

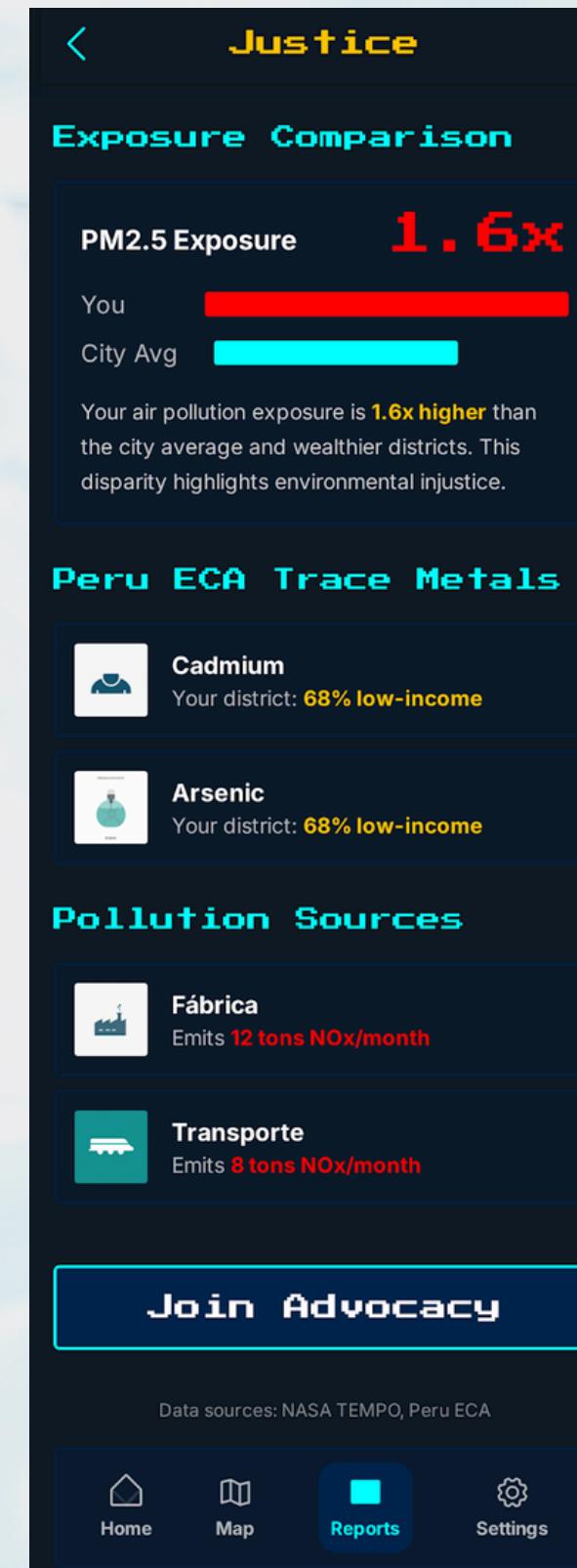
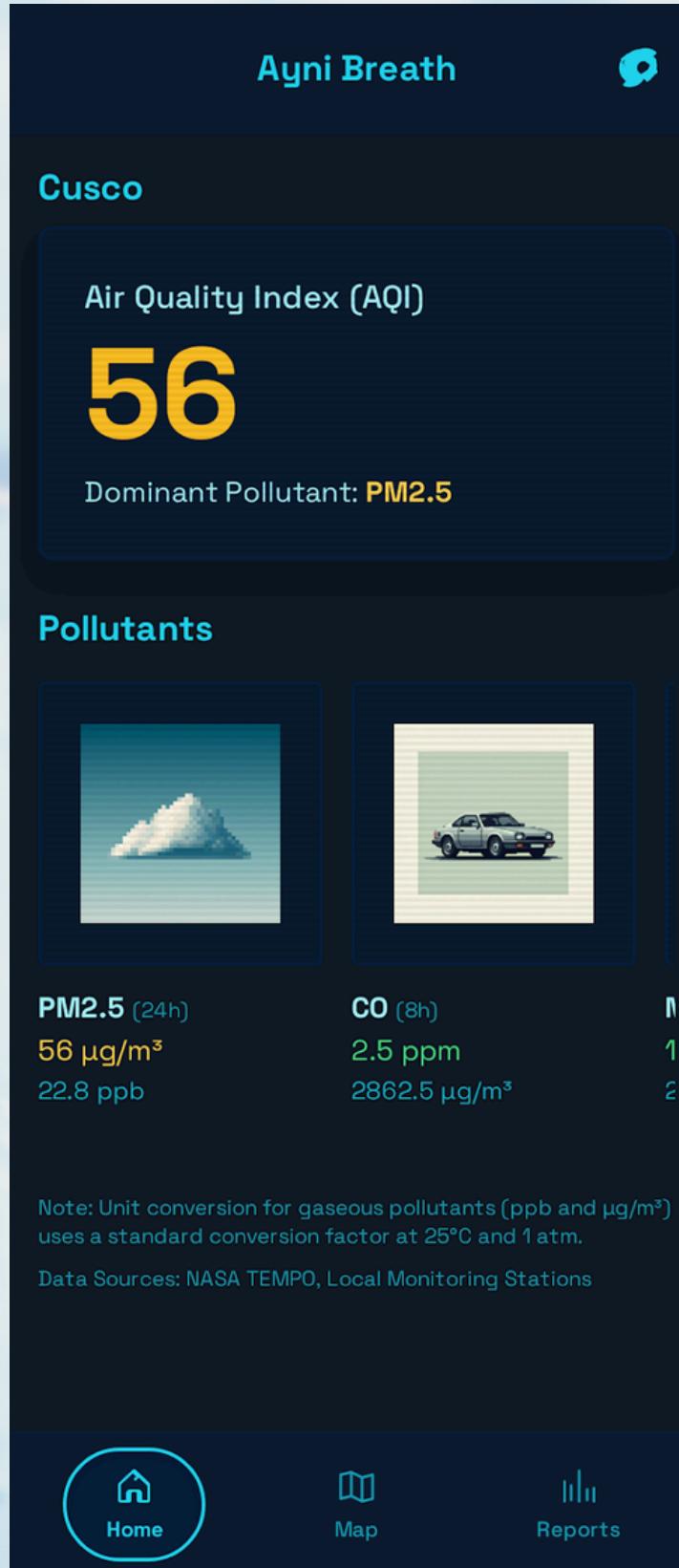
# Ayni Breath: Mobile app that alerts about air quality in the area

*From late warning to preventive action for clean air*

# The Problem

- Limited access to real time air quality information, especially in areas without monitoring stations.
- Lack of integration between satellite, meteorological and local data, which makes it difficult to anticipate pollution episodes.
- Absence of accessible predictive tools for citizens and authorities to prevent health risks.

# The solution Ayni Breath



Ayni Breath is a next-generation air quality app built for fusing NASA's TEMPO satellite data with ground-based sensor networks (OpenAQ, EPA AirNow) and real-time meteorology to deliver hyperlocal, scientifically rigorous air health insights no guesswork, no oversimplification.

**Ayni Breath calculates the true Air Quality Index (AQI) using the exact US EPA methodology:**

- Truncation before interpolation (e.g., PM2.5 = 12.09 → truncated to 12.0)
- Dynamic unit conversion from ppb to  $\mu\text{g}/\text{m}^3$  using real-time temperature and the NASA-derived formula:  
$$\mu\text{g}/\text{m}^3 = (\text{ppb} \times 12.187 \times M) / (273.15 + T)$$
- Correct averaging times: 1-hour for  $\text{NO}_2$ , 8-hour for  $\text{O}_3$ , 24-hour for PM2.5

**Our retro 2D interface inspired by the spirit of ayni (reciprocity) doesn't just show you the air. It shows you why it matters:**

- Who's polluting near you?: By overlaying TEMPO's  $\text{NO}_2$  plumes with EPA's ECHO facility registry, we identify likely industrial sources power plants, refineries, ports so you know who's accountable.
- Justice Lens: Compare your exposure to city and national averages because clean air shouldn't depend on your ZIP code.

# Benefits

## 01. Prevention:

Anticipates air pollution episodes.

## 02. Public health:

Reduces population exposure to polluted air.

## 03. Environmental awareness

Informs and empowers users about air quality.

## 04. Accessible technology

Real-time monitoring from anywhere.



# Strategic Impact

- **Public health:** Alerts aligned with the WHO (AQG 2021) to reduce exposure to PM<sub>2.5</sub>, NO<sub>2</sub> y O<sub>3</sub>.
- **Management and oversight:** Georeferenced technical inputs compatible with the ECA (DS N°003-2017) for MINAM/OEFA.
- **Health response:** Activates DIGESA protocols and communications for preventive actions.
- **Policy and reporting:** Metrics compatible with international standards for planning and compliance.

# TEAM WiraSpaceApp



JEFFERSON FLORES

Systems Engineer  
CEO



MARISELI CUBAS

Chemical Engineer  
Student  
Emissions monitoring



ANTONIO AGUIRRE

Chemical Engineer  
Student  
Air quality modeling



MIGUEL INOCENTE

Systems Engineer  
Student  
CTO

# TEAM WiraSpaceApp



ELIAS ROSALES

Systems Engineer  
Data scientist



BENJAMIN CUEVA

Systems Engineer  
Student  
Data scientist