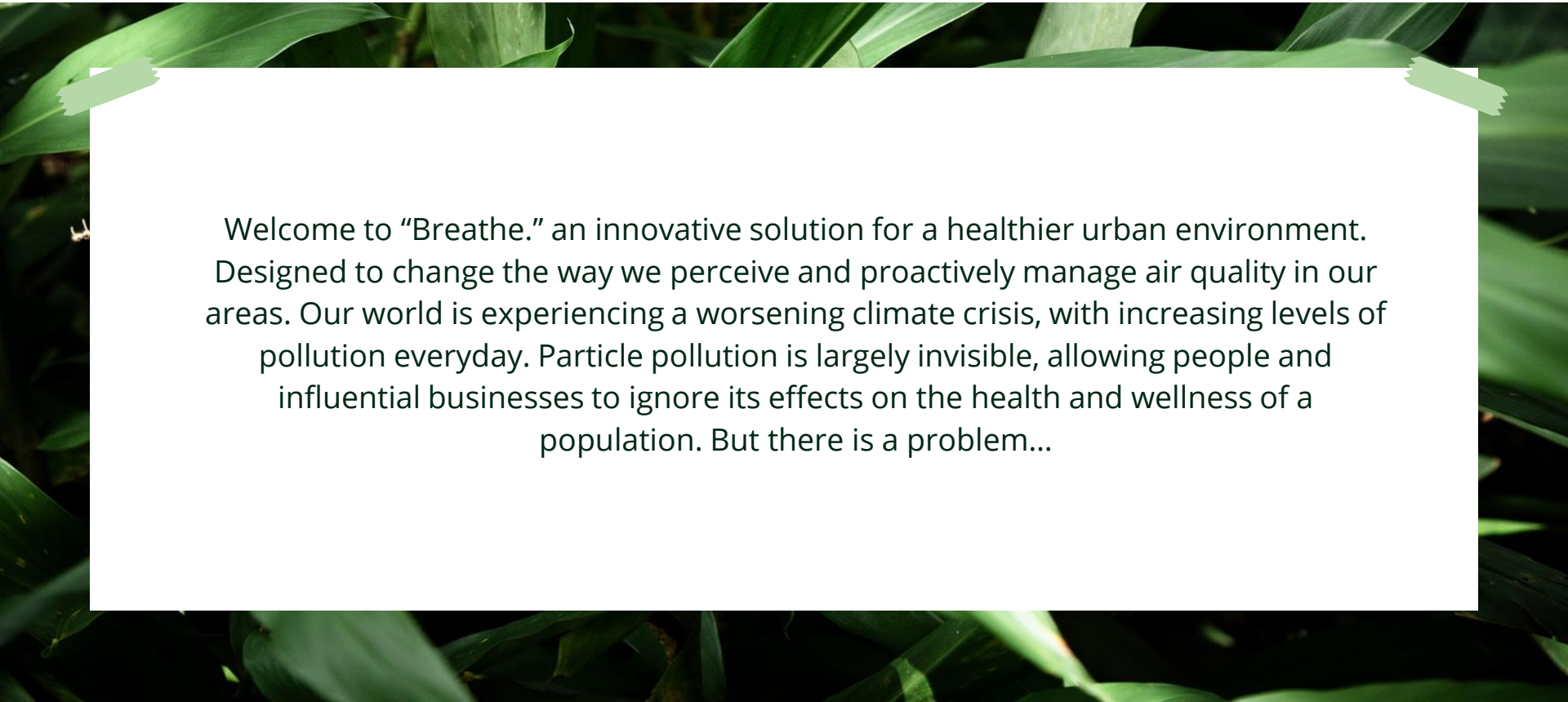

Breathe.
“Shedding light on invisible pollution”

Introduction



Welcome to “Breathe.” an innovative solution for a healthier urban environment. Designed to change the way we perceive and proactively manage air quality in our areas. Our world is experiencing a worsening climate crisis, with increasing levels of pollution everyday. Particle pollution is largely invisible, allowing people and influential businesses to ignore its effects on the health and wellness of a population. But there is a problem...

Problem statement

No. 3- Environmental Sustainability Domain - in urban areas

People are currently informed about the current Air Quality Index (AQI) values but often fail to take necessary actions. In order to feel that they need to act, citizens need to realize how severe particle pollution is, and how influential green spaces are in filtering our air.

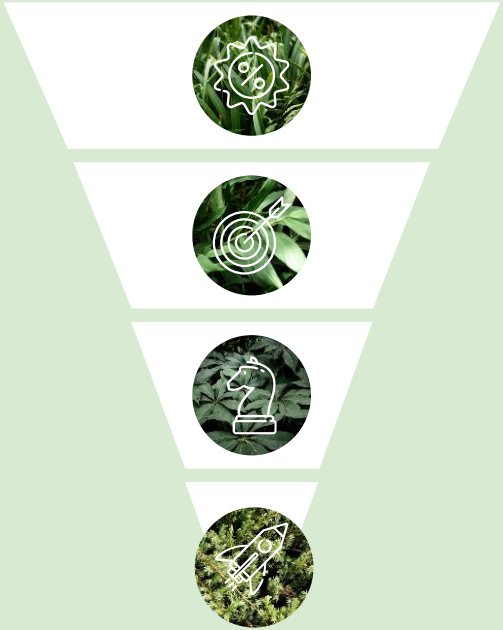
Focus Area: Leveraging Real-Time Machine Learning for Pollution Reduction and Maximizing Environmental Impact + Predictive Air Quality Management: Using real-time ML predictions to preemptively address air pollution spikes.


Air is Invisible.
One solution: The power of collective impact

Ideation

Based on user input:

- Extract real-time AQI, coordinates, UV index etc.
- Predict future AQI based on historical and real-time data
- Educate the user about current and future toxicity levels
- Suggest smart recommendations to reduce pollution



Ideation - Workflow

Location

Real-time pollutant values

Trained models

Toxicity levels

Future predictions

Steps to take

Upon clicking on Future..

- Future pollutant levels values will be predicted
- What actually are those pollutants
- What lead , leads , will lead to their increase
- Present and future toxicity level of pollutants
- Measures to control them
- Measures to protect us

Considerations and constraints

- Extract real time, upto date values
- Evaluate pollutants based on their respective units
- Give suggestions based upon the specified locations build up area
- Obtaining information from valid apis

Novelty

Existing systems: Applications mostly give information about pollutant levels. They are also scattered between websites and various other sources.

1. We attempt to create an application to raise awareness about the alarming increased levels of pollutants, by providing their real time values.
2. It will indicate their toxicity level, and lets people know what they are, how are they produced, what measures can be taken to control or reduce them.
3. Finally it also gives measures to protect people from pollutants and provides suggestions to increase air quality in their environment.

And all these in one stop **Breathe**.

References

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- https://www.openuv.io/dashboard
- https://www.openstreetmap.org/
- Google api
- Effect of Green Space Environment on Air Pollutants PM2.5, PM10, CO, O3, and Incidence and Mortality of SARS-CoV-2 in Highly Green and Less-Green CountriesSultan Ayoub Meo,1,Faris Jamal Almutairi,1 Abdulelah Adnan Abukhalaf,1 and Adnan Mahmood Usmani