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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Embassy of Switzerland in Singapore



SDG
OPEN HACK!

Singapore 2024

Post–Event Report

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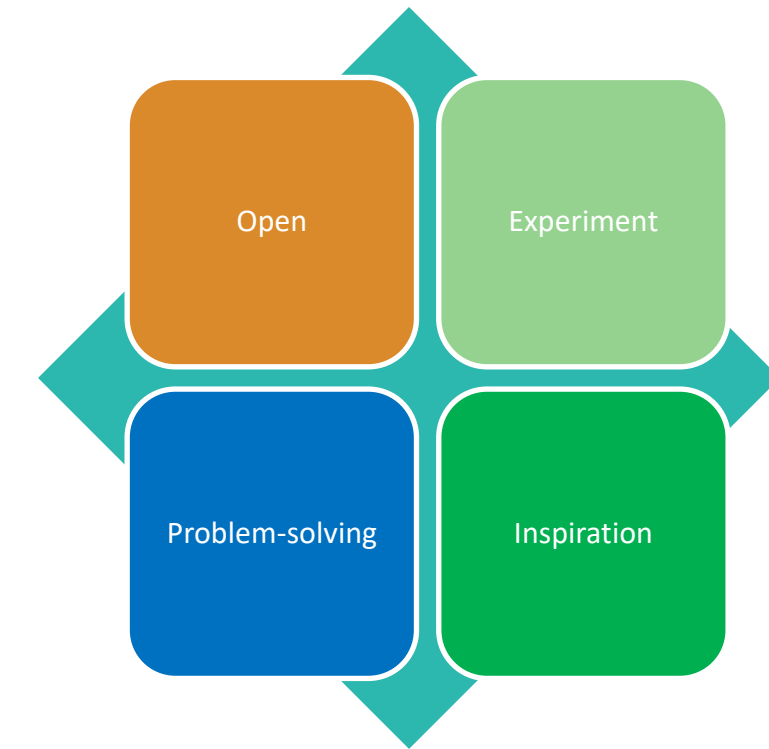
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SDG OPEN HACK! *Singapore*



In partnership with **UNITAR (United Nations Institute for Training and Research)**, **Open Geneva, University of Geneva**, local **post-secondary institutions** and **corporate partners** to run in Singapore.

The SDG Open Hack is not only designed to be an event, but also a practical programme on innovation and entrepreneurship, committed to cultivating students' leadership, creation, mobility, international competence and teamwork ability.

Open to local students, encourage cross disciplines to form teams to solve societal and/or environmental challenges, by way of learning UN 17 SDGs.

Students can freely choose from challenging statement topics according to their interests, form an interdisciplinary innovation team on site, and work hard to develop innovative solutions within 2 days.

At the grand finale, the solutions be presented to the panel of judges and the public.





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Journey to the Grand Finale

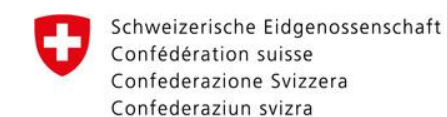
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Programme Partner



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Link to Video: <https://www.youtube.com/watch?v=wn-oQ0NAsII>

Challenge Statements

SDG 3 – ensuring good health and well-being

Mental health disorders cripples millions globally, yet there is a lack of support and resource to aid those who struggle with empowering their mental wellbeing. So, through your solutions, how can we create inclusive and accessible mental health services that focuses on early intervention, community support and destigmatization?

SDG 7 – ensuring affordable and clean energy

SDG 9 – empowering industry, innovation and infrastructure

A low carbon and sustainable future is critical in ensuring people and planet's survival. Yet the building sector still contributes a whopping 39% of the world's emissions. How can businesses like CDL pursue decarbonisation through energy efficient tech or innovative nature-based solutions to align with global sustainability commitments?

3 GOOD HEALTH
AND WELL-BEING



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7 AFFORDABLE AND
CLEAN ENERGY



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DEVELOPMENTS
LIMITED

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE





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7
institutions
participated

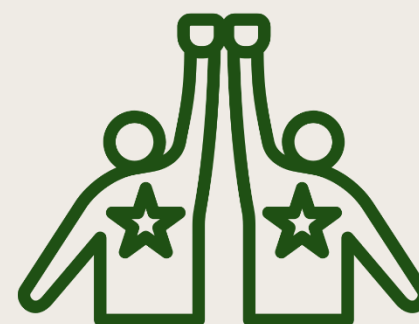
- Ngee Ann Polytechnic
- Nanyang Polytechnic
- Nanyang Technological University
- National University of Singapore
- Republic Polytechnic
- Social Impact Catalyst
- Singapore University of Social Sciences



Close to
1,000
students
registered



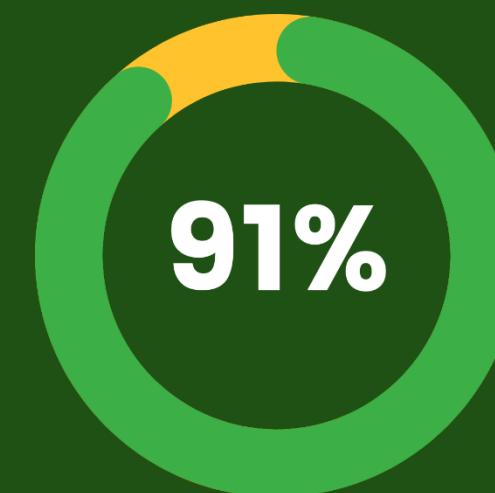
160
solutions
created to tackle
the 3 SDGs



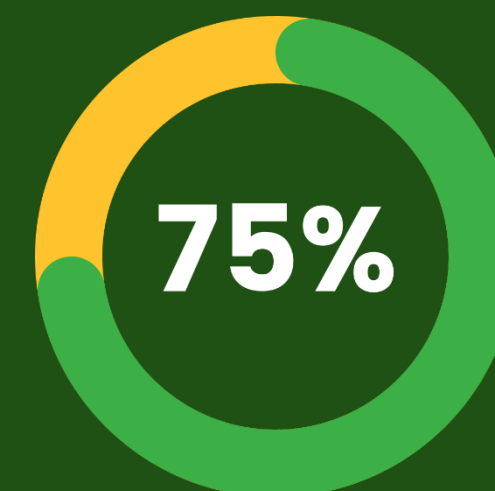
Top
3
institutions with
the highest
participation

- **Ngee Ann Polytechnic**
 - 270 students registered
 - 27 solutions submitted
- **National University of Singapore**
 - 213 students registered
 - 60 solutions submitted
- **Nanyang Polytechnic**
 - 109 students registered
 - 20 solutions submitted

SDG Open Hack 2023 vs 2024



**Increase in
participation rate**



**Increase in
solutions
created during
the hackathon**



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Mentors & Judges 2024



Wei Liang Lim
ThinkX



Tali Goldman
Market for Good



Justin Chew
Kimly Construction



Genevieve Lee
Huawei



Leslie Leow
Genashtim



Bo Gao
Asia IA club



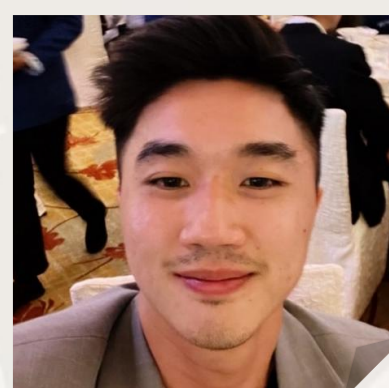
Benedict Goh
Utica Solar



Moses Lim
Green Eco Technology



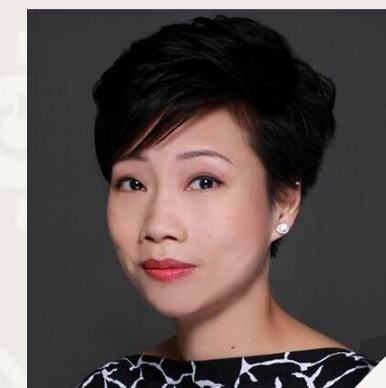
Victoria Li
iSpace Innovations APAC



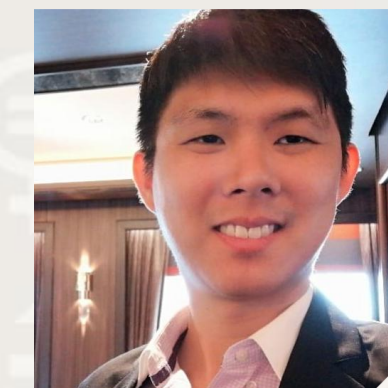
Aaron Tan
Sumitomo Mitsui Banking



Senthil Kumar Karupiah
Energi Tranz



Fiona Kwok
Watiga



Fabian Tan
Inspiria Consulting



Varden Toh
The Moonbeam Co



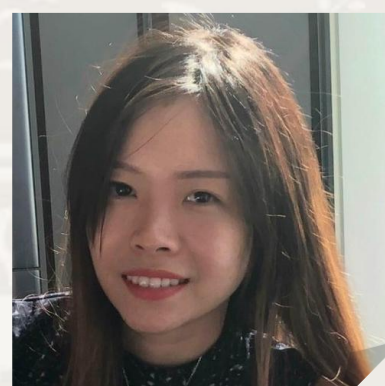
Stanley Teo
Carbon Solutions



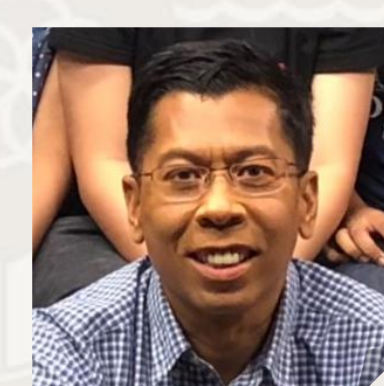
Victoria Goh
Huawei



Jeffrey Tan
United Nations ESCAP



Janice Hoo
Asia Sustainability Forum



Azhar Abdul Salam
NTU



Yvonne Yip
Maybank



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Mentors & Judges 2024



Tan Chee Wee
TPC (Tsao Pao Chee)



Brian Ho
Deloitte



Joanna Soh
Stewardship Asia Centre



Aishwarya Iyer
Pavilion Energy



Kong Qi Heng
The Moonbeam Co



Robin Oh
Think X



Lim Chee Kiong
Maybank Singapore



Raihan Husainni
Nu Quest Management



Yoosuf Moiz
Stewardship Asia Centre



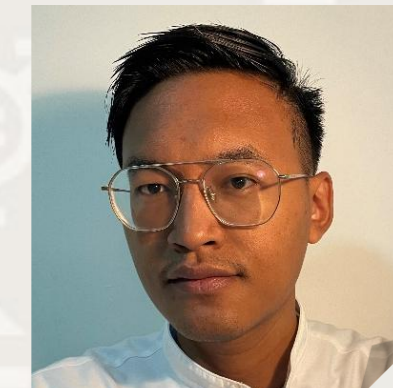
Donald Chan
Asia Research & Engagement



Chris Glotfelter
Tri-Sector Associates



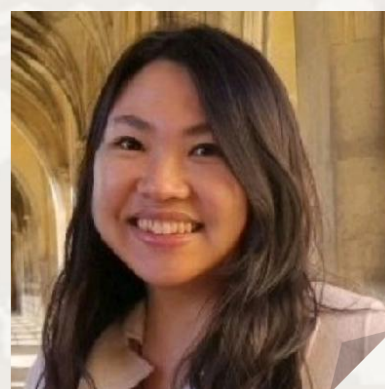
Dorothy Ching
Tbn Asia



Mohamad Saiful bin Md Anuar
GUILD



Jody Chua
Global Green Connect



Tracey Yani
SDG University of Satya
Terra Bhinneka



Fan Bu
Mitsubishi Electric Asia



Xiaowei Liu
World Energy Council



Andrew Gazal
ESG Tech



Priscilla Tan
CDL



Stephen Barry
StepWorks



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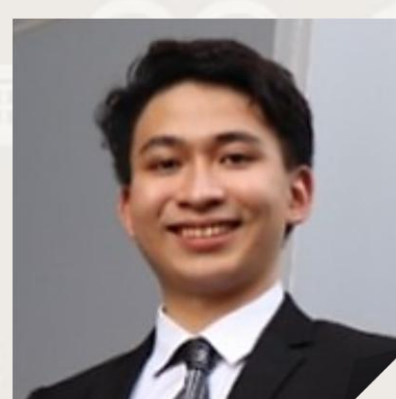
Mentors & Judges 2024



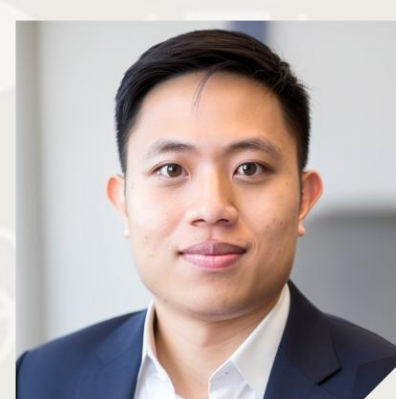
Eric Loh
G Element



Grace Heng
Huawei



Sebastian Phang
Husks Green



Melvin Foo
Quest Ventures



Russ Neu
Social Collider



Ooi Peng Ee
49travelmice.com



Ho Yuen Ping
NUS



Droston Tang
Custos
Technologies



Pushkar Pradhan
EcoSense Enviro
Solutions



Derek Liang
Heritance Digital



Jean Paul
Mad Cash



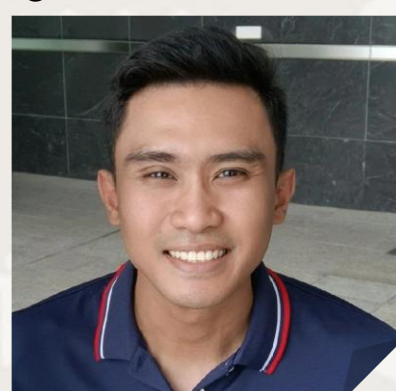
Renee Chong
Mangachat



Andres Ong
ERA Singapore



Natasha Tan
Global Green Connect



Hakim Ramil
Social Collider



Saiful Anuar
SG Productivity Centre



Leesa Soulodre
R3I Capital



Samuel Lim
Social Collider



Jocelin Wijaya
MPhil in ESD at Cambridge
University



Winda Halim
Independent Consultant



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Peers Mentors 2024



Shane Lim
SDG 2023 SG Winner



Mien Li
SDG 2023 SG Winner



Tan Jun Na
SDG 2023 SG Winner



Sheikh Sulaiman
SDG 2021 SG Winner



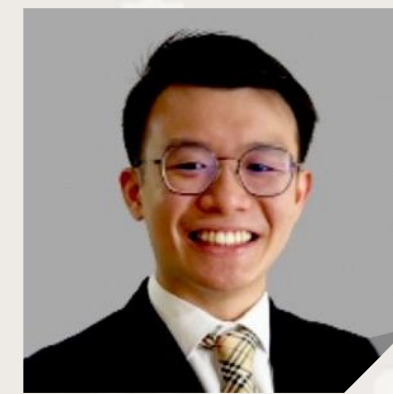
Revanth Patnala
SDG 2021 SG Winner



Lim Wan Qin
SDG 2023 SG Winner



Edward Liew
SDG 2023 SG Winner



Samuel Quek
SDG 2023 SG Winner



Deng Zhiji
SDG 2023 SG Winner



Liu Jiahui
SDG 2023 SG Winner

Grand Finale Judges 2024



Christina Lee
Founder & CEO
Global Green Connect & GGEF



Allen Ang
EVP, Head of Green Building &
Technology Application
City Developments Limited



Joël Henri Brunner
Science Counselor
Embassy of Switzerland in Singapore



Tan Chee Wee
Head of Sustainability
TPC (Tsao Pao Chee)



Grishma Kewada
Country Manager
Coface

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2024 Finalist Solutions



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8 Polytechnic Finalists

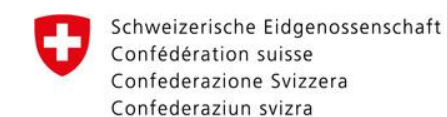
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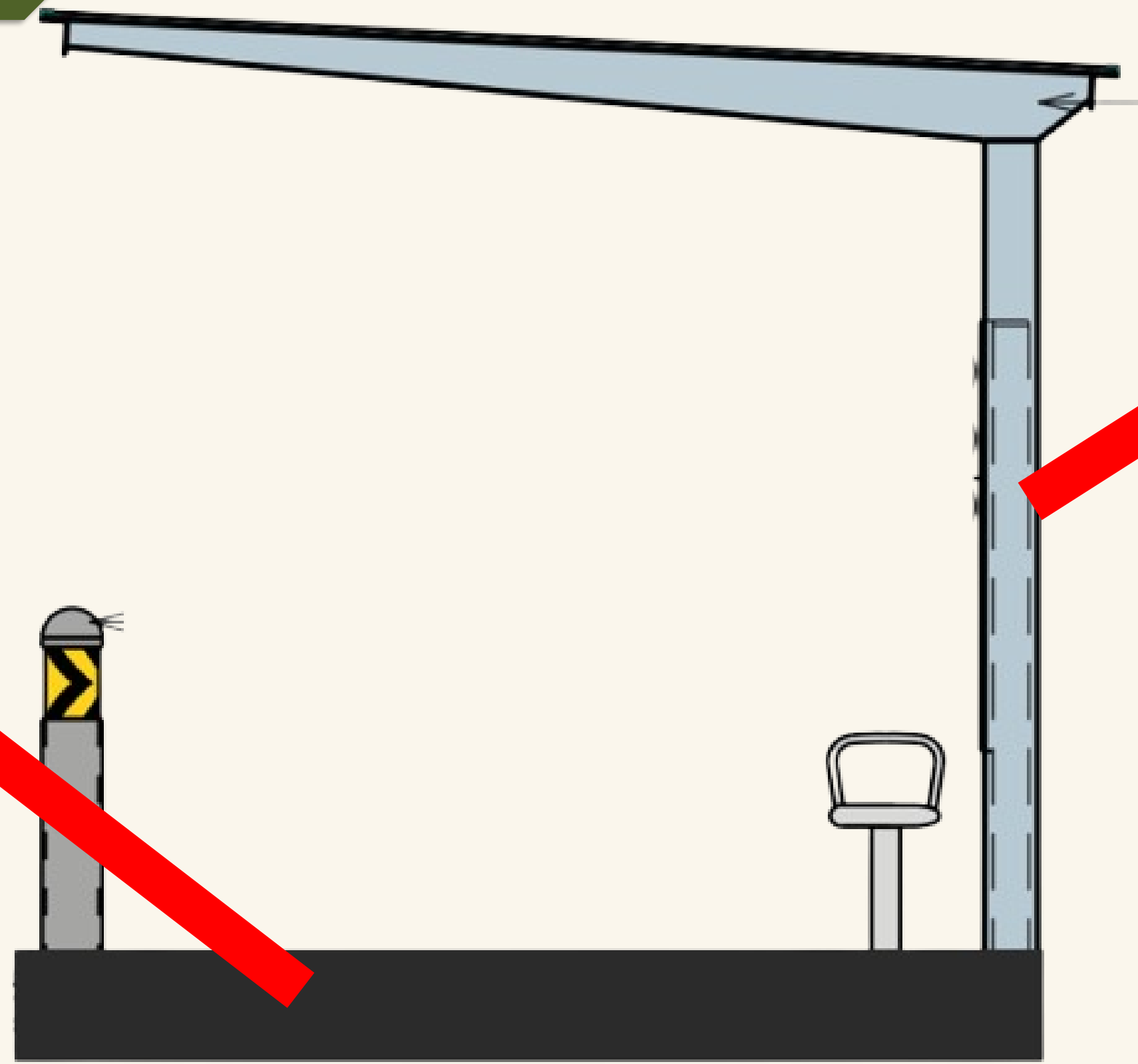
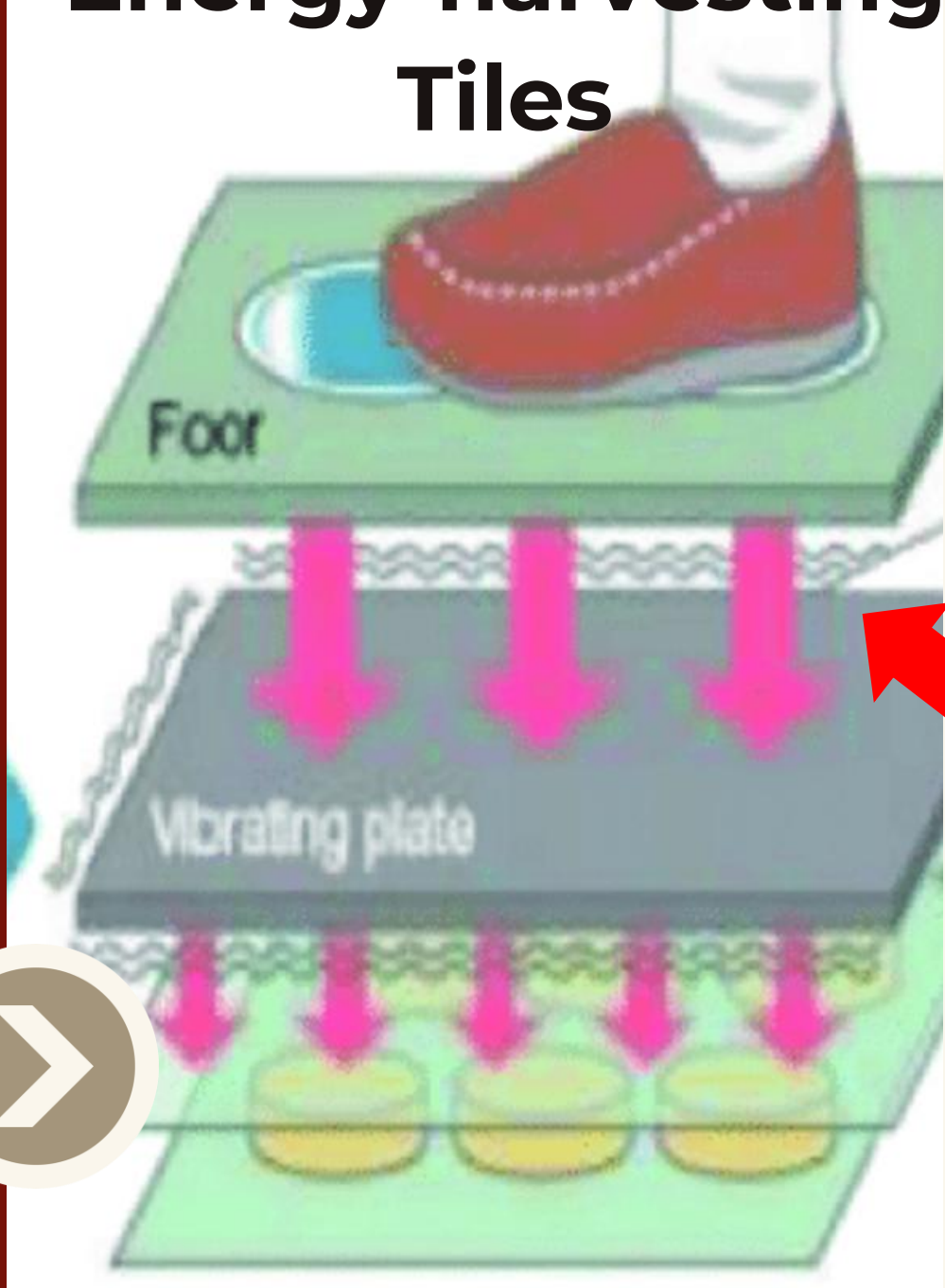
1. Team HA SUS: Reimagine Bus Stops

Solar Blinds



- Rotate to face the sun and harness energy
- Partial Shade
- Not like Solar Panels

Energy-harvesting Tiles

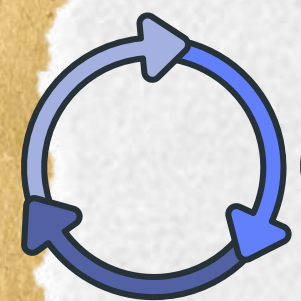


2. Team Brain Stormtroopers: The WoodCrete

Solution



- Create a sustainable, lightweight composite material by combining wood waste and resin.-> This approach leverages the circular economy to reduce resource wastage while capitalizing on the growing green construction market, valued at approximately \$338.53 billion.



Life cycle of buildings

1. Production of materials
2. Transport
3. Construction (machinery)
4. Demolition



OUR SOLUTION?



GRIP

AUTOMATED WORKFLOW CREATION

Using AI Technology, our AI collects users' data on:

- User-Personal Data
- User Phone Usage Data

To create a modular, weekly schedule for students with a focus on study-life balance.

REVIEWING RELEVANT SYLLABUS

The application will contain questions with relevant syllabus for local students to review.

Using FSRS (Free spaced repetition spacer) with a review mode, we ensure students properly recall their study materials in minimal workloads.

4. Team Crit Survivors: Spore-taneous Living

OUR SOLUTION

Spore-taneous Living: Modular Mycellium for Home Construction INTERLOCKING MYCELLIUM BRICKS

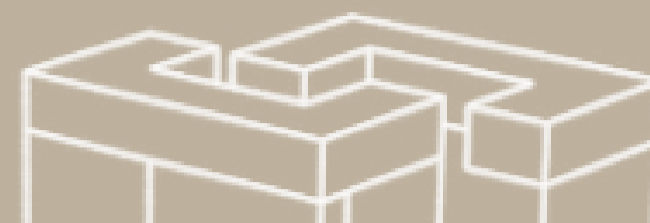
How is it made?



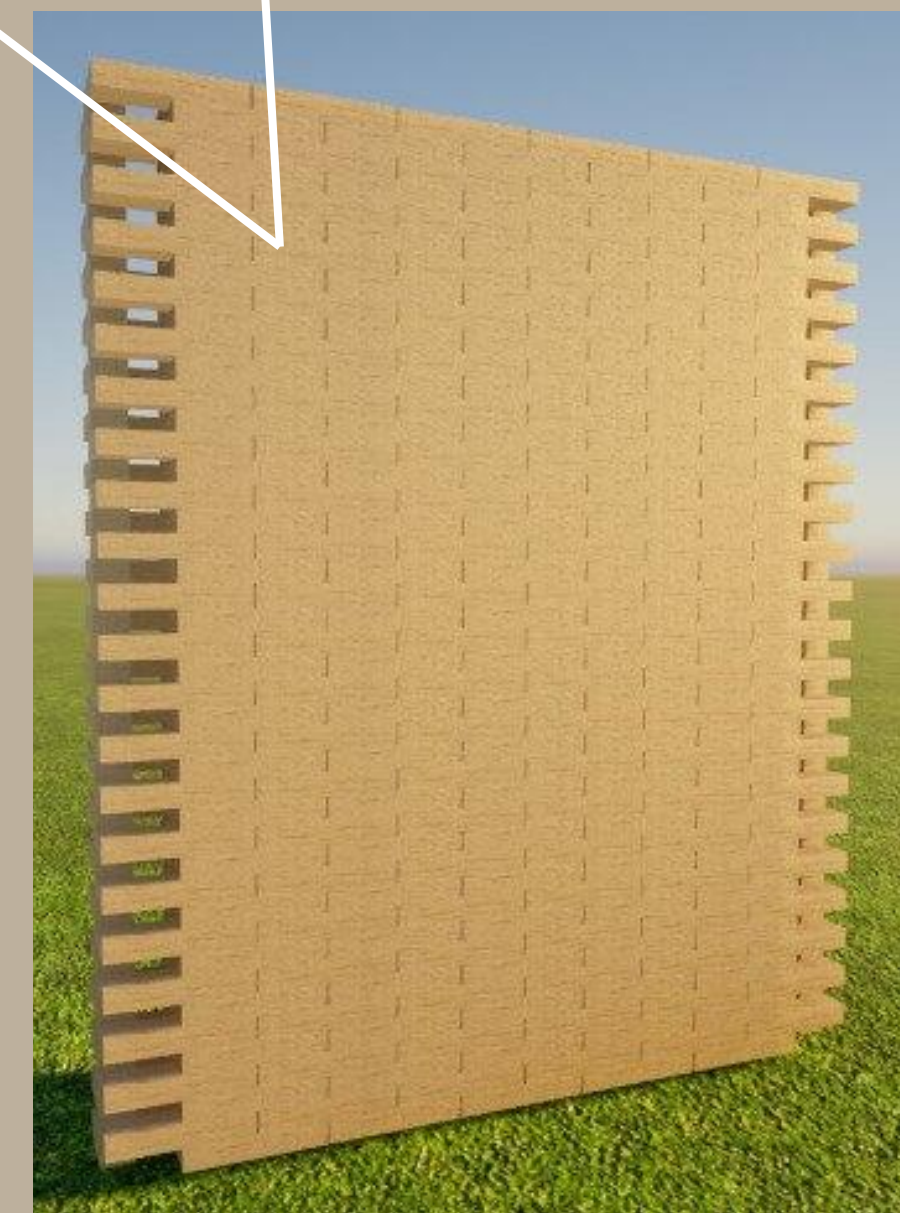
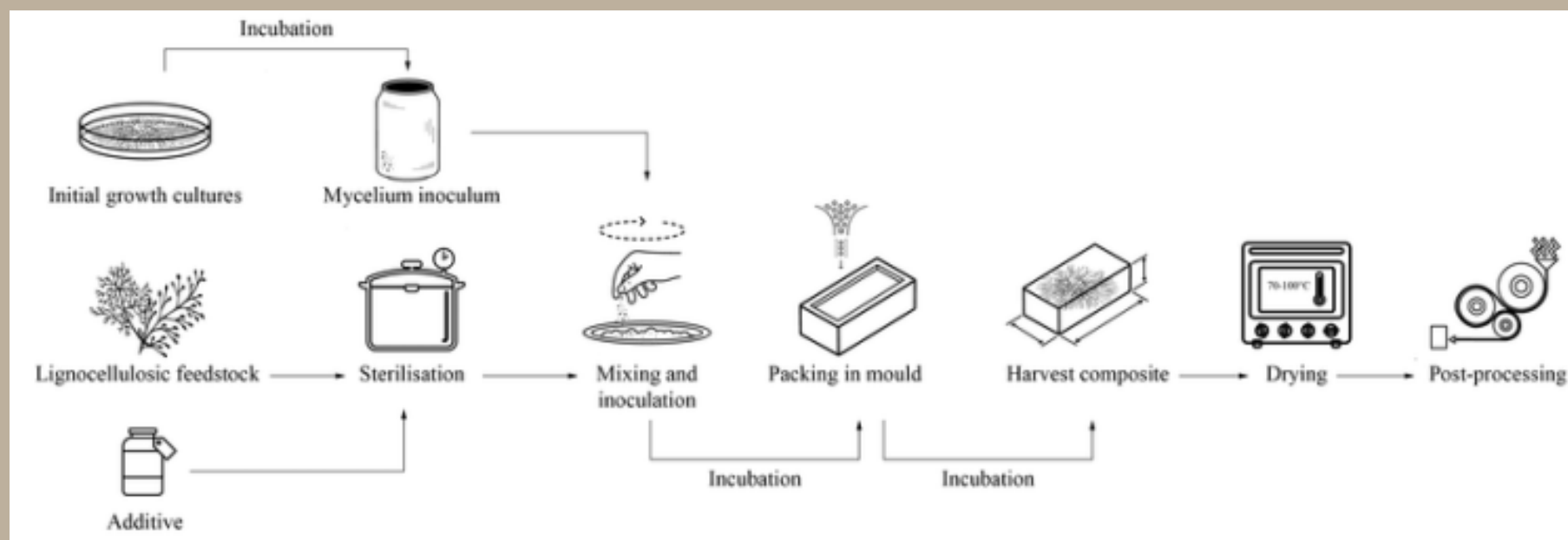
Mycelium (mushroom roots)
are cultivated



Plant waste (corn husks/wheat stalks)
are combined with Mycellium



The outcome is treated with waterproof
coating and molded into bricks.

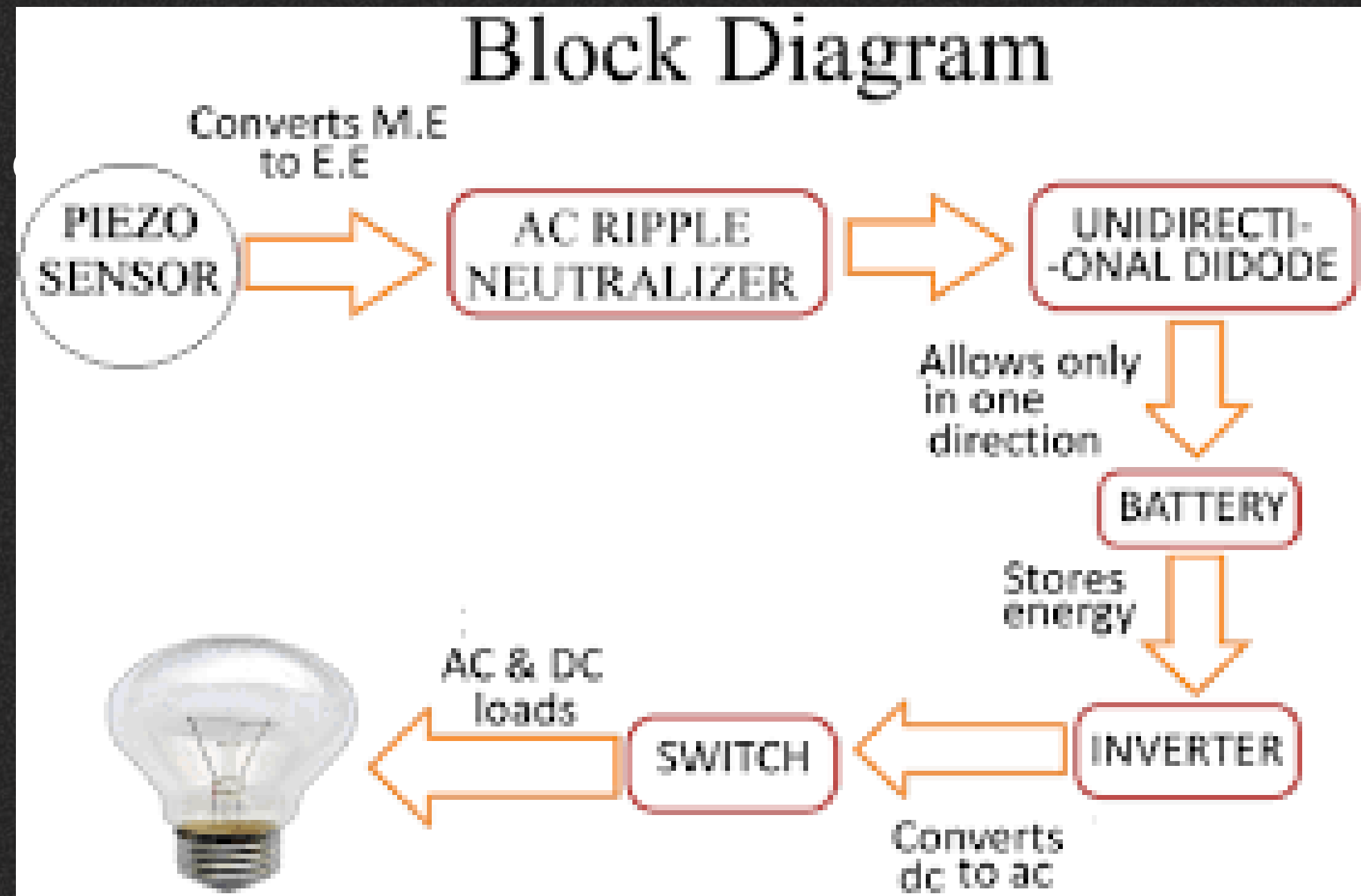




5. Team Kitten Crew: Kinetic Energy Harvesting Floor

Our Product : StepCh

- As thin as 10mm (90% reduction)
- Can be implemented in public spaces easily
- A threshold strip may be placed over the rug to create a smooth transition



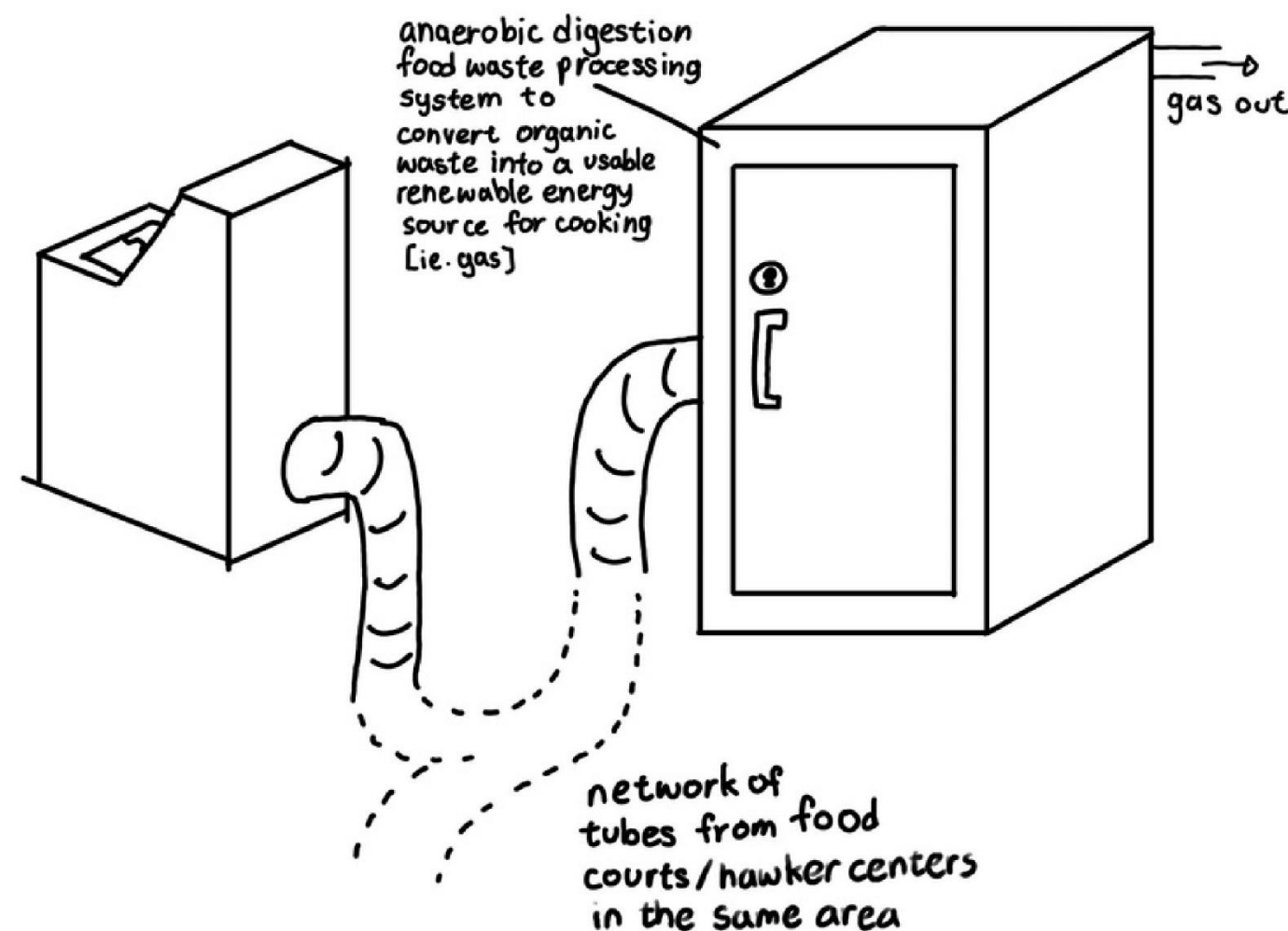


What is the solution?

Front part



Back part



GreenGains food bin

- A smart food waste bin that rewards people eating at Food Centres for throwing their food waste in this bin to be converted into green energy.
- Scan the QR code using GreenGains app/type in phone number to open the bin and toss the food waste in.
- Tubes connected to the back of the bins sucks the food waste into an insulated collection chamber where anaerobic digestion takes place.

Features



Emotional Logging



Users can easily record moments where they cry/feel deep emotions.

Gamified Experience



Earn points through emotional logging which can be used to purchase and customise virtual fish tank

7. Team What theFigma: Ocean Eyes



Virtual Consultations



Consult with Professional Therapists for personalised guidance or Real-time chat with AI chat bot

History tracking



Keep a record of emotional journeys and chat history for reflection and growth



8. Team Leaf a Mark: Technology-aided Service



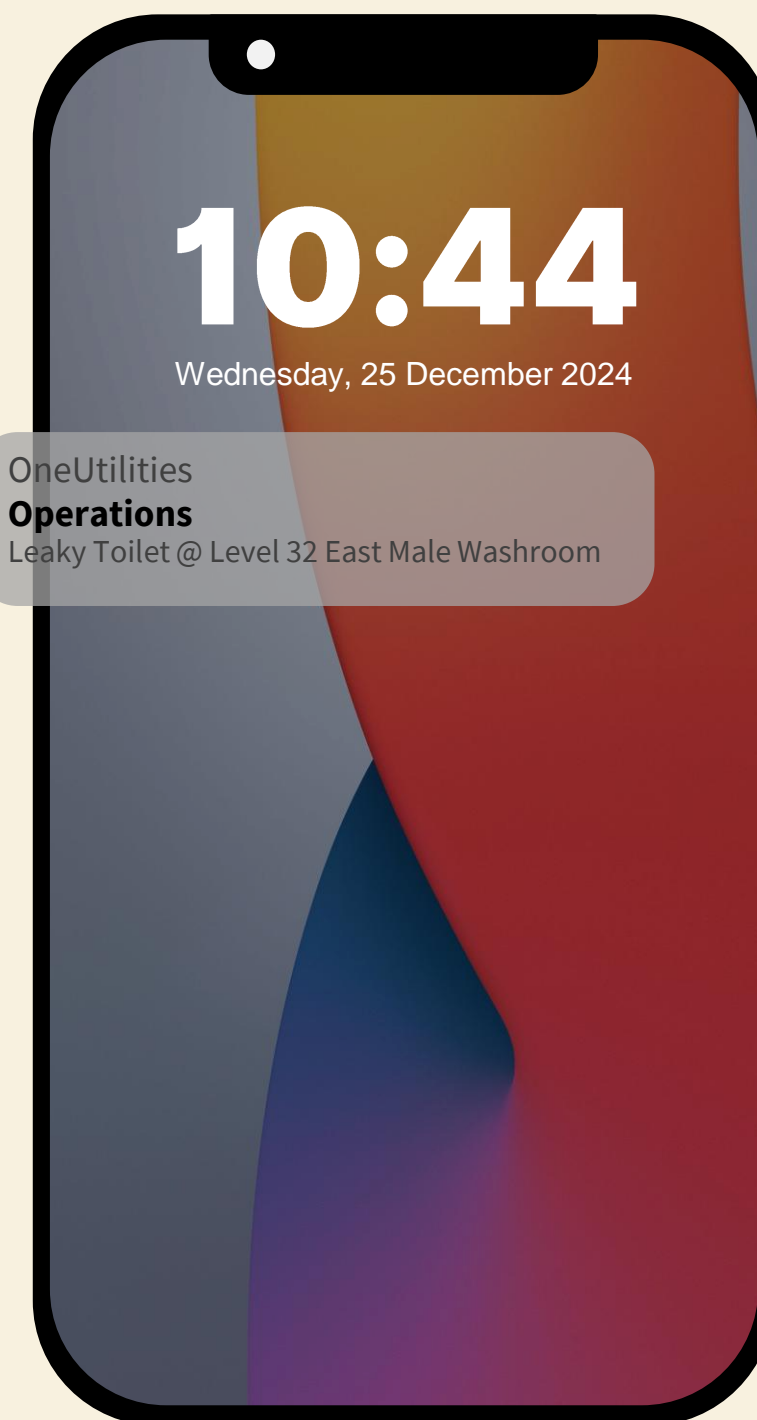
How does it work?

In just 30 seconds, our system can stop the leak and notify the Maintenance Team to resolve the issue.

But what happens during those 30 seconds?

A network of sensors, combined with our Diagnostic AI conducts a check, which then isolates the problems within that short time. Which then sends out alerts for the issue to be rectify

In
30 Seconds



X



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8 University Finalists

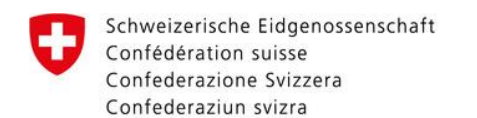
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Programme Partner



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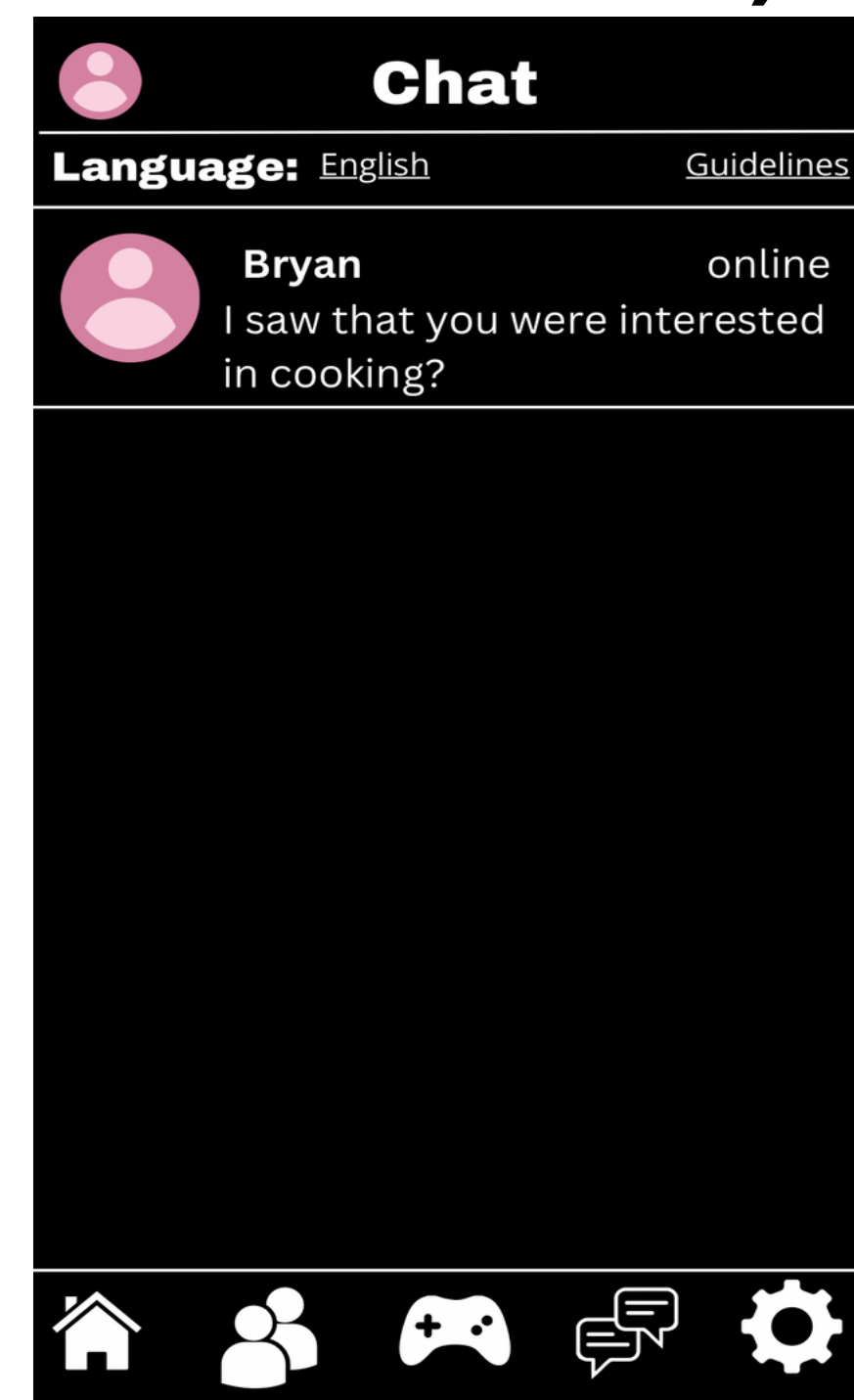
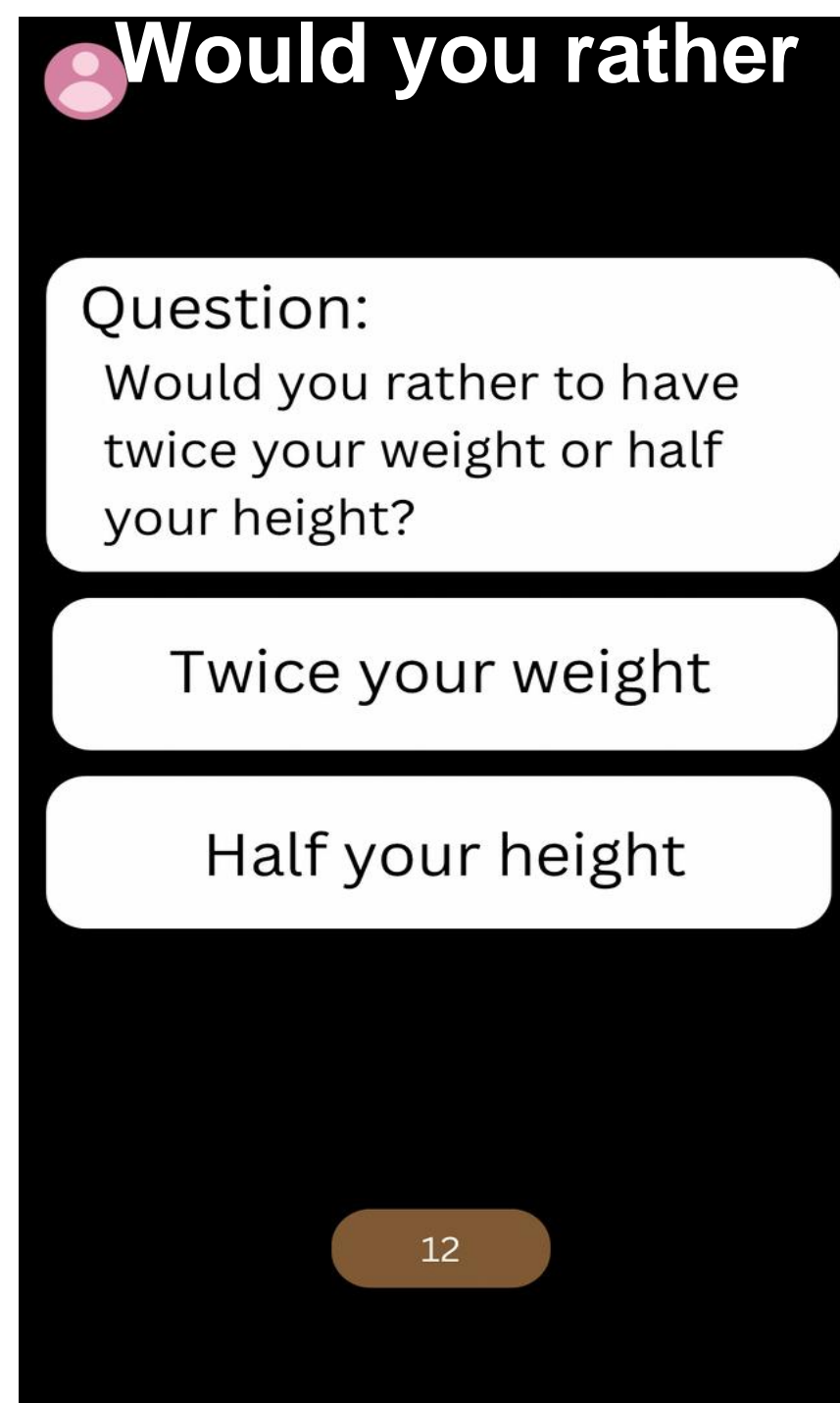
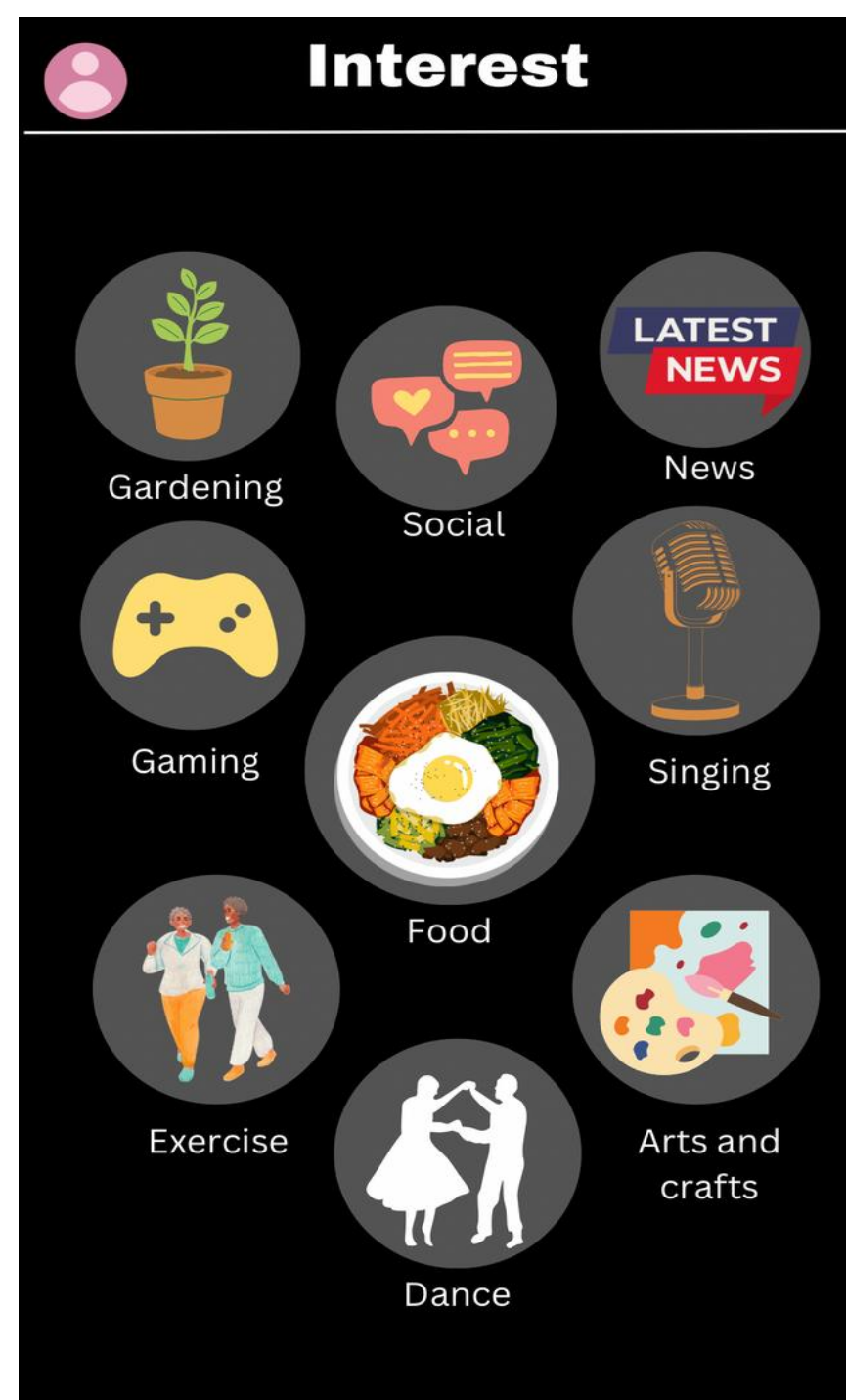
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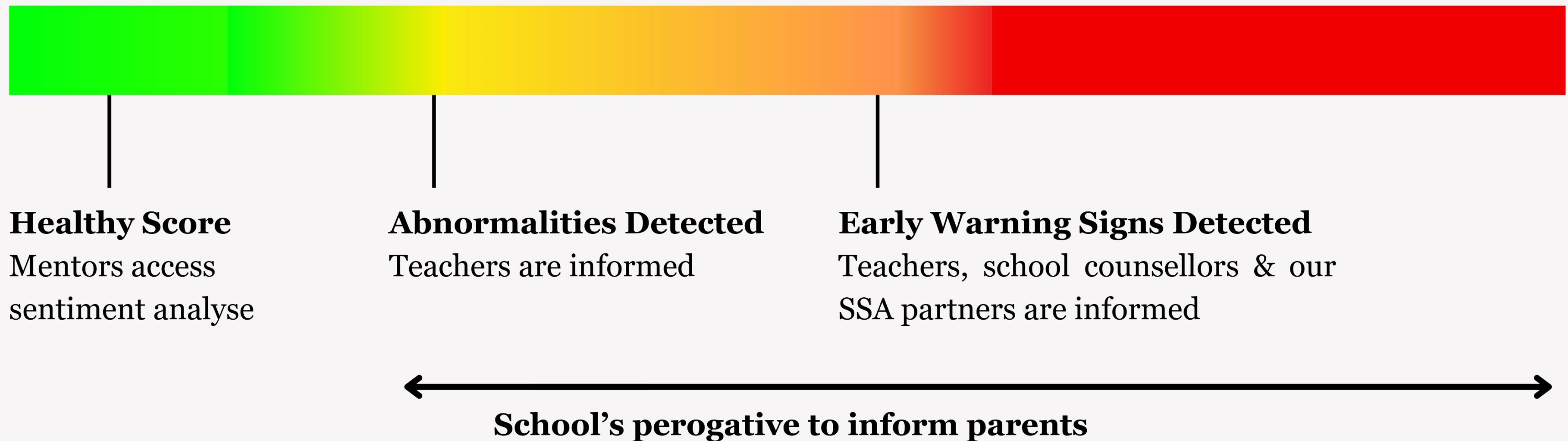
1. Team Briij:
Community Engagement

MORE REGULAR INTERACTION (EVERY MORNING)



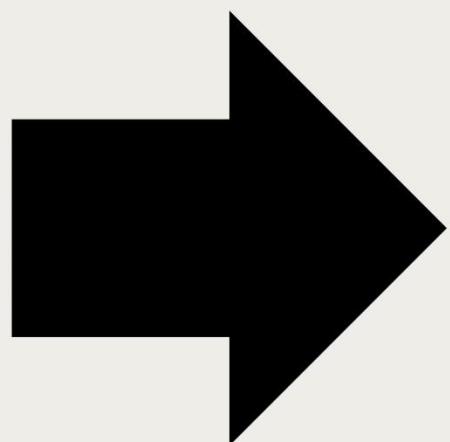
Preventive Care & Timely Intervention

Cross-stakeholder support structure ensuring **timely** and **proportionate** help



Progressive scoring system based on weekly average sentiment scoring

BOOSTING EFFECTIVENESS WITH WEARABLES AND AI



AI DRIVEN
FEEDBACK PLATFORM



3. Team EF Grower:
Cognitive Engagement of Elderly Care

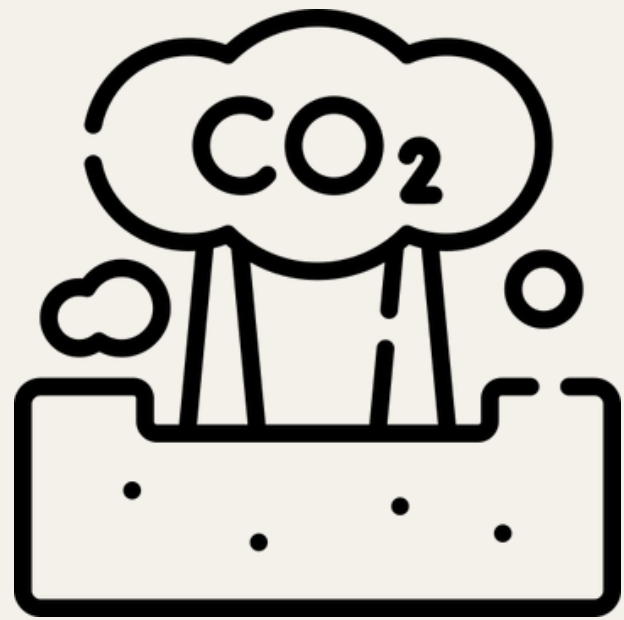
Data-driven / Just-in-time / Non-intrusive



How **AlgaCrete** Works

4. Team Equilibrium: Algae Concrete

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



CO₂ Absorption:

CO₂ is absorbed
through
photosynthesis in
micro-algae



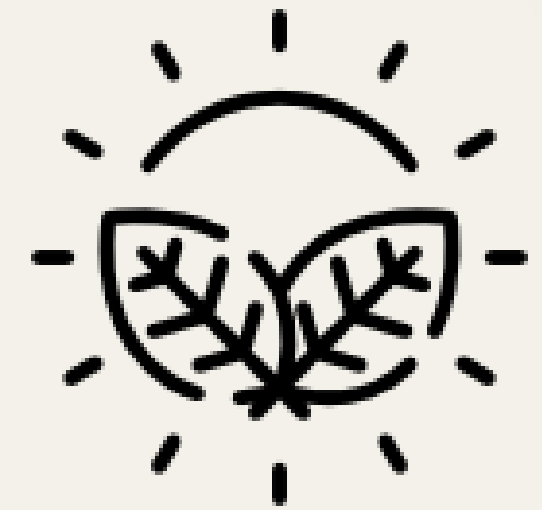
Carbon
Mineralization
during Curing:

CO₂ reacts with the
algae-derived
components,
forming **calcium
carbonate**



Strengthen
AlgaCrete:

Calcium carbonate
enhances the
structural integrity
of AlgaCrete



Self-Reinforcing
Mechanisms:

When **crack** occurs,
CO₂ and H₂O
penetrates
AlgaCrete and forms
calcium carbonate
again

5. Team Ecolnnovators: Evaporative Cooling paint

Unique Selling Point

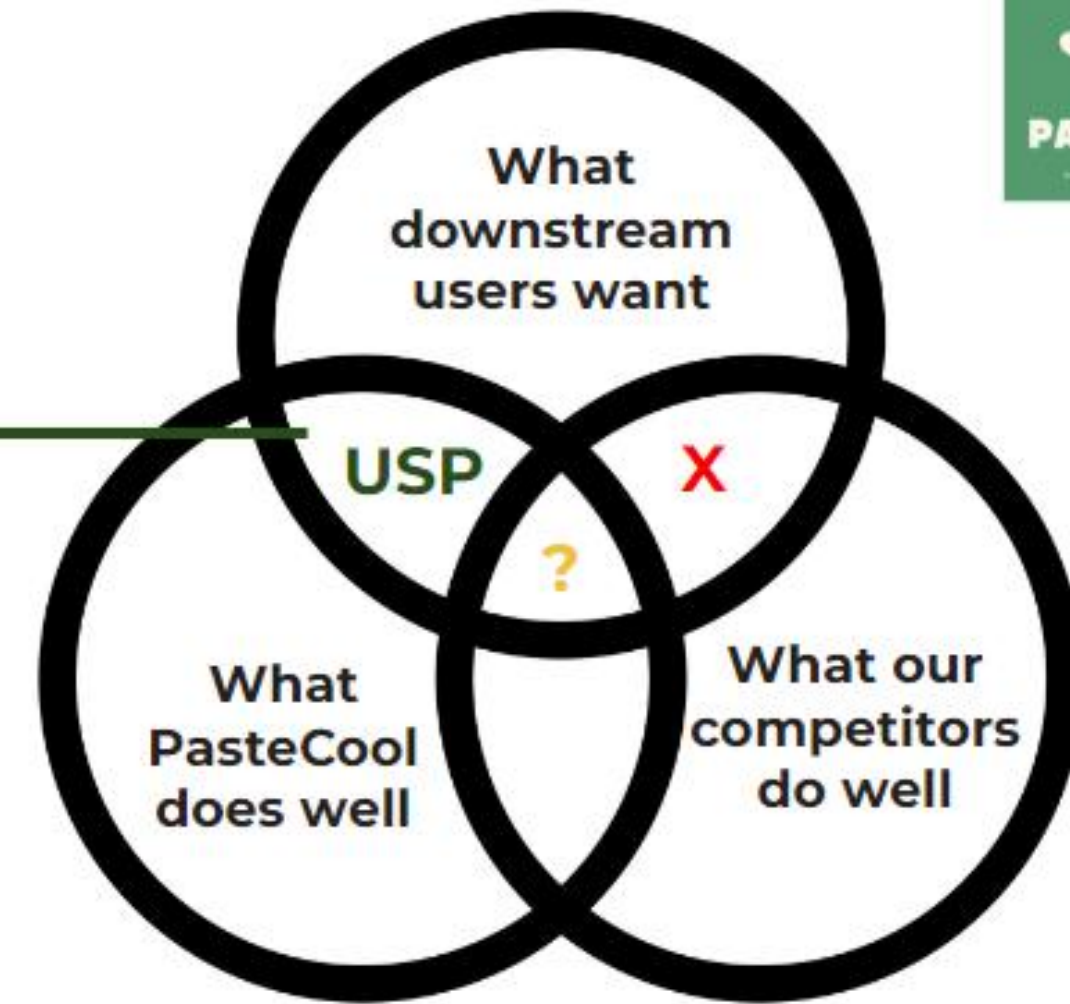
Greater **Energy Savings**

6 °C Significant **Cooling** Effect
(*based on model test)

Not UV Degradable

Hiding power in **1 layer**

Reapplication after **5 years**



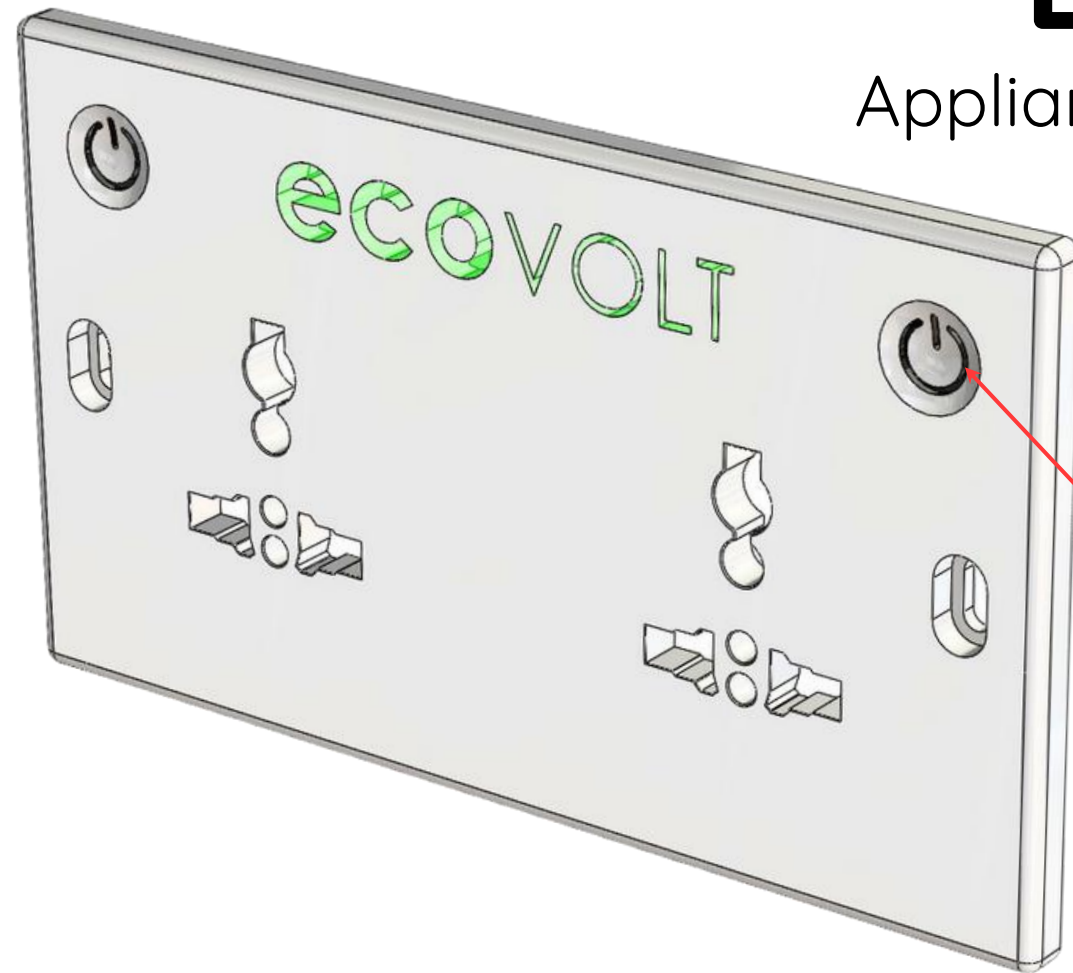
The ecoVOLT Smart Plug

Wall Socket

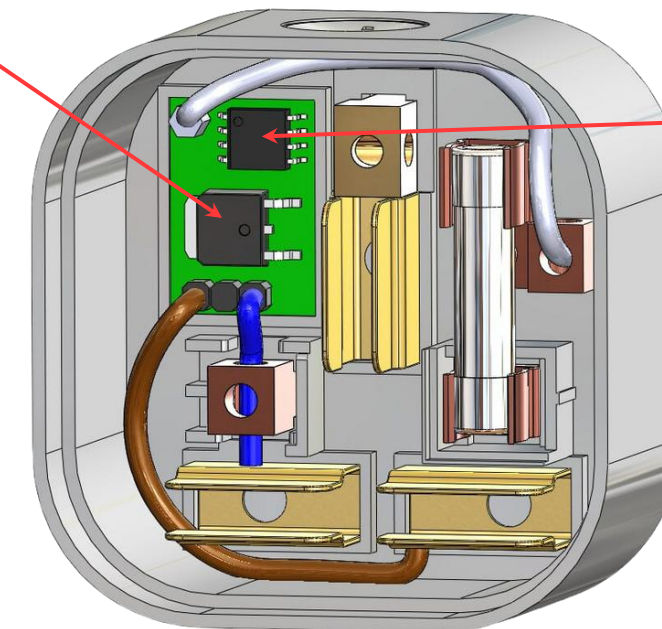
EcoGuard AI

Appliance Identification System

Learns user behaviour



Adapter



 **zigbee**
Data

Transmission

Real-Time Monitoring
uses minimal energy

Override Button

Control Smart Features yourself





7. Team Hypha Alpha: Mycelium Furniture



**Waste
substrate**

+



**Mycelium
(mushroom)**

+



**Sustainable
beeswax
coating**

=

MYCELIUM+



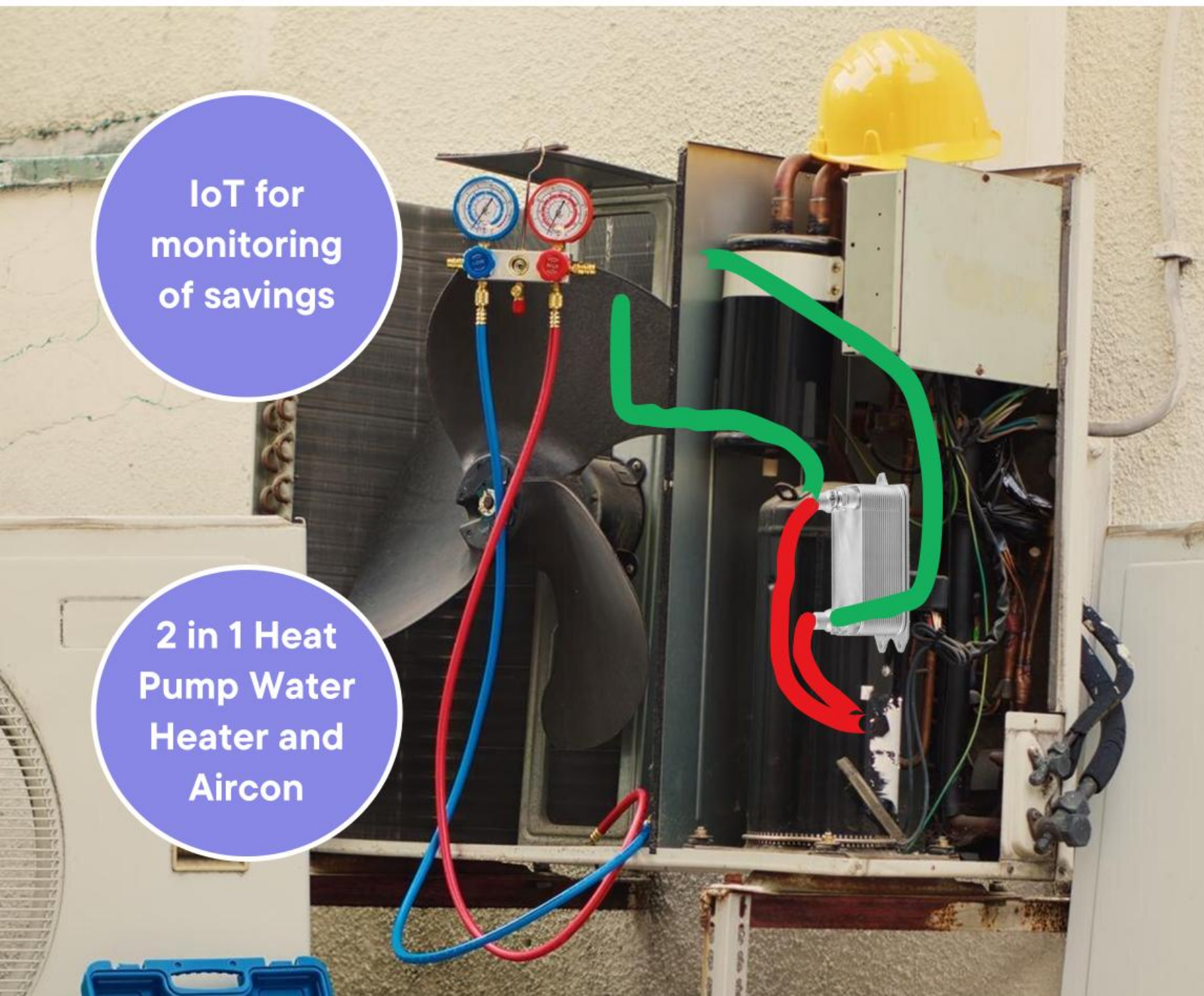
A. Farrahnor, N. A. A. Sazali, H. Yusoff, and B. T. Zhou, 'Effect of beeswax and coconut oil as natural coating agents on morphological, degradation behaviour, and water barrier properties of mycelium-based composite in modified controlled environment', *Progress in Organic Coatings*, vol. 196, p. 108763, Nov. 2024, doi: 10.1016/j.porgcoat.2024.108763. Available: <https://www.sciencedirect.com/science/article/pii/S0300944024005551>

Introducing....

8. Team SUS:
MRCTR

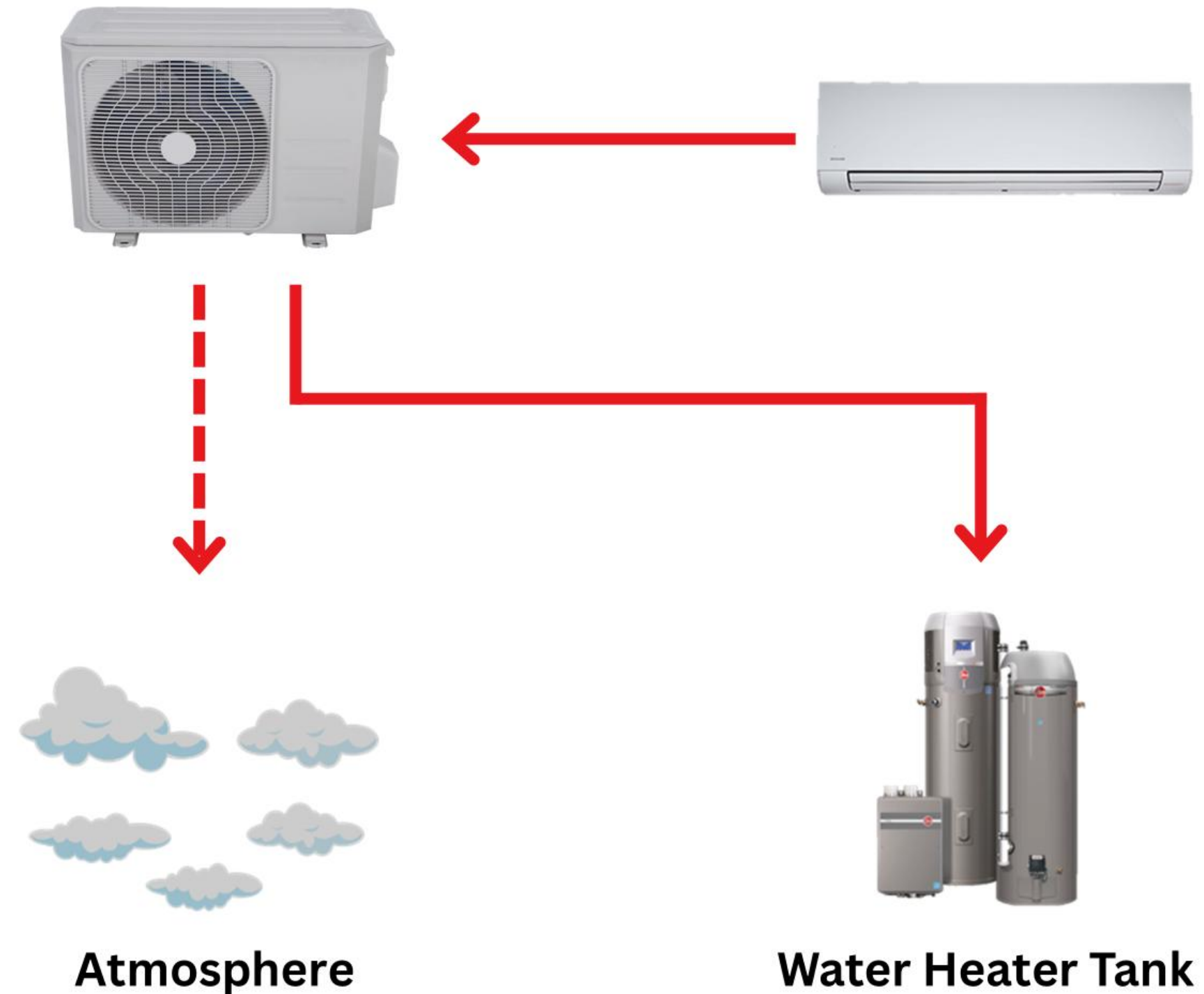


Microscale Refrigeration Cycle Thermal Recovery (MRCTR ®)



Outdoor Unit

Fan Coil Unit (FCU)





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[Polytechnic Track]

1st RUNNER-UP

TEAM GG

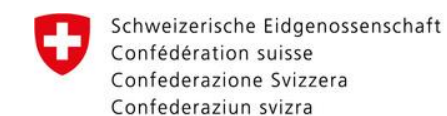
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Programme Partner



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GRIP

AUTOMATED WORKFLOW CREATION

**A modular, weekly schedule for students
with a focus on study-life balance using AI
technology**



Awarded:
Internship Opportunity with Corporate Partners



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[Polytechnic Track]

GRAND WINNER

TEAM CRIT SURVIVORS

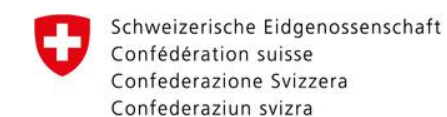
Corporate Partner



Programme Partner



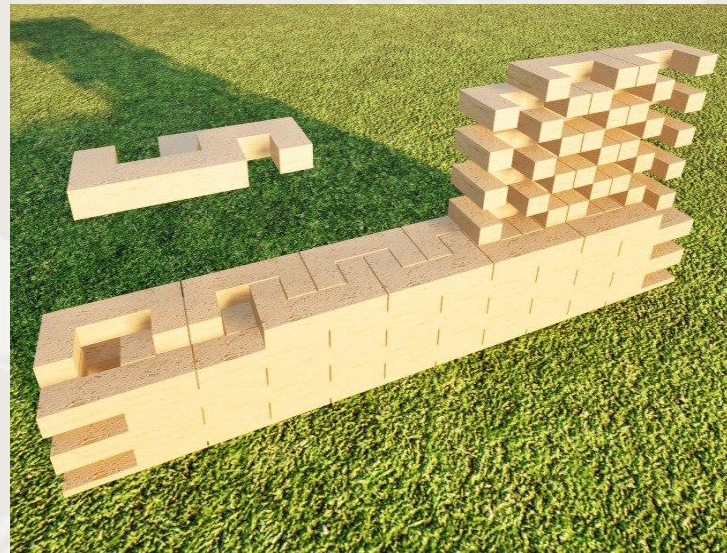
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Spore-taneous Living: Modular Mycellium for Home Construction



Awarded:
Sustainability Experiential Learning Trip to Mana Earthly Paradise in Ubud, Bali



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[University Track]

1st RUNNER-UP

TEAM SUS

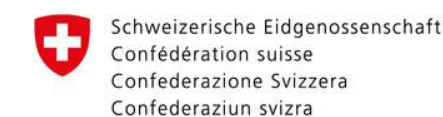
Corporate Partner



Programme Partner



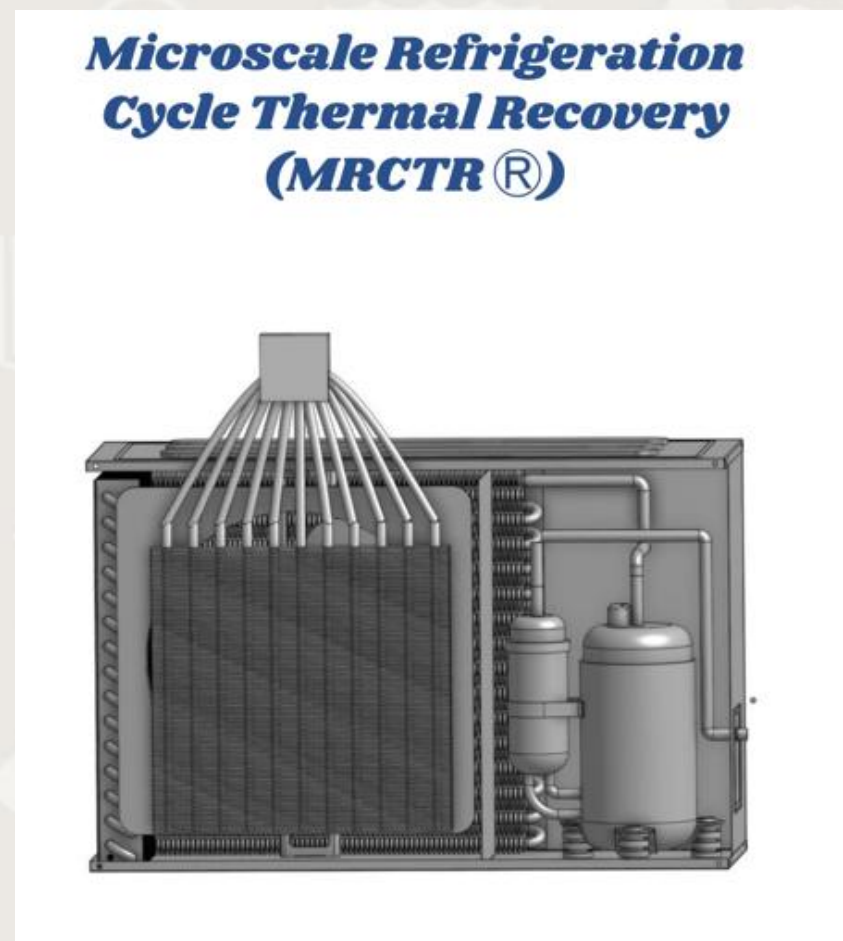
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Heat recovery with a heat exchanger



Awarded:
Internship Opportunity with Corporate Partners



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[University Track] GRAND WINNER TEAM EQUILIBRIUM

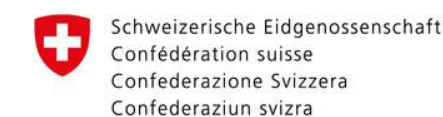
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The Future of Eco-Building

Calcium carbonate enhances the structural integrity of AlgaCrete



Awarded:
Entrepreneurial Programme for Rural Development & Sustainability in Akita Prefecture, Japan



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Thank You!

Your support for the SDG Open Hack! SG 2023 is helping humanity achieve the United Nations Sustainable Development Goals.





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OPEN HACK!
Singapore 2024

Video Testimonial from The Winners

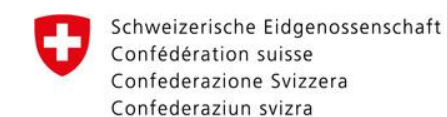
Corporate Partner



Programme Partner



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Embassy of Switzerland in Singapore

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Link to draft Video: https://youtu.be/K-D5enXFZkE?si=bpmQOkUWlu_E2CCh

Hackathon Partner

Organiser



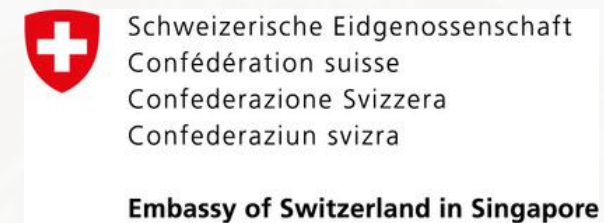
Programme Partner



Corporate Partner



Supporting organisation



Education Partner



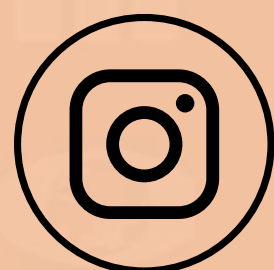
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