

# Pranavayu प्राणवायु

A biomimetic air filtration system,  
that will help Rickshaw drivers  
breath easy.





# PROBLEM

- **Highly polluted air in Dehli**



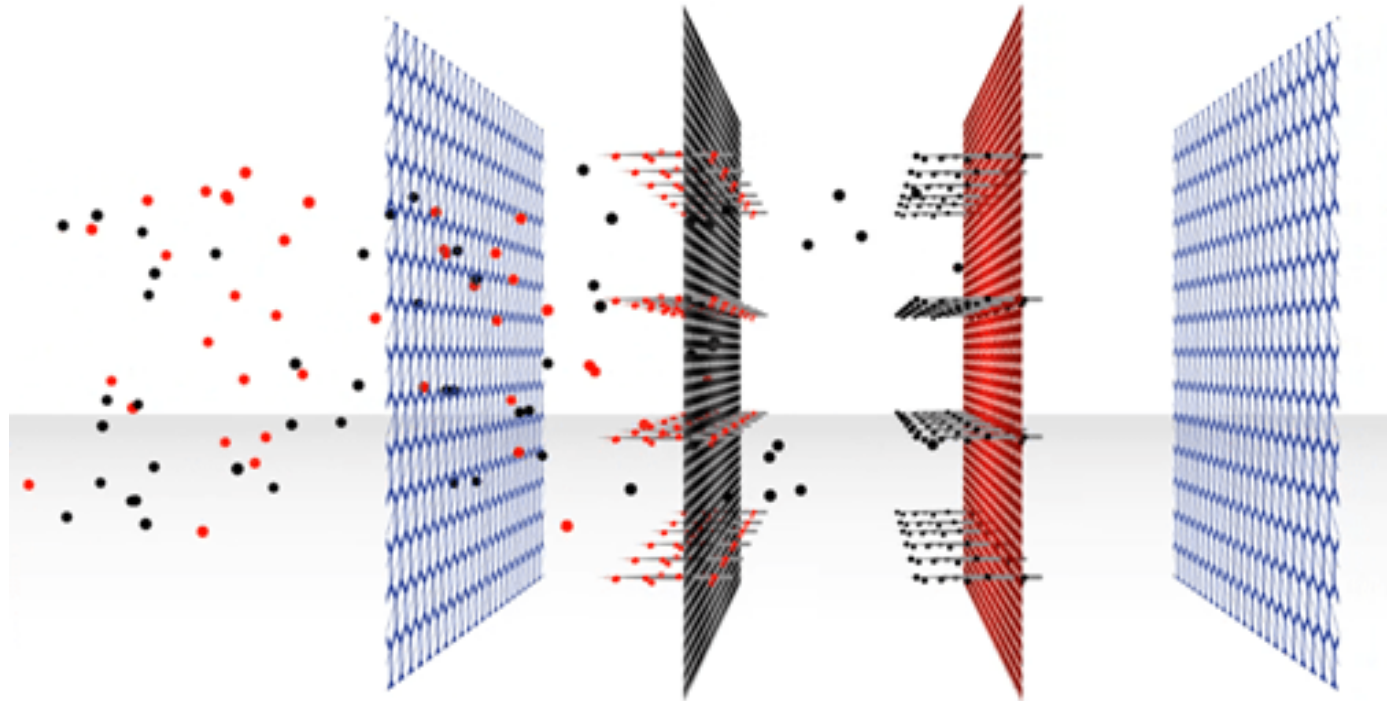
- Average Air Quality Index for Delhi: very poor (400 AQI)
- Recommended value: 25 AQI

- **Public transport workers are daily exposed to this hazardous air**



- Exposure results in higher morbidity and mortality
- Design of the Rickshaw does not provide any protection

# BIOMIMETIC AIR FILTER



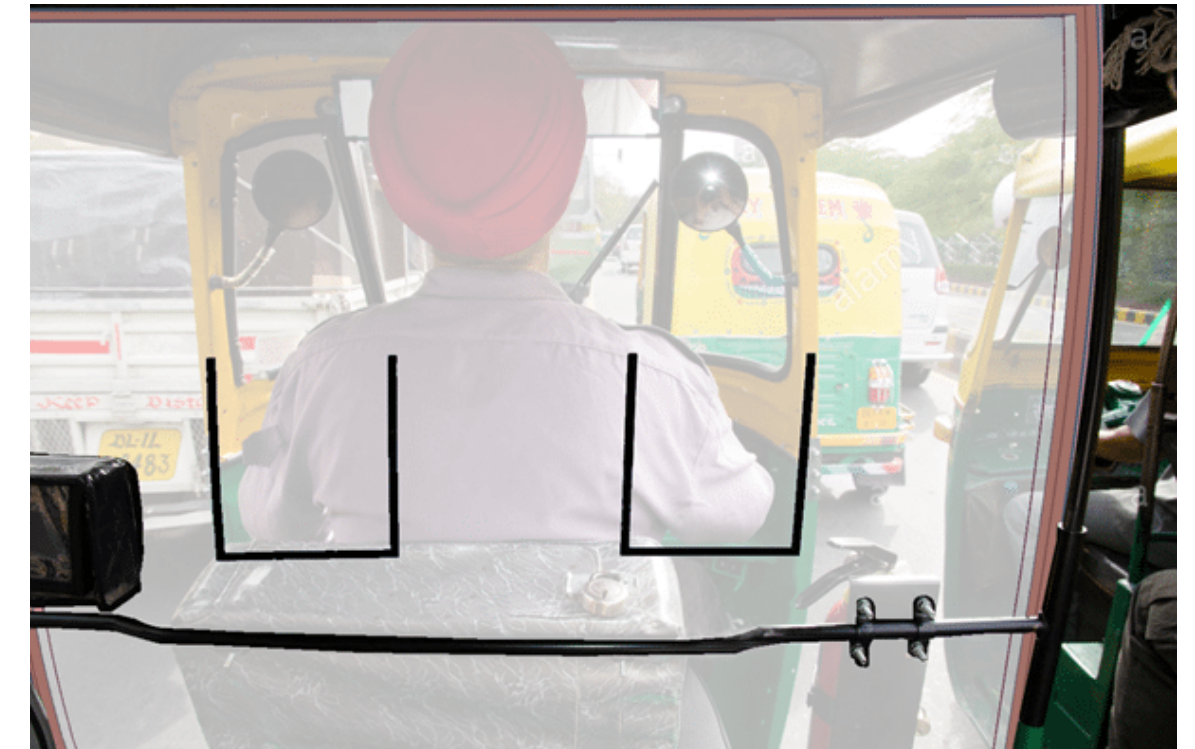
## Filter

**Four mesh** system, in which the two inner meshes actively catch particulate matter due to **electrostatic charge**.

*Biological Inspiration:* pistils of the flowers during the electrostatic pollination



side



back

## Cover

**Enclosing** the driver into a cabin to prevent polluted air exposure with polluted air. A cover is **transparent cover** to ensure visibility and an attached **water flap** to protect the filter.

Filter is attached to the bottom part of the side cover.

# CUSTOMER



**Age:** 20 - 80

**Work:** Rickshaw driver

**Family:** married, kids

**Location:** Delhi, India

**Character:** Breadwinner

## Goals:

- Comfort and health
- Flexible and unlimited working hours
- Increase of customers

## Frustrations:

- Uncomfortable and unhealthy working environment
- Smog prevents clear sight and decreases working hours
- No alternative product to entirely protect the driver

## Bio:

Rickshaw drivers in India, mostly men, are usually the breadwinner of their family. Their monthly income is typically low and dependent on the number of customers. Therefore, rickshaw drivers need to be very flexible and available as much as possible, to gain more money for the family.

## Anticipated market size:

- Approximately 1.5 million Rickshaws
- Price of the filter: 30 - 50 USD

***potential total available market (TAM):***  
***45 million USD***



# CREATING A BETTER WORLD

Selling the collected pollutants to company AIR INK which further uses the pollutants to produce ink.

**17** PARTNERSHIPS FOR THE GOALS



**3** GOOD HEALTH AND WELL-BEING



Lower risk of respiratory, cardiac, and neurological pathologies

The solution contributes to the sustainable public transport systems in cities by filtering fine dust from the air.

**11** SUSTAINABLE CITIES AND COMMUNITIES



With a better opportunity for a stable income, rickshaw drivers and workers in factories can improve their economic condition.

**10** REDUCED INEQUALITIES



**8** DECENT WORK AND ECONOMIC GROWTH



Healthier work environments, improve driver productivity. This in turn increases their revenue. Also the assembly and maintenance of our product will help local industries.





**Hida Parsay**

Coordinator



**Ashutosh Sinha**

Networking and PR



**Nina Vodnjov**

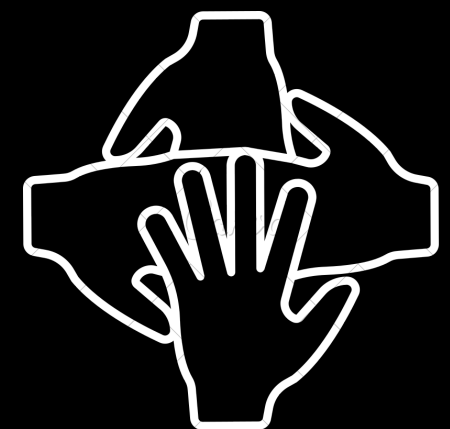
Developer



**Edward Paddon**

R&D

# THE LAUNCHPAD TEAM PRANAVAYU



# DESIGN AND ENTERPRENEURIAL JOURNEY

## Defining a problem

winter 2019/20

- problem definition: air pollution in India
- the most affected people → rickshaw drivers
- solution idea → air filter

## Shaping our design

spring 2020

- filter shape → nature as an inspiration, model and mentor
- mimicking the pistils of the flowers → creation of bio-inspired air filter embedded into a cover for the driver's cabin
- upcycling → collaboration with AirInk to take over cathced pollutants

## Global Biomimiry Desgin Challenge

spring 2020

- with the application of our biomimitec desgin idea, we qualified us to the finals → Biomimicry Launchpad

## Prototype testing and market possibilities

autumn/ winter 2020

- Prototype and proof of concepts test
- Final optimization of filter
- Determination of a business model
- Looking for other potential markets



# CONTACT US

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