Fantom – A21

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Cooking is a contributing source of PM 2.5 levels indoors

Problem

Rampant indoor air pollution in India causes severe health issues and drastically reduces life expectancy. One major pollutant is PM 2.5 (particulate matter 2.5), a compound that enters into a person's lungs and can cause ailments like lung cancer and asthma.

Key Insights

- Indoor air pollution is 13 times worse than outdoors (Jain, 2023)
- 5.3 years of one's life may be taken by air pollution on average (University of Chicago)
- People spend upwards of 90% of their time indoors (Datta et al, 2017)
- On average, 9 out of 10 Indian households have ceiling fans (CEEW, 2020)

How might we reduce the impact of emissions that reach indoors on human health?

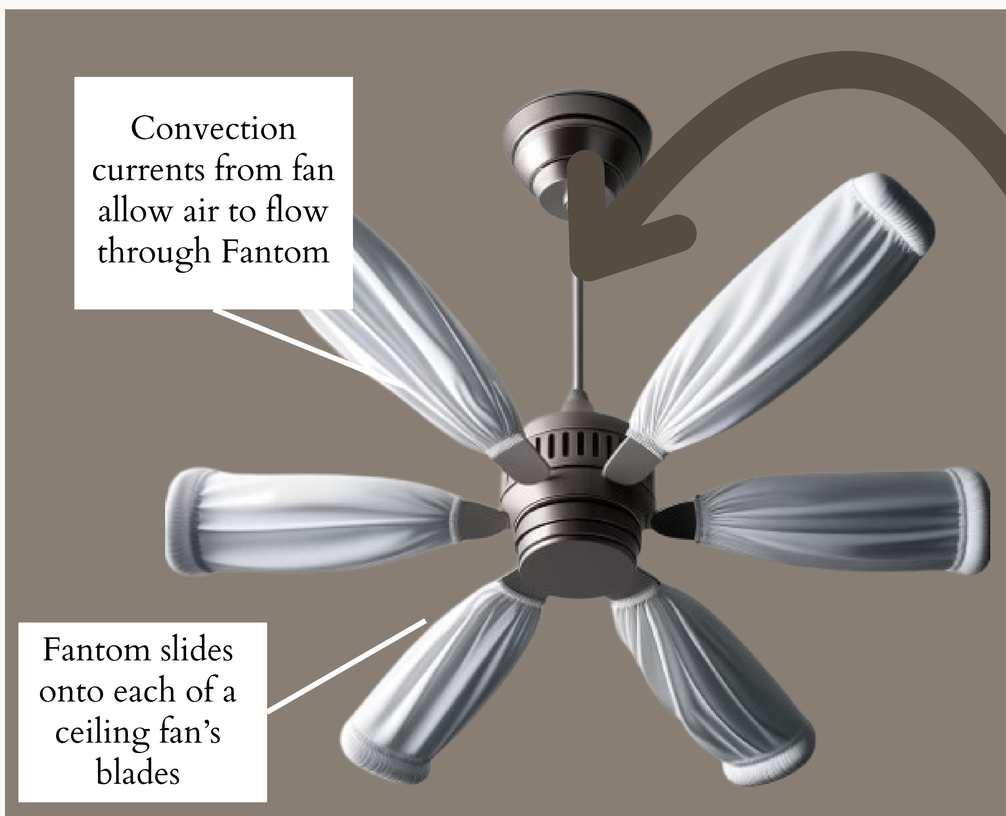
Existing Solutions

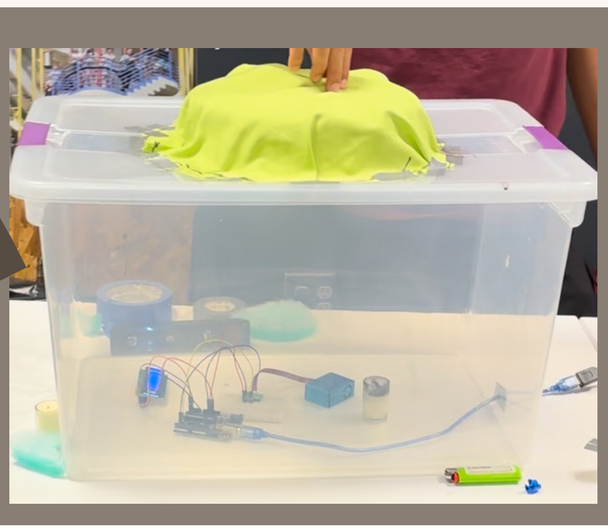
Air purifiers are infeasible for the majority of Indians due to high costs of adoption and maintenence

Passive window air filters drop hugely in effectiveness when wind levels are low

Our Solution / UVP

We present polyester air pollution filter sleeves for each fan blade which strike a good balance between price and efficacy. The spinning of the blades let air pass through our filters at high enough speeds to capture PM 2.5.

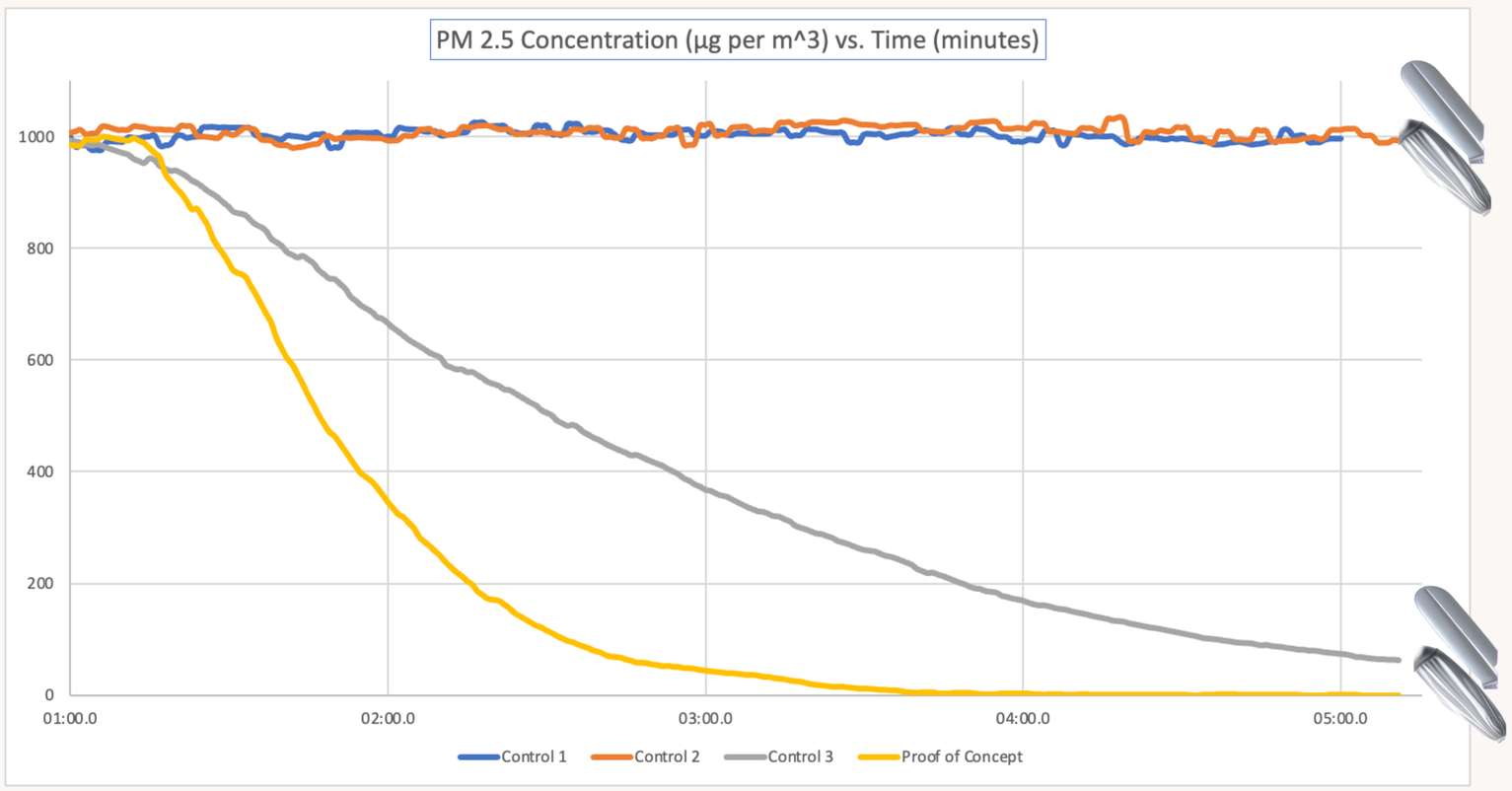




Our experiment tested the PM 2.5 decrease caused by the following:

1. Stationary fan
2. Stationary fan with filters
3. Moving fan
4. Moving fan with filters

Results & Moving Forward



Controls 1 and 2 (the stationary blades with and without filter) were not able to change the starting PM 2.5 levels. Control 3 caused a reduction only up to a level of 75 (still hazardous) but could not go further. Our proof of concept caused a full reduction in about half the time!

2-Year Roadplan

Explore the potential for a proprietary filter or even the usage of a combination of exisitng filters

Continue research in other markets to see if our product would fit

Self-Sustaining

Filters will need to be periodically replaced

Pollution is a long-term issue, with potential solutions requiring years to implement

Early Adopters

We have already reached out to a local distribution partner in India, preparing a survey to determine pricing and areas of higher demand

India already has a huge filter production capacity, which makes initiating production relatively easy