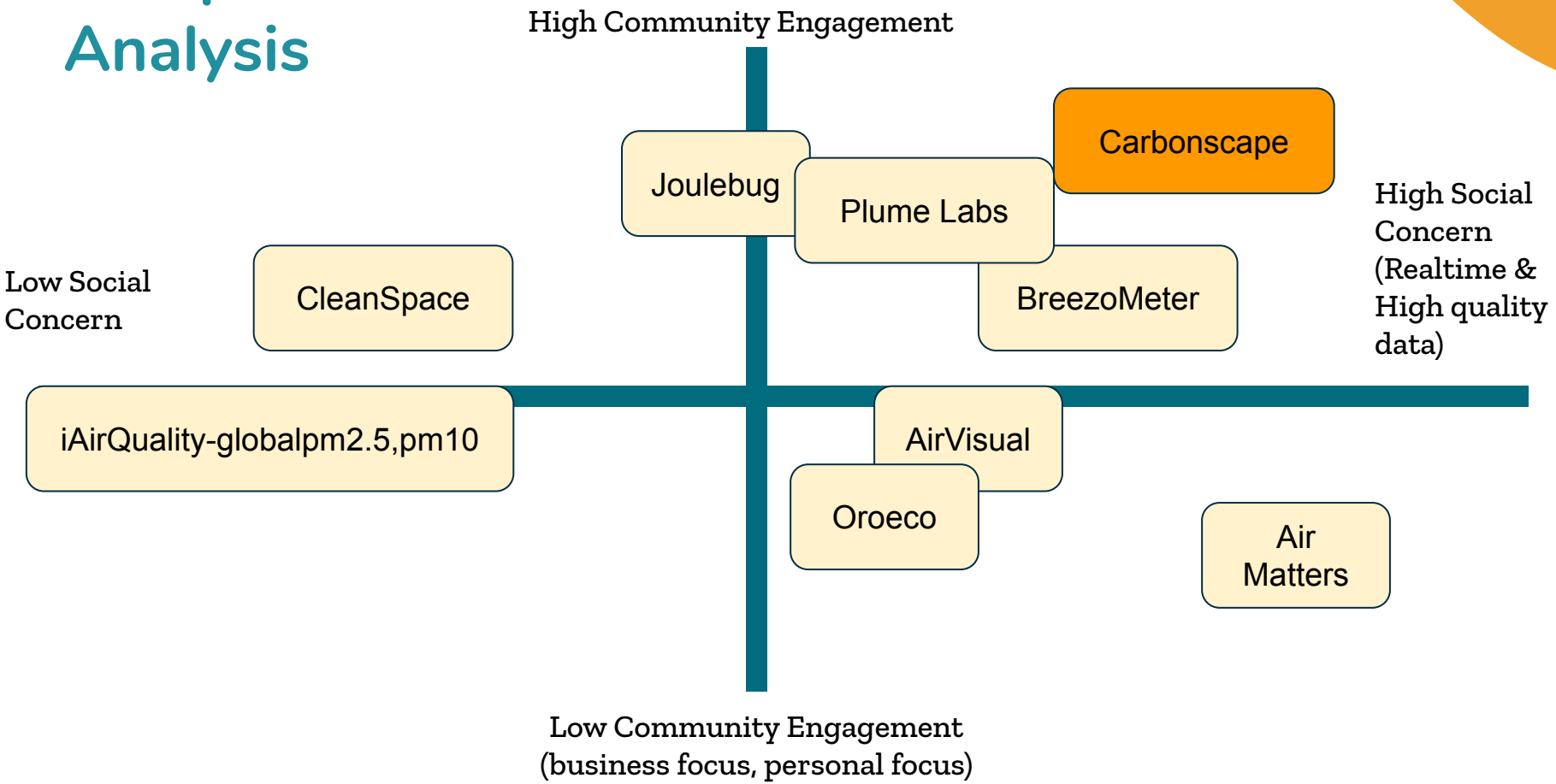
Motivate User to Lower Carbon Footprint By Gamification

As people crave to gain more points to compete with friends by reducing carbon footprints, the nature gets a sigh of relief

Making Air Pollution Alert API Open for Developers

By doing so, we can engage public transport companies, e-Commerce providers to promote their services and also award more points

Competitor Analysis



Feasibility of Application

Technical feasibility

Our app uses open data API to gather heatmap data and open source softwares with the powerful Microsoft Azure platform to build project. Our team is also fully capable of these technologies.

Operational feasibility

We have a multi-skilled team who are experts in marketing, sales and technical aspects. Reaching people and understanding their views on our app is what our team is fully capable of.

Schedule feasibility

We have a working prototype of our app. We have prepared a timeline according to progress and availability of resources. We are fully prepared with a working plan to launch it by May 2021.

Economic feasibility

Our app mostly uses free and open-source software and data. Our income comes from the e-commerce and transport partners for promoting their services. This way we are capable to maintain a healthy balance sheet.

Go-to-market feasibility

This app has already proved it's demand in market from some users with whom we have tested. After we settle our partnership with partner companies, this app is ready to be widely acceptable to the market.

Potential areas of growth:

Making Air Pollution Alert API Open for Developers

- **Gamification** of the app through incorporating features like connecting with facebook friends and having a points scoreboard to encourage some friendly competitive spirit.
- Another aspect would be trying to include **AR based games**, in which the user gains knowledge on the carbon emissions emitted by a particular appliance by virtually clicking on it.

References

Cloud Provider

Microsoft Azure

Heatmap data

https://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/all_month.geojson

Thank You