香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Sustainable Smart Campus as a Living Lab

LIVING LAB WEEK 2026

BRIDGING POSSIBILITIES

Campus FIX (Faculty Idea Xchange) Workshop



香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Welcome to our Campus Fixers!



Marcus Leung-Shea

Head of Living Labs

Sustainability/Net-Zero Office, HKUST

LAB ZERO CAMPUS NETWORK

香港科技大學
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Your Problem Makers



Alan Mok
Senior Manager, Facilities Services Campus Management Office, HKUST



Bertha Shum
Founder, Curator & Designer
Earthero Studio



Marcus LEUNG-SHEA
Assistant Director Sustainability/Net-Zero Office

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CAMPUS MANAGEMENT OFFICE



Alan Mok

Senior Manager, Facilities Services

Campus Management Office, HKUST

LAB ZERO CAMPUS NETWORK

Washroom Occupancy & Demand-Driven Cleaning

Existing Condition of Typical Washrooms





Cubicle Occupancy Indicator

The indicator helps users quickly identify available cubicles and reduces waiting time.





Live
corridor availability

A wall-mounted TV displays real-time cubicle availability for male and female washroom sections.

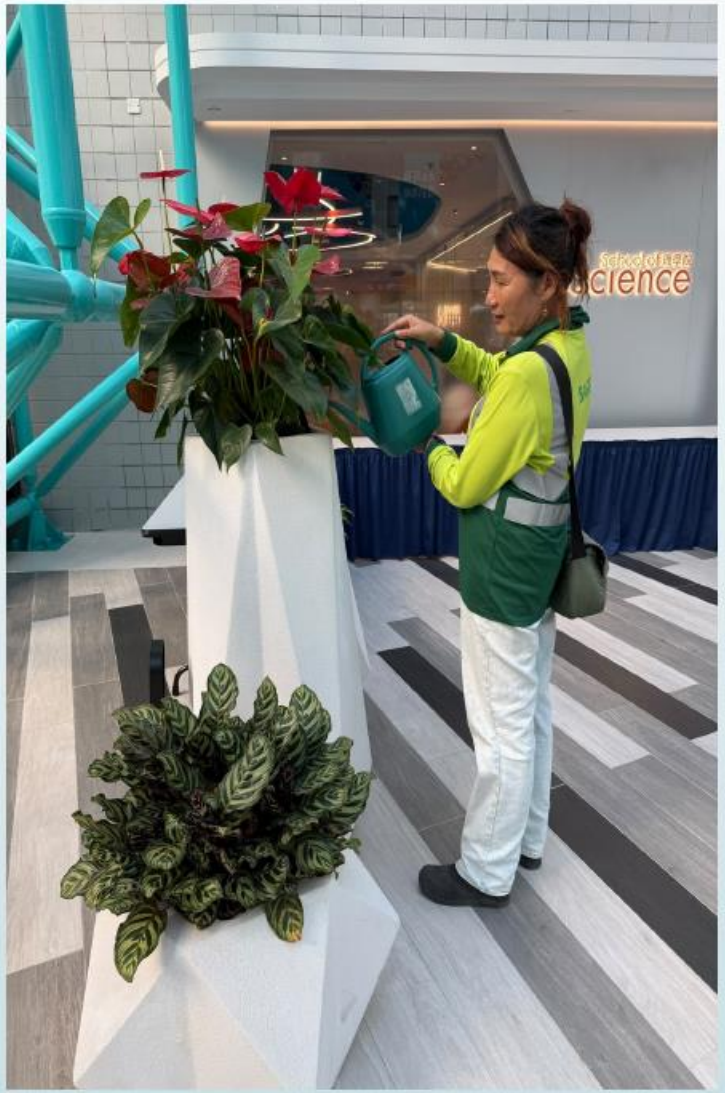


Cost-effective solution for indoor plant maintenance

Indoor Plants Maintenance by Labor-intensive Way

Any innovative solutions offers a cost-effective approach to reducing the labor-intensive nature of indoor plant maintenance.





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earthero™ STUDIO



Bertha Shum

Founder, Curator & Designer

Earthero Studio

LAB ZERO CAMPUS NETWORK

Earthero Space

Helping organisations
plan, measure, source and reduce the impact of events.

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Sustainable Event Planning Is Still Fragmented, Manual and Expensive



Lack of tools to measure impact



Sustainability strategeies added too late



Data scattered across vendors



Measurement is costly and technical



Low and lack of engagement after measurement

Existing Tools Validate the Need, But the Full Workflow Remains Fragmented

Existing solutions address parts of sustainable event planning — calculation, certification, consulting, event operations or sourcing — but they rarely connect planning, measurement, sourcing, incentives and offset options in one **full workflow**.

Existing Solutions	What They Do Well	Gap Earthero Space Addresses
Event Carbon Calculators	Estimate footprints across broad categories such as venue, travel, catering and waste	Often stop at measurement; limited **item-level planning**, material comparison, sourcing or next-step action
Standards / Consultants	Provide credibility, frameworks and technical assessment	Useful but often costly, manual or not embedded into daily event planning workflows
Event Platforms / Supplier Directories	Support logistics, venues, suppliers or event operations	Usually disconnected from carbon data, **credits**, **offset options** and sustainability decision-making

Earthero Space Differentiation

Not just:
'What is the footprint?'

But:
'What should we change **before we build it** — and how do we act on it?'

- Plan event setup, materials and sourcing
- Measure emissions and high-impact items
- Source verified eco-vendors and shared inventory
- Engage users through credits and incentives
- Act through reports and verified offset options

Earthero Space is building a more complete planning layer for lower-impact events by connecting emissions data, design decisions, verified sourcing, **credits** and **offset options**.

Examples reviewed: Green Events Tool, myclimate, Tokyo Business Event Carbon Calculator, NUS SGFIN, MEET TAIWAN, ISO 20121, Net Zero Carbon Events, EarthCheck, Cvent.

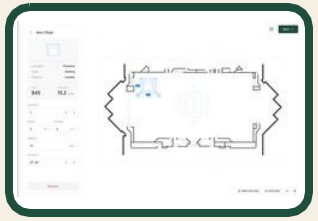
From Event Plan to Carbon Insight

Earthero Space brings **carbon estimation** into the planning stage, helping event teams make lower-impact decisions before production begins.

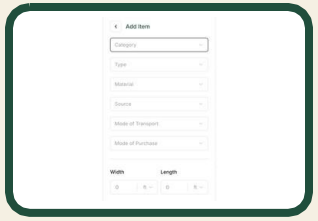
1. Create
Set event type, venue, date and planning scope.



2. Add Items
Input booths, furniture, signage, backdrops and event elements.



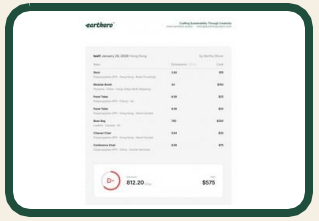
3. Materials
Add material type, dimensions, sourcing, transport and disposal plan.



4. Review
View estimated carbon intensity, cost indicators and high-impact items.



5. Report
Export a simple summary for ESG, management or client reporting.



Why users value it

Simple workflow | Early-stage carbon visibility | Easier internal approval | Practical ESG reporting output

Earthero Space starts with carbon estimation, but the bigger opportunity is to become the planning infrastructure for lower-impact events, **connecting data, design choices and sustainable sourcing** in one workflow.

Next upgrade: AI recognition, eco-vendor sourcing, credits and offset options

Carbon-Conscious Event Planning, Made Actionable

Earthero Space helps organisations **plan**, **measure**, **source** and **reduce** lower-impact events before production decisions are locked in.



1. Input

Enter event type, setup items, materials, dimensions, sourcing, transport and disposal plans.



2. Estimate

Estimate carbon intensity, cost indicators and sustainability ratings using event-specific inputs.



3. Compare

Identify high-impact areas and compare lower-impact material, setup and sourcing alternatives.



4. Act

Generate reports, source verified eco-vendors, earn credits and review offset options.

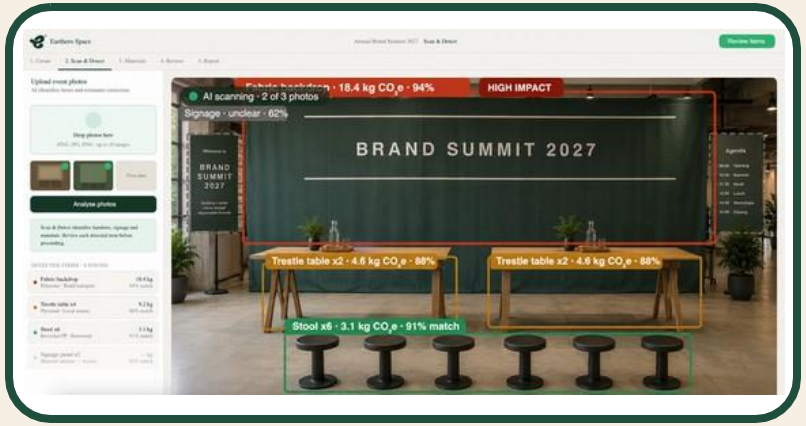
Future Product Direction

As the platform develops, Earthero Space will move from manual input to smarter planning support, including **AI-assisted** photo setup recognition, verified **eco-vendor** and community inventory, **credits**, and **offset options**.

Earthero Space starts with carbon estimation, but the bigger opportunity is to become the operating layer for lower-impact events — connecting data, design choices, verified sourcing, incentives and impact action in one workflow.

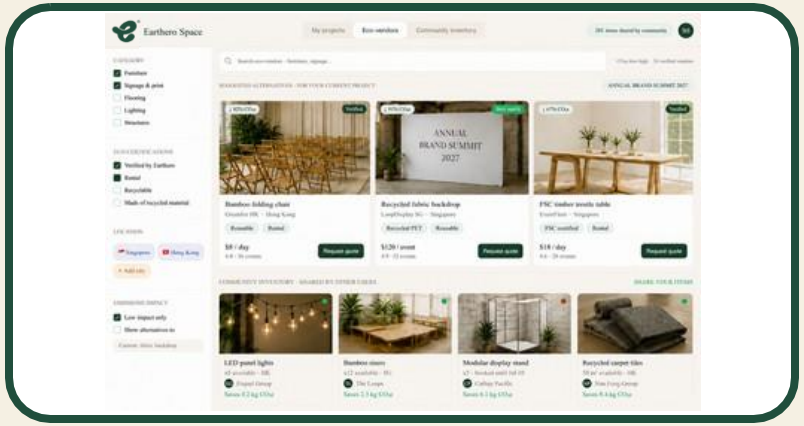
Future Interface Vision

AI Scan & Detect



AI-assisted photo recognition to identify event setup items, materials and high-impact areas, helping users estimate emissions faster and review detected items before planning decisions are finalised.

Eco-Vendor Marketplace



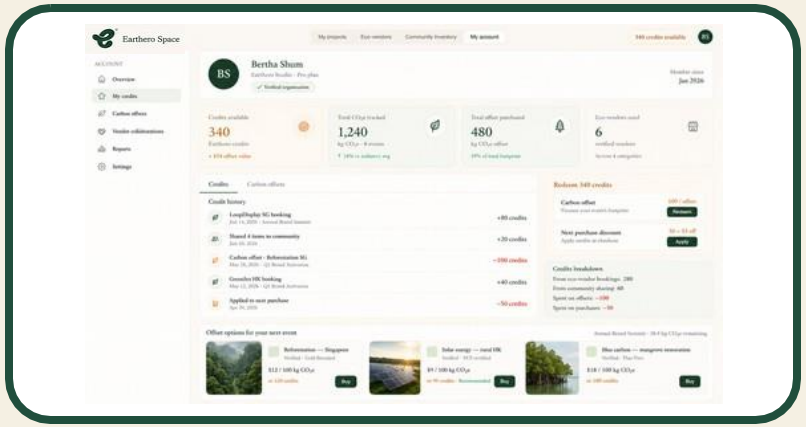
Verified eco-vendor, community inventory and credit system to help users source lower-impact alternatives, request quotes, share reusable items and earn credits for future purchases or carbon offsets.

Earthero Space aims to connect detection, estimation, sourcing and **incentives**.
Making sustainability a practical part of the event planning process.

DISCLAIMER: These images are product vision mockups created for confidential discussion purposes only and are proprietary to Earthero Project Limited. Interface, features, calculations and commercial functions shown are illustrative and may vary as the platform develops.

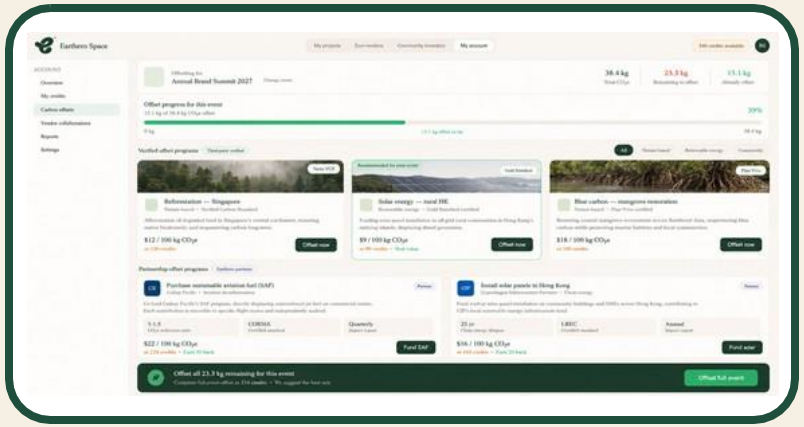
Credits, Offsets & Green Finance

Credits Dashboard



Users can track credits earned through lower-impact choices, eco-vendor bookings and community sharing, then redeem them toward future purchases or verified offset actions.

Offset & Green Finance Options



Users can view event-level emissions, track offset progress and explore verified offset options, including potential partner-led programmes in renewable energy, SAF and nature-based solutions.

Earthero Space connects carbon insight, rewards and verified offset options.
The goal is to make lower-impact event planning measurable, engaging and financially actionable.

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Design. Measure. Source. Reduce.

Earthero Space

www.earthero.studio | www.earthero.space | more@eartheroproject.com

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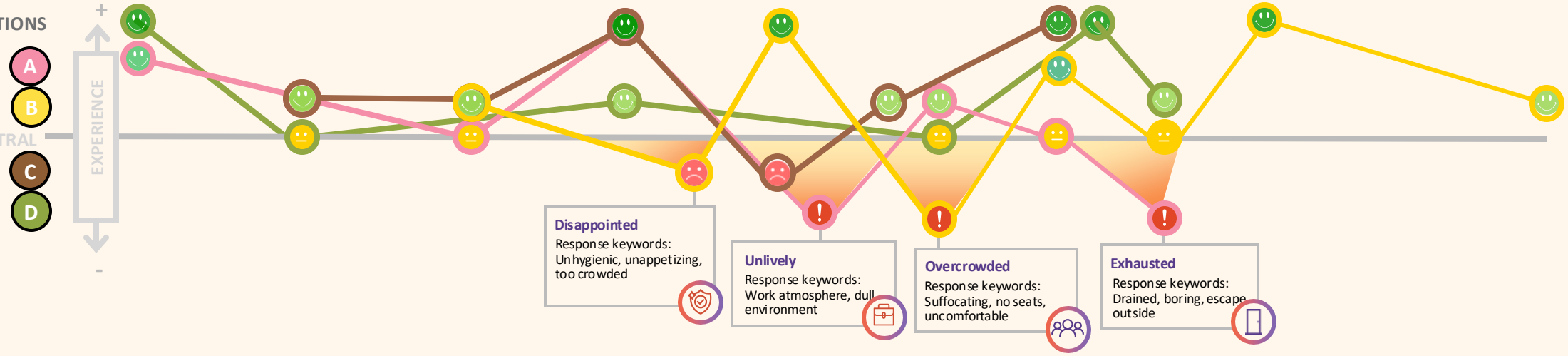
HKUST TOUCH POINT MAPPING

	Arrival	Lesson	Lunch	Activities	Dinner	Home
TIMELINE	08:00	09:00	12:00	13:30	19:00	20:00
TOUCHPOINTS	ATRIUM	HALLWAYS, CLASSROOM	CANTEEN	LIBRARY/LC, COMMONS, SHAW STUDENT CENTER, GYM	CANTEEN	DORM, ATRIUM
OBJECTIVES	Coming to a welcoming atmosphere	Concentrating on lesson and foster a positive learning culture	Enjoy quality food in a clean and comfortable space	Establishing a refreshing balance between recreation and studies	Dine in a recharging space with peers	Take a relaxing stroll back home

EMOTIONS

A
B
NEUTRAL
C
D

\+ EXPERIENCE -



Disappointed
Response keywords: Unhygienic, unappetizing, too crowded

Unlively
Response keywords: Work atmosphere, dull environment

Overcrowded
Response keywords: Suffocating, no seats, uncomfortable

Exhausted
Response keywords: Drained, boring, escape outside

KEY FOCUS AREAS

Calls for well-maintained spaces and improved crowd control during peak hours	Exhibits low optimization of spaces for other activities than working or studying	Shows a need in more recharging spaces and clearly defined function of spaces; e.g. relaxation zones, entertainment area	Reveals the pressuring nature of staying on campus, demonstrating the need to foster a wellness-first campaign

Background: Lunchtime is an important time for HKUST students to re-charge during the day

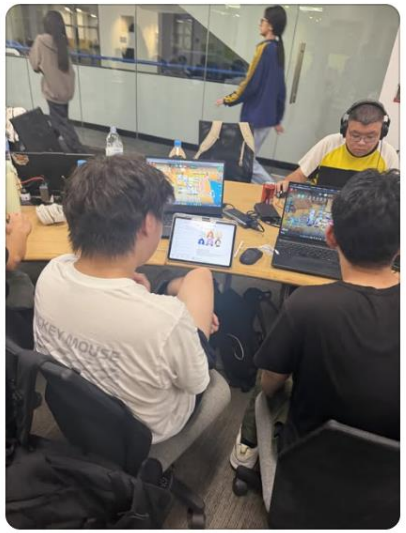
Challenge: Long lines for food uses up valuable time that could be used for recovery (social, quiet, etc)

Ask: How might we be able to allow the **community** to easily help each other know queue length so they can decide where to get their lunch?

jmms_2958 10/13/26

Here is the worst thing I have encountered at university. HKUST, ranked 33rd in the world qs rankings, enrolled countless students this year and raised the tuition fee, but the infrastructure completely failed to keep up. There are completely no seats in the library. I would say it's okay if everyone kept studying, that might be my problem, maybe because I didn't come early. However, lots of students get a seat and play games all day. 1/2





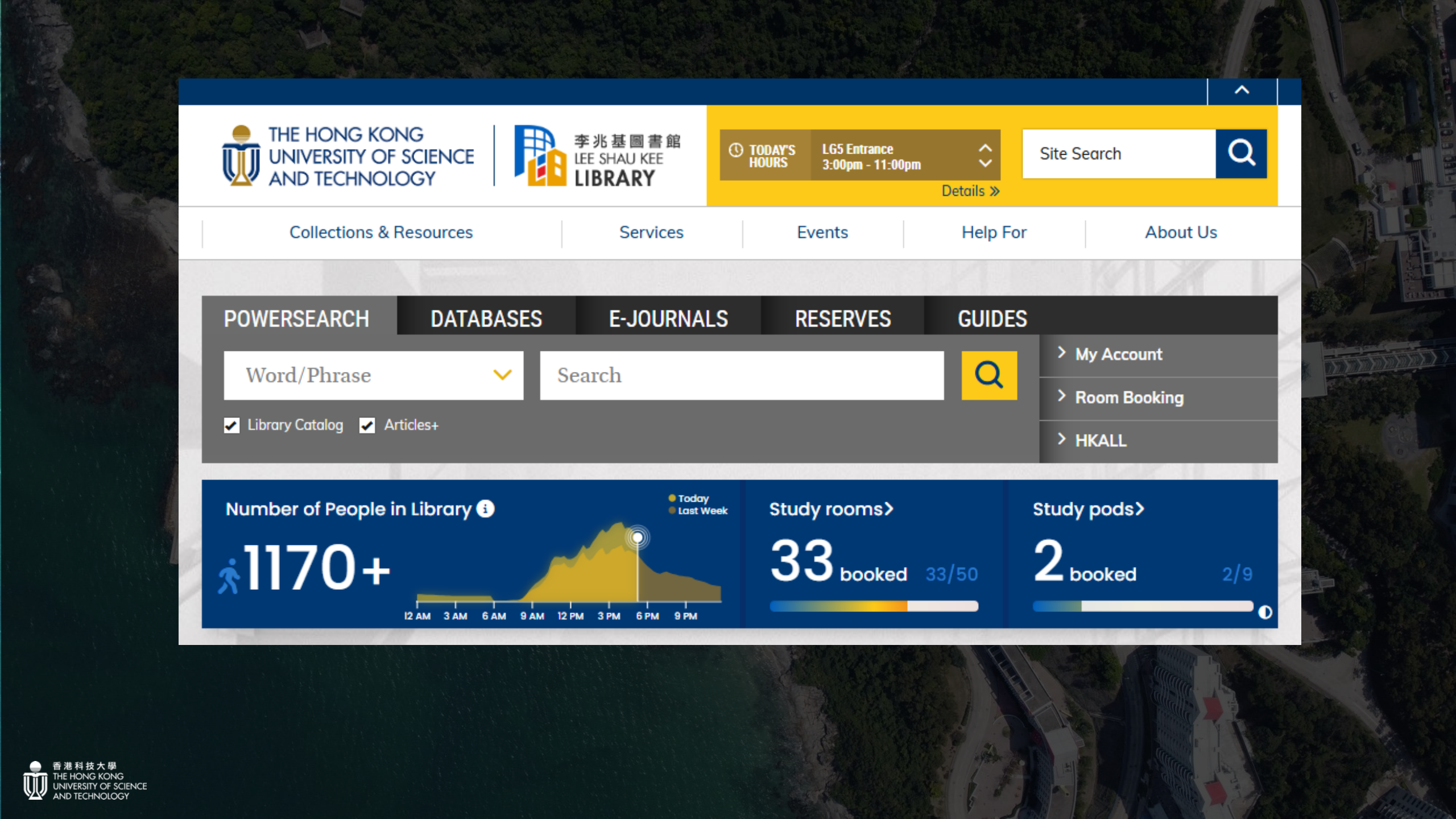
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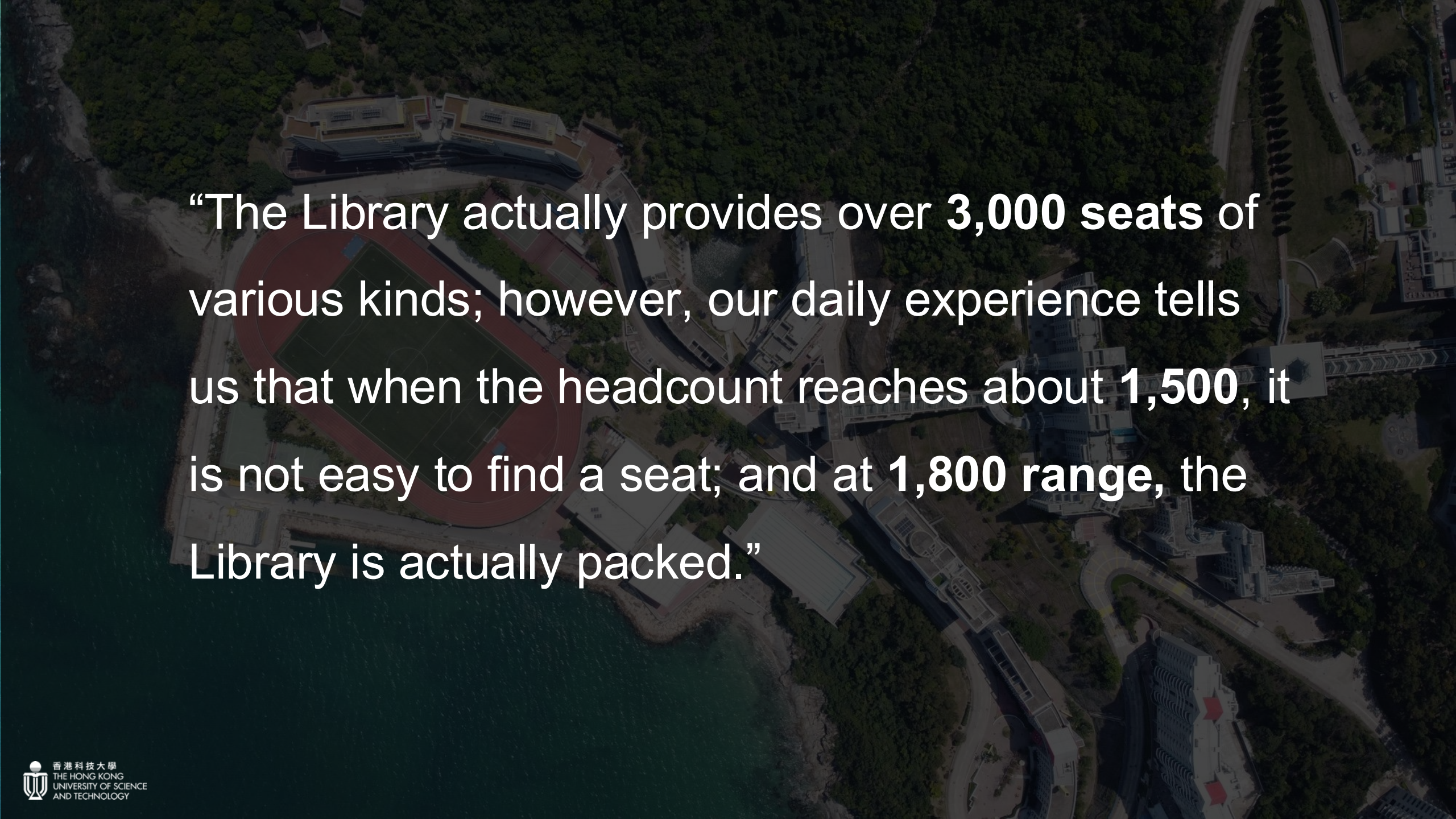
wggswimmingteam 18h

So some people went to outside.



35 1 3


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李兆基圖書館
LEE SHAU KEE LIBRARY
TODAY'S HOURS
LG5 Entrance
3:00pm - 11:00pm
Details »
Site Search
Collections & Resources
Services
Events
Help For
About Us
POWERSEARCH
DATABASES
E-JOURNALS
RESERVES
GUIDES
Word/Phrase
Search
Library Catalog
Articles+
My Account
Room Booking
HKALL
Number of People in Library
1170+
Today
Last Week
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33 booked
33/50
Study pods>
2 booked
2/9



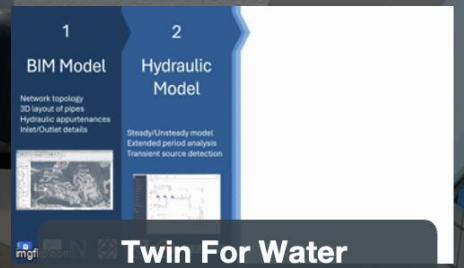
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Background: Study space is at a premium and as the population grows, the “margin” for space is getting smaller

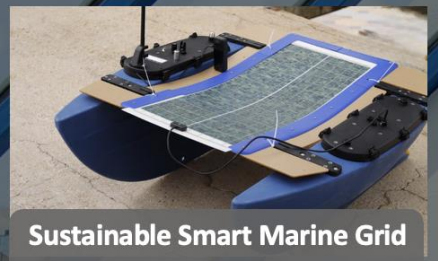
Challenge: The library is the prime location due to its size and likelihood of finding a seat. But it can be overcrowded and students don’t know where else is available.

Ask: How might we be able to allow the **community** to easily help each other know where available seating for studying is located?

2019 Launch | **$50M** For 3 years | **56** Projects Funded | **1100+** Students | **280+** Faculty Involved | **500+** Partners Engaged



Twin For Water
Smart monitoring platform for campus water supply network



Sustainable Smart Marine Grid
Underwater surveying and trash cleaning



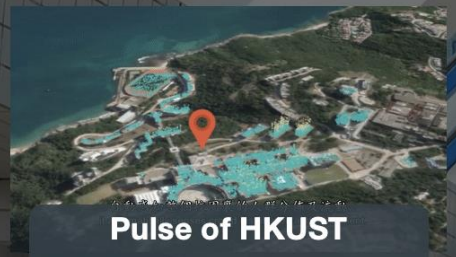
Digital Twin
Real time monitoring of campus resources using Robotics AI



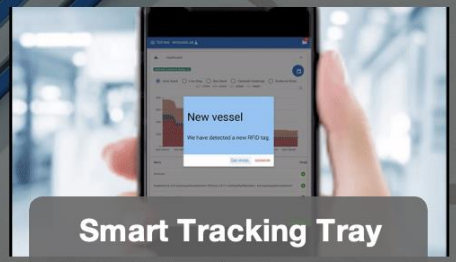
Algae-based CO2 capture system
Automatic Photobioreactor System



Food Waste Analytics
AI Camera to tracks waste Patterns in canteens



Pulse of HKUST
Visualizes and predicts crowds around campus



Smart Tracking Tray
Efficient chemical tracking and storage in wet lab



Black Soldier Fly Bin
Reduce food waste with larvae



Nano-Coating
Applied on surfaces for self-cleaning



Nanobubble-Drone Cleaning
Safe and sustainable high-rise cleaning



Hyper-Local Heat Warning System
Manage Local heat-risk



Green Parking
Edge AI camera for license plate recognition and vacancy detection

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Living Lab Program Roadmap

1



October 22, 2026

Campus FIX (Faculty Idea Xchange) Fund

2



November 27, 2026

Expression of Interest Form Due

3



January 15, 2027

Proposal Submission Due

4



February 22, 2027

Announcement of Shortlisting Results

5



March 23, 2027

Living Lab Pitch Day

6



April 9, 2027

Final Proposal Due

7



May 3, 2027

Announcement of Winners

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