TEAM
02

TEAM
THERMAL OPTIMIZERS

THEME: EXTREME HEAT, THERMAL EQUITY

PROBLEM OWNER
ANYWHEEL

ORGANIZER

FOUNDING SPONSOR

SUPPORTED BY

ORGANISER

FOUNDING SPONSOR

SUPPORTED BY

SOLUTION & PROJECT NAME

CoolRide SG — Heat-Aware Routing for Singapore's Cyclists

CLIMATE PROBLEM

The Thermal Inequality of Urban Mobility

40°C Peak Temperature

6-8hrs Daily Exposure

Zero Shade on Routes

2PM. 35°C. A delivery rider navigates Singapore's heat corridors. No shade. No relief. Just hours of exposure to survive the shift.

IMPACT SIGNAL (PILOT FIELD DATA, N=15 ACROSS 5 ROUTES)

BEFORE (Standard Route)

Ambient Temp. Exposure

34.4°C Changi

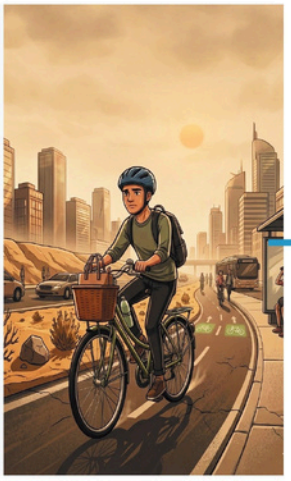
33.1°C Avg Temp CBD

Physical Body Exertion

★★☆☆☆

2.0/5.0

LOW COMFORT



AFTER (CoolRide Route)

Proven Heat Mitigation (Ambient)

-1.7°C Ambient Reduction

-0.4°C WBGT

Physical Body Exertion

★★★★★

4.5/5

Worth the extra minutes.
Add travel time 9-11 min (Average)

BEHAVIOR & SYSTEM CHANGE

OLD WAY: Distance-Only Routing

Google Maps and cycling apps optimize for distance only. Zero thermal awareness.

Distance-Only Routing

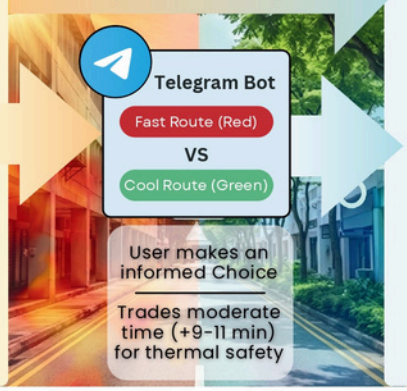
No app accounts for shade, tree canopy, or water proximity. Riders sent through the hottest paths.

Zero Shade Awareness

Riders absorb 6-8 hrs of heat per shift during peak hours (11 AM-4 PM). No cooler alternative visible.

Forced Exposure

THE TRANSITION (User Choice)



NEW WAY: Thermally Intelligent Routing

6-factor thermal cost function routes around heat.

AI Heat-Safety Router

Human as the Sensor: riders rate comfort post-ride, training the ML model.

Human as the Sensor

Riders feel safe, comfortable.

Prioritized Comfort

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SOLUTION & PROJECT NAME

CoolRide SG — Heat-Aware Routing for Singapore's Cyclists

WHO BENEFITS

MIGRANT WORKERS

DELIVERY WORKERS

STUDENT COMMUTERS

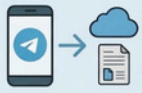
RECREATIONAL CYCLISTS

URBAN PLANNERS

ELDERLY RESIDENTS

WHY THIS CAN SCALE

Open Data Stack
Built on OSMnx, NParks trees, NEA weather APIs.

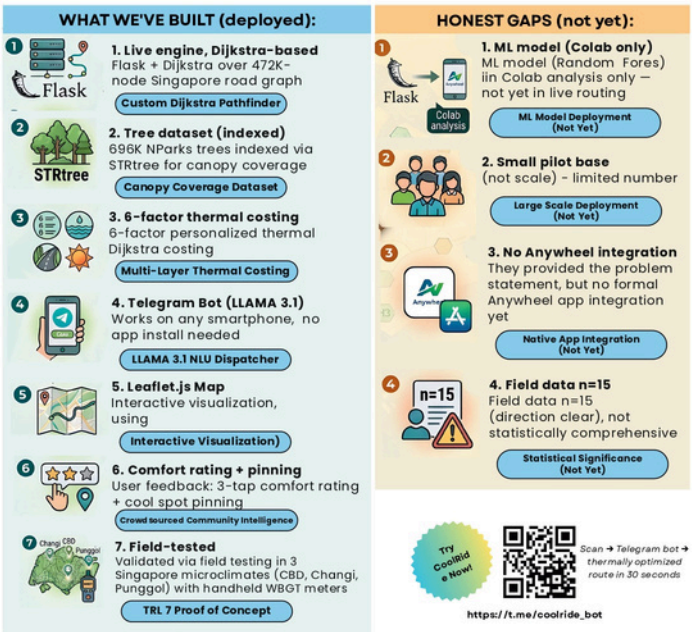


Instant Telegram Bot Access
No app-install barrier. High user adoption.

Zero New IoT Sensors
Riders are the sensors. No hardware needed.

Transferable to Any Tropical City
Jakarta, Bangkok, Chennai, Manila face identical heat challenges.

PROTOTYPING REALITY



TEAM

12

TEAM

ECOLENS

THEME: EXTREME HEAT

PROBLEM OWNER

INSANE LABS

ORGANIZER

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HeatSense AI: Hyper-Local Heatwave Risk Intelligence

AI driven system predicting personalized heat-stress risk from weather, housing, and health data, delivering localized alerts via mobile, SMS, voice, and WhatsApp.

Weather + Housing + Health Data → AI Risk Processing → Targeted Alert Delivery

CLIMATE PROBLEM

Hidden Heat Risks in Urban Settlements

417 of 734 Indian districts face high heat risk

Hyperlocal Heat Islands

- Dense concrete neighbourhoods often trap heat.
- Temperatures remain dangerously high even at night.

Indoor Oven Effect

- Metal, tin and asbestos roofs trap heat indoors.
- Indoor temperature rises 3–6°C higher than outside

Invisible Health Risk

- Weather apps measure ambient temperature
- 35°C may be dangerous for elderly, children, or pregnant women

PILOT IMPACT RESULTS

BEFORE

- No personalized heat-risk scoring; users rely on generic temperature readings
- Generic advisories for all users
- No information about nearby cooling centers
- Low public awareness of heat-related health risks
- Limited accessibility - alerts mainly via smartphone weather apps
- No validation across diverse user profiles

AFTER

- 90% said heat-risk scores matched their perceived heat exposure
- 92% found AI advisories relevant to health & housing
- 85% found cooling-center locations useful
- 60% reported higher heat-risk awareness
- Multi-channel alerts (SMS / WhatsApp / Voice) improved access
- 40+ users tested in real conditions

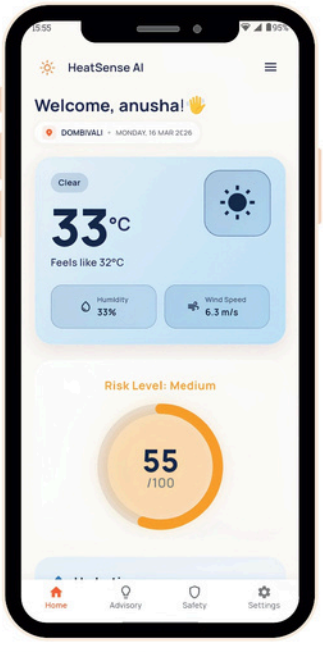
BEHAVIOR & SYSTEM CHANGE

Traditional Way

Weather Data → Generic Advice → Late Response

HeatSense AI Response

Weather + Housing + Health Data → AI Risk Engine → Early Alerts → Cooling Centers & Community Support



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HeatSense AI Powered by Meta Technologies

Team EcoLens

HeatSense AI Mobile App

- HeatSense AI integrates Meta AI & communication tools to generate heat-risk insights & deliver alerts.

Meta's Llama 3.3 model	Meta's Whatsapp	Meta AI Groq API
AI Advisory Generation	Community Alerts Delivery	Risk Processing Pipeline

SCAN HERE!

TARGET USERS & BENEFICIARIES

Outdoor Workers
Early heat alerts help reduce exposure during extreme temperature peaks

Elderly & Children
Poor thermoregulation makes them vulnerable. Early alerts reduce hospitalizations

Residents in Informal Housing
Housing-aware risk scores warn residents before indoor heat becomes dangerous

Pregnant Women
Context-aware advisories reduce maternal and fetal heat stress risk

Healthcare Providers
Early risk detection helps reduce heatstroke emergency admissions

NGOs & Community Leaders
WhatsApp alerts and cooling-center maps enable coordinated community response

SCALABLE BY DESIGN

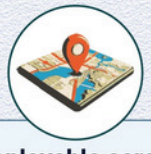
Low-cost Cloud-Native Infrastructure Platform

Accessible via Web, Android APK, SMS, and Voice

Multi-language AI (English, Hindi, Tamil, Marathi)

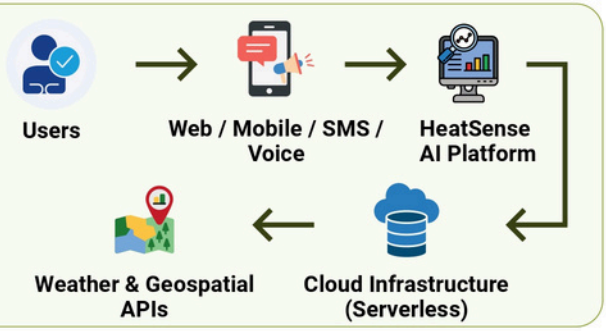
No physical Sensors: Weather & Geospatial APIs

Serverless Backend automatically scales with demand



Deployable across cities & Government Heat Action Plans

SERVICE FLOW



PROTOTYPING REALITY

- TRL 7 deployed – live web & Android APK
- Tested with 40+ real users across India
- 100+ simulated profiles validated edge cases
- Expert review: Dr. Amiya Kumar Tripathy (GeoICT)
- 79.4% users rated experience 5/5
- 91.2% understood risk insights instantly
- <15s alert generation latency
- 95% accuracy in risk personalization

TEAM

15

TEAM

SHUDDHUDARA

THEME: AIR POLLUTION

PROBLEM OWNER

VIDAVERDE INTERNATIONAL

ORGANIZER

FOUNDING SPONSOR

SUPPORTED BY

ORGANIZED BY SL2 IMPACT

FOUNDING SPONSOR Meta

SUPPORTED BY SG ECO Fund

SHUDDHUDARA

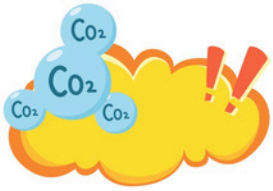
SMART INDOOR AIR PURIFICATION

OXYGENZ | PLANTIFY | BIO BLOOM | PURE PULSE

CLIMATE PROBLEM

90% air-conditioned units are completely **lack outdoor air provision**, creating a **toxic trap**

Standard purifiers drain electricity and **ignore CO2 build-up**



High VOC level are detected in **32 childcare centers** triggering **chronic respiratory illnesses,** while **elders** face a heightened risk of **cardiovascular death** within just 5 days

IMPACT SIGNAL

Bio Bloom

In a controlled 150 sq. ft. living room environment, BioBloom system **reduced PM2.5 levels** from **245 µg/m³ to <15 µg/m³** (WHO Safe Limit) in **14 minutes**

Plantify

100% Bio-Safe Matching: Algorithm cross-references 4 core metrics (TVOC, CO_2, Temp, Humidity) with user diagnostics to guarantee plant survival in specific micro-climates.

End-to-End Remediation: Successfully bridges the gap from **plant recommendation to action** by **integrating Groq AI,** automated care schedules, and VidaVerde sourcing.

Pure Pulse

Community Carbon Sink: Turning collective neighborhood action into a massive, verifiable carbon sequestering network

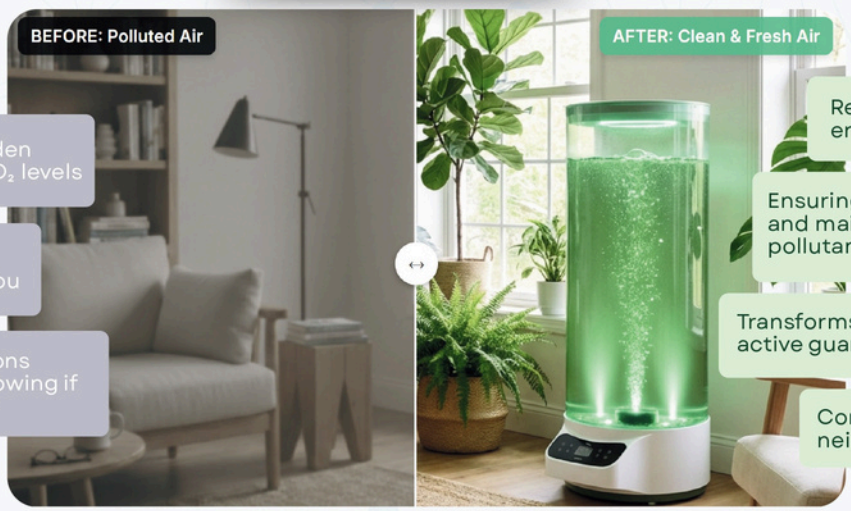
Network Density: Rapidly expanding our clean air corridors by increasing active node connections every month

OxyGenZ

Environmental Literacy: Boosting air quality awareness and eco-knowledge among school-age users through gamification

Active Guardianship: Consistently driving high user engagement with a steady stream of weekly environmental tasks

BEHAVIORAL & SYSTEM CHANGE



Stuffy rooms with hidden pollutants and high CO_2 levels

Feeling helpless and passive about the air quality around you

Taking small actions alone without knowing if they truly matter

Reduce indoor CO_2 and enhance breathing comfort

Ensuring the right plants are placed and maintained for maximum pollutant-fighting impact

Transforms passive users into active guardians of clean air

Community Sharing that inspires neighborhood-wide action

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SHUDDHUDARA

SMART INDOOR AIR PURIFICATION

OXYGENZ | PLANTIFY | BIO BLOOM | PURE PULSE

WHO BENEFITS

Children

Gamified Environmental Literacy

Young Adults

Active Gurdianship

Elders

Passion Stewardship and Wellness

Family

Collective Carbon Sink and "Clean Air Corridors" for Home

WHY THIS CAN SCALE

Fun

OxyGenZ provides a **frugal, zero-barrier entry point** through gamification, building an early **environmental literacy**, turning passive commuters into a massive pool of future clean-air guardians.

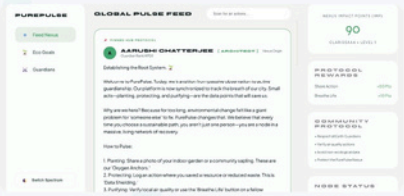
Passion

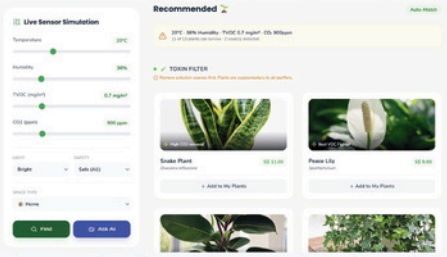
Using **Meta Llama AI**, Plantify bridges the gap between a casual hobby and **a lifelong environmental commitment**. By securing an 85% survival rate, we eliminate user frustration, ensuring long-term retention and a growing community of active guardians who are **emotionally invested in their air quality**

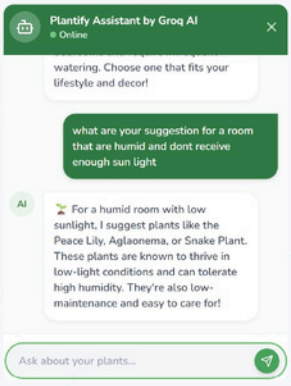
Impact

Gradual trust-building leads users to adopt **high-performance hardware** like BioBloom for **critical zones**. PurePulse connects these individual passion projects into a collective 2.4 Ton monthly carbon sink.

PROTOTYPING REALITY







Scan to visit **shuddhudara.vercel.app** and witness the transformation of urban air, node by node

TEAM

03

TEAM

IGNIS

THEME: **RENEWABLE ENERGY**

PROBLEM OWNER

EarthON Foundation

ORGANIZER

CSL2 IMPACT

FOUNDING SPONSOR

Meta

SUPPORTED BY

SG ECO Fund

ORGANIZED BY

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SUPPORTED BY

SOLUTION & PROJECT NAME

IGNIS

Nav Drishti

TEAM IGNIS YDCT 2026

NAV DRISHTI

TRACK. ANALYZE. OPTIMIZE.

IOT EMISSION MONITORING | AI-BASED DECISION SUPPORT | BIOGAS BLEND OPTIMIZER | GIS INDUSTRIAL MAPPING

CLIMATE PROBLEM

25-30% Increase in **Respiratory Diseases** linked to **emission** from **coal plants** 2010-2016

1 Billion tonnes/year of **Coal is mined** for usage in Thermal power plants in India

10,000 tonnes/year **PM 2.5** of Total **Suspended Particulates** emitted

PROGRAMMABLE AUTOMATION

Lack of Automated Emission Feedback for Plant Operators leads to **unchecked emissions**

IMPACT SIGNAL (ESTIMATED WEEKLY PILOT)

BEFORE NAV DRISHTI

- Manual CSV logging, no real time data
- Fuel blend ratios set by intuition, not data
- Emission spikes detected hours or days late
- No GIS view of biomass supply proximity

Bhojudih Coal Washery
2M tons/month capacity processed with zero automated emission feedback loop

AFTER NAV DRISHTI

- Live IoT dashboard: Temp, TVOC, PM2.5
- LLaMA-powered AI flags anomalies and recommends action
- Biogas blend calculator with before/after emission curves
- GIS map links plants to nearby biomass suppliers via WhatsApp

Bhojudih Coal Washery
15% biogas blend tested → proportional reduction in TSP, PM2.5 and SO_2 output

BEHAVIOR & SYSTEM CHANGE

OLD WAY

- Relying on Logbooks and Manual sensor reading
- Fuel decisions made without emissions cost modelling
- Biomass suppliers unknown, coal dependency structurally established
- Communities have no access to real-time air quality data

NEW WAY - NAV DRISHTI

- Operators monitor emissions live and AI models give actionable recommendations
- Blend Optimizer models coal-to-biogas transitions with emission savings
- GIS hotspot data visible to operators, sustainability teams, and regulators
- Youth managed IoT network creates green monitoring jobs in industrial belts

"Reliable data is what separates pilots from production systems."
— Pradeep Kumar, Addl. GM, Bhojudih Coal Washery

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SUPPORTED BY

SOLUTION & PROJECT NAME

IGNIS

TEAM IGNIS YDCT 2026

NAV DRISHTI

TRACK. ANALYZE. OPTIMIZE.

Nav Drishti

IOT EMISSION MONITORING

AI-BASED DECISION SUPPORT

BIOGAS BLEND OPTIMIZER

GIS INDUSTRIAL MAPPING

WHO BENEFITS

Plant Operators & Supervisors

Farmers & Biomass Suppliers

Industrial Sustainability Teams

Youth & Green Job Seekers

Industrial Communities

Regulators & Policy Makers

WHY THIS CAN SCALE

3+ **States already in scope**

Jharkhand, Chhattisgarh, and Odisha, with established EarthON Foundation networks for deployment.

ZERO **Infrastructure lock-in**

Any plant with internet access can onboard. No proprietary hardware is required.

OPEN **Meta AI ecosystem advantage**

LLaMA and Mapillary keep AI inference costs low and regionally adaptable.

↗ **Globally replicable architecture**

The IoT + dashboard + GIS stack applies to any coal dependent industrial cluster.

PROTOTYPING REALITY

IoT deployment at an industrial bakery, Indonesia. Temperature, TVOC and PM 2.5 captured by sensors, transmitted **live** via **MQTT to Supabase Cloud backend**

Testing and Validation done by **Mr. Pradeep Kumar, Addl. GM, Bhojudih Coal Washery** (2M t/month capacity). Blend Optimizer modelled against JSW Steel Jharsuguda (4.5 MTPA, 99% ESP/FGD).

Simple alerts and edge computing ensure reliability in harsh bakery environments, while the focus has evolved from emissions tracking to enhancing **real-time operations** and **team communication**.

TEAM

04

TEAM

BOJONGSANTOZZZ

THEME: AIR POLLUTION

PROBLEM OWNER

BMKG

ORGANIZER

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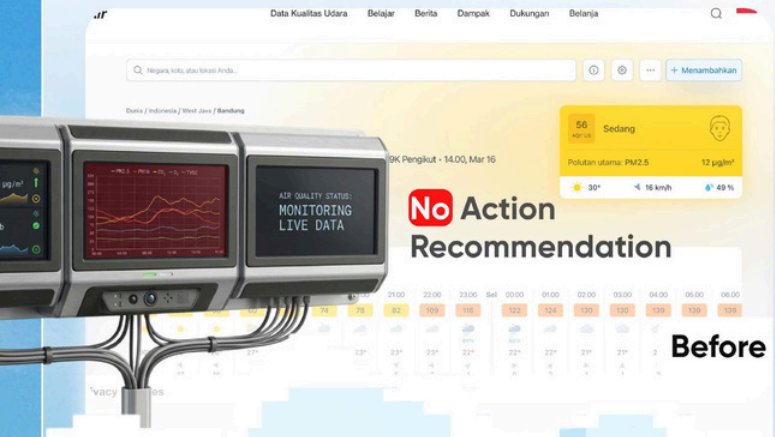
Solution & Project Name

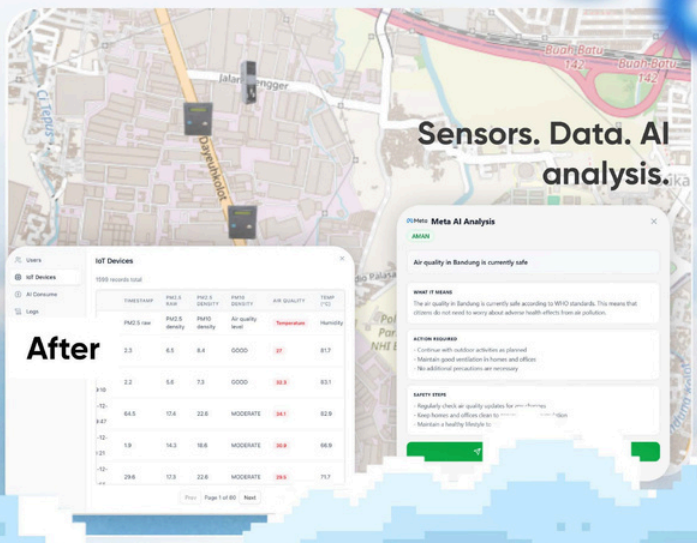
HAWA IoT and AI based air quality monitoring system and recommendation.

Climate Problem

Urban air pollution is often invisible to citizens.
Many communities lack access to localized air quality data, making it difficult to understand pollution risks and take preventive health actions.

Impact Signal (Estimated Weekly Pilot)



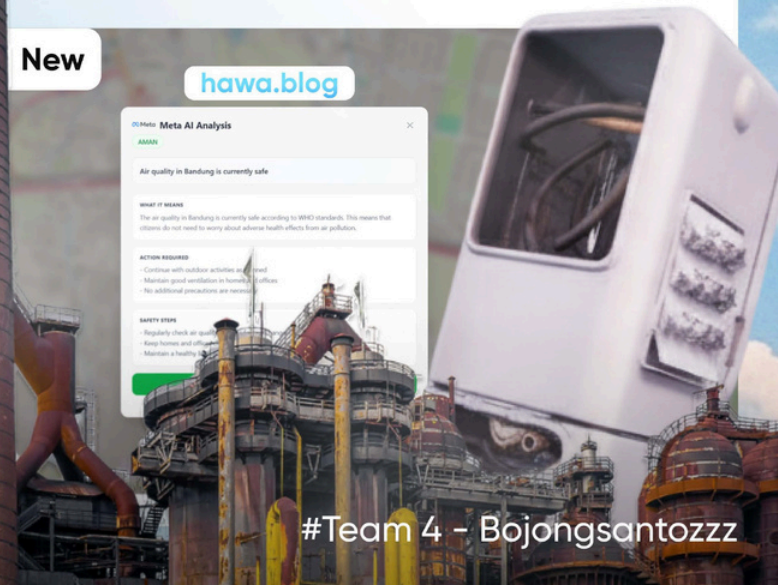


Behavior & System Change

Old

Reacting to visible pollution without data or actionable health guidance.

New



#Team 4 - Bojongsantozzz

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Meta

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Solution & Project Name

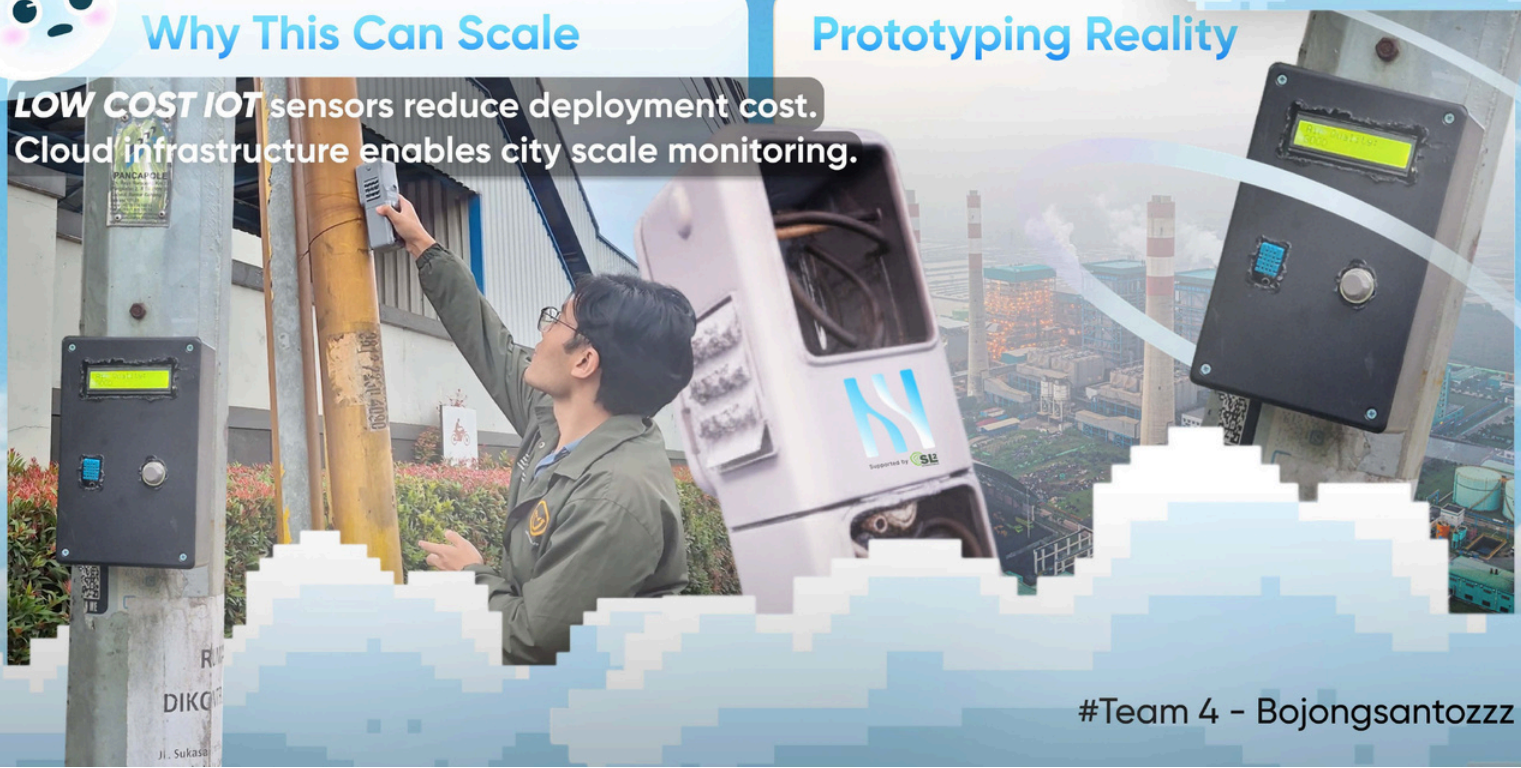
HAWA IoT and AI based air quality monitoring system and recommendation.

Who Benefits

Why This Can Scale

LOW COST IOT sensors reduce deployment cost.
Cloud infrastructure enables city scale monitoring.

Prototyping Reality



#Team 4 - Bojongsantozzz

TEAM

05

TEAM

ONE FOR ALL

THEME: RENEWABLE ENERGY

PROBLEM OWNER

YAYASAN RUMAH ENERGI

ORGANIZER

CSL2 IMPACT

FOUNDING SPONSOR

Meta

SUPPORTED BY

SG ECO Fund

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SOLUTION & PROJECT NAME

MizuGami - Smart IoT Irrigation System

MizuGami is an IoT-based smart farming solution designed to monitor soil moisture in real-time and automate irrigation processes. Using soil moisture sensors, the system collects data from the field and sends it to a web dashboard and WhatsApp notifications, allowing farmers to monitor soil conditions and optimize irrigation efficiently.

CLIMATE PROBLEM

Farmers often face challenges such as:

- unpredictable soil moisture levels
- inefficient irrigation practices
- excessive water usage
- frequent manual field inspections

IMPACT SIGNAL (ESTIMATED WEEKLY PILOT)

BEFORE

- Farmers manually check soil conditions
- Irrigation based on estimation
- High water waste
- Frequent field inspections

AFTER

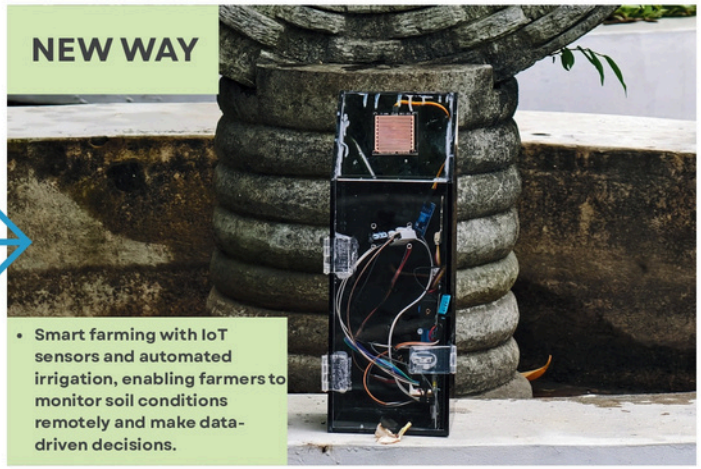
- Real-time soil moisture monitoring
- Automated irrigation system
- Efficient water usage
- Remote monitoring via dashboard & WhatsApp

BEHAVIOR & SYSTEM CHANGE

OLD WAY

- Traditional farming relies on manual soil checking and experience-based irrigation, requiring farmers to frequently visit fields to inspect soil conditions.

NEW WAY



- Smart farming with IoT sensors and automated irrigation, enabling farmers to monitor soil conditions remotely and make data-driven decisions.

ORGANIZED BY

FOUNDING SPONSOR

SUPPORTED BY

SOLUTION & PROJECT NAME

MizuGami - Smart IoT Irrigation System

MizuGami is an IoT-based smart farming solution designed to monitor soil moisture in real-time and automate irrigation processes. Using soil moisture sensors, the system collects data from the field and sends it to a web dashboard and WhatsApp notifications, allowing farmers to monitor soil conditions and optimize irrigation efficiently.

WHO BENEFITS

WHY THIS CAN SCALE

This solution has strong scalability potential because:

- IoT sensors are relatively low-cost
- System can be applied to different crops
- Dashboard enables centralized monitoring
- Automation reduces farmer workload
- Can be expanded with additional sensors (temperature, pH, rainfall)

PROTOTYPING REALITY

The MizuGami prototype was deployed in an agricultural field in Bojongsoang, Bandung, Indonesia.

The system consists of:

- Soil Moisture Sensor
- Airdrop Sensor
- Humidity and Temperature Sensor
- GPS Tracking
- Microcontroller (IoT device)
- Automated Irrigation Pump
- Water Tank System
- Web Monitoring Dashboard
- WhatsApp & SMS Notification System

The prototype demonstrates real-time soil monitoring and automatic irrigation based on soil moisture thresholds.

TEAM
10

TEAM
AEGIS URBAN

THEME: FLOOD

PROBLEM OWNER
STS GLOBAL

ORGANIZER

FOUNDING SPONSOR

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ORGANIZED BY

FOUNDING SPONSOR

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FloodSafe

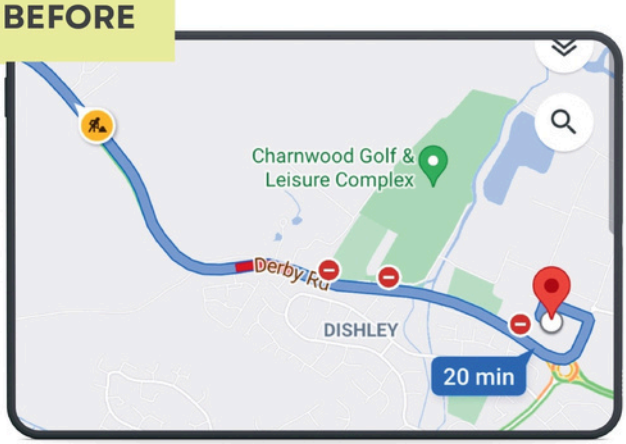
Floods Don't Wait, Neither Should Safety

CLIMATE PROBLEM

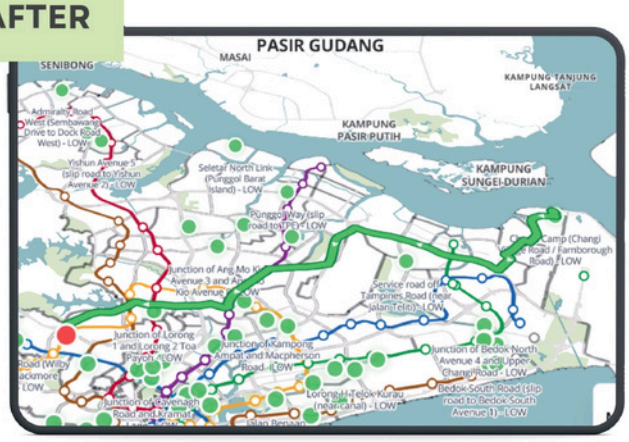
How can **cities identify the 20% of high-risk zones** causing **80%** of **flooding** and respond before it's too late?

IMPACT SIGNAL (ESTIMATED WEEKLY PILOT)

BEFORE



AFTER



BEHAVIOR & SYSTEM CHANGE

OLD WAY

NEW WAY

ORGANIZED BY

SL2 IMPACT

FOUNDING SPONSOR

Meta

SUPPORTED BY

SG ECO Fund

FloodSafe

Floods Don't Wait, Neither Should Safety

WHO BENEFITS

Daily Commuter

Safe Travel & Alerts

Daily Essentials Supply

Smooth Logistics

Disaster Relief Team

Faster Response

Commercial Drivers

Optimized Routes

Emergency Services

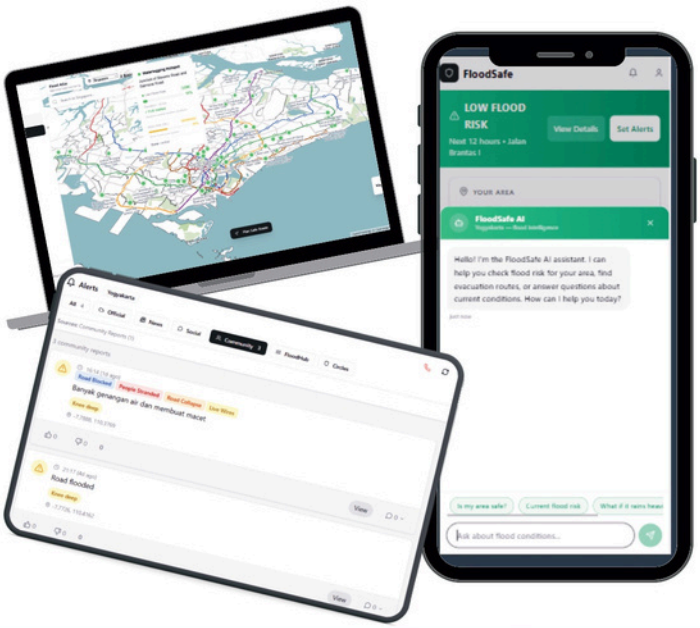
Real-Time Coordination

Local Vendors

Business Continuity

WHY THIS CAN SCALE

PROTOTYPING REALITY



TEAM

13

TEAM

HELIO

THEME: **RENEWABLE ENERGY**

PROBLEM OWNER

WEST JAVA PROVINCIAL ENERGY AND MINERAL RESOURCES AGENCY (ESDM)

ORGANIZER

FOUNDING SPONSOR

SUPPORTED BY

ORGANIZED BY

FOUNDING SPONSOR

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SOLUTION & PROJECT NAME

CLIMATE PROBLEM

West Java sits on **192 GW** of renewable energy potential, yet over **75%** of its energy still comes from fossil fuels.

Schools, small businesses, and communities struggle with:

- High electricity costs
- Lack of access to solar financing
- No visibility into savings or ROI

★ The real problem is not energy, it's lack of transparency and actionable intelligence.

Solar energy is **available** but decision-making is **broken**.

Without clear insights, communities:

- Delay adoption
- Depend on fossil fuels
- Lose economic and environmental opportunities

IMPACT SIGNAL (ESTIMATED WEEKLY PILOT)

BEFORE

95–98% system uptime

3–5 sec data processing latency

Higher deviation in ROI/payback calculations

Slow dashboard loading (heavy upfront components)

AFTER

~99% system uptime

<2 sec data processing latency

High financial calculation accuracy

Faster dashboard with optimized loading

BEHAVIOR & SYSTEM CHANGE

OLD WAY

Solar seen as expensive & complex

Decisions based on guesswork

Energy treated as a monthly expense

No collaboration between users

Data exists but is not understandable

NEW WAY

Solar is a data-driven financial decision

Energy becomes a trackable asset

AI simplifies complex analytics into insights

Communities access shared knowledge & data

Users take proactive control of energy usage

PowerTrack doesn't just track energy, it empowers communities to adopt it.

ORGANIZED BY

FOUNDING SPONSOR

SUPPORTED BY

SOLUTION & PROJECT NAME

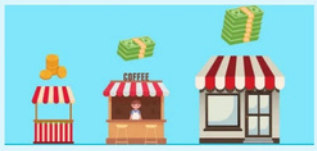
WHO BENEFITS

SCHOOL & STUDENTS

Reduce electricity costs and turn campuses into living solar labs

SMEs & INDUSTRIES

Cut operational costs & improve profit margins with solar insights



RURAL COMMUNITIES

Affordable energy & insights to enable reliable, community-driven solar adoption

GOVT. & POLICY MAKERS

Track adoption, impact, and optimize renewable strategies

First-Time Solar Adopters

Make confident decisions with clear insights on cost, savings & performance

FUTURE GENERATIONS

Cleaner environment with reduced emissions & sustainable growth

WHY THIS CAN SCALE

Works with or without hardware (can support existing systems + simulated data)

Offline-first capability (Bluetooth/USB sync for low connectivity regions)

WhatsApp integration ensures accessibility

AI-powered insights remove technical barriers

Community-driven model enables network effects

Built on scalable cloud infrastructure

Designed for real-world constraints, not ideal conditions

PROTOTYPING REALITY

- Functional full-stack platform deployed
- Real-time dashboard with live data simulation
- AI chatbot (LLaMA-based) for user guidance
- Financial analytics (ROI, payback, savings) validated
- Tested with ~40 users across multiple countries
- TRL-7: Operational prototype in real environments

Built by Helio, Powered by Meta - LLaMA, WhatsApp, Meta Pixel, React, and Sapling

TEAM

14

TEAM

AERO GUARDIANS

THEME: FIRE & FLOOD MONITORING

PROBLEM OWNER

PM HAZE

ORGANIZER

FOUNDING SPONSOR

SUPPORTED BY

ORGANIZED BY SL2 IMPACT

FOUNDING SPONSOR Meta

SUPPORTED BY SG ECO Fund

SOLUTION & PROJECT NAME

PEAT SENSE

CLIMATE PROBLEM

Forest fires and floods have been on the rise... One of the causes are **PEATLANDS**, wet lands that is caused by stacks of decaying plants. Detection of peatland fires come TOO LATE for us to react.

IMPACT SIGNAL (ESTIMATED WEEKLY PILOT)

BEFORE

- Fighting climate change blind
- Difficult monitoring
- Limited infrastructure

AFTER

- Warnings through WhatsApp
- Allow communities to predict peat fires and floods
- Get visualized data

BEHAVIOR & SYSTEM CHANGE

OLD WAY

- Fire and peatland risks are noticed too late
- Monitoring is manual, delayed, and fragmented
- NGOs rely on historical data for advocacy
- Decisions are reactive and slow

NEW WAY

- Proactive fire prevention using AI predictions
- Continuous real-time environmental monitoring
- Data-driven alerts and faster response systems
- Reduced damage through early intervention

ORGANIZED BY

FOUNDING SPONSOR

SUPPORTED BY

SOLUTION & PROJECT NAME

PEAT SENSE

WHO BENEFITS

Farmers

Firefighters

Elderly

Children

Locals

WHY THIS CAN SCALE

- Help leaders engage their communities to become aware of climate change
- Data gathering in the area helps AI become more accurate
- Build skills and create jobs for the locals

PROTOTYPING REALITY

- Trailed in a Sungai Tohor, Riau in Indonesia
- Test effectiveness and accuracy
- Make sure solution has impact & identify flaws
- Keep AI up-to-date & make sure every step from IoT hardware to WhatsApp chatbot is integrated