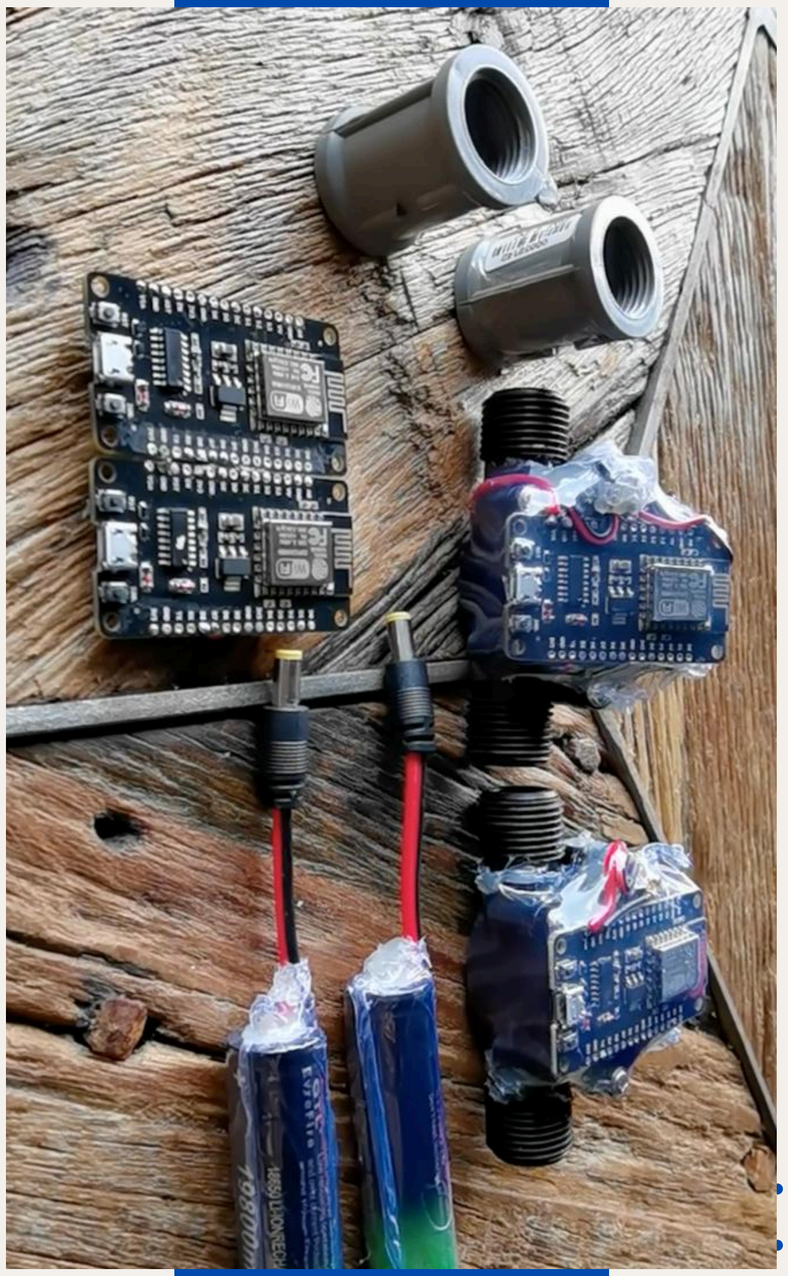
UNESCO WATER RESILIENCE CHALLENGE 2024 - ROAD TO BALI



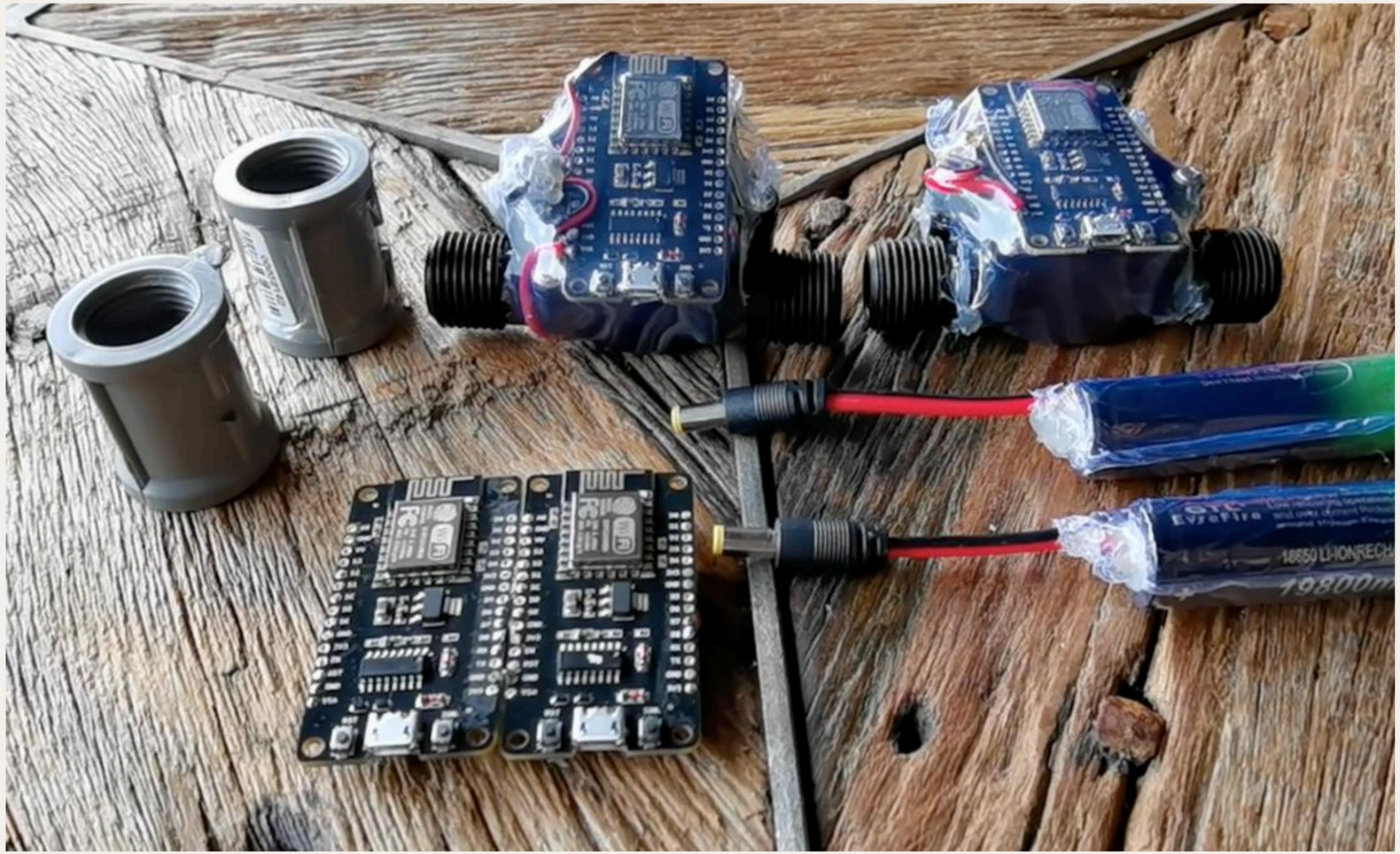
C_H2O

Kueh Tze Shuen
Chai Hong Jie
Ivy Kuan Yen Ting
Houng Jun Hong

PROBLEM STATEMENT

Water Overuse in Langkawi due to Tourism led to Frequent Water Shortage

AquaTally



Data-Driven Smart Water Monitor

AquaTally

Count Every Drop
Make Every Drop Count

AquaTally

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Make Every Drop Count

MONITOR WATER USAGE

AquaTally

Count Every Drop
Make Every Drop Count

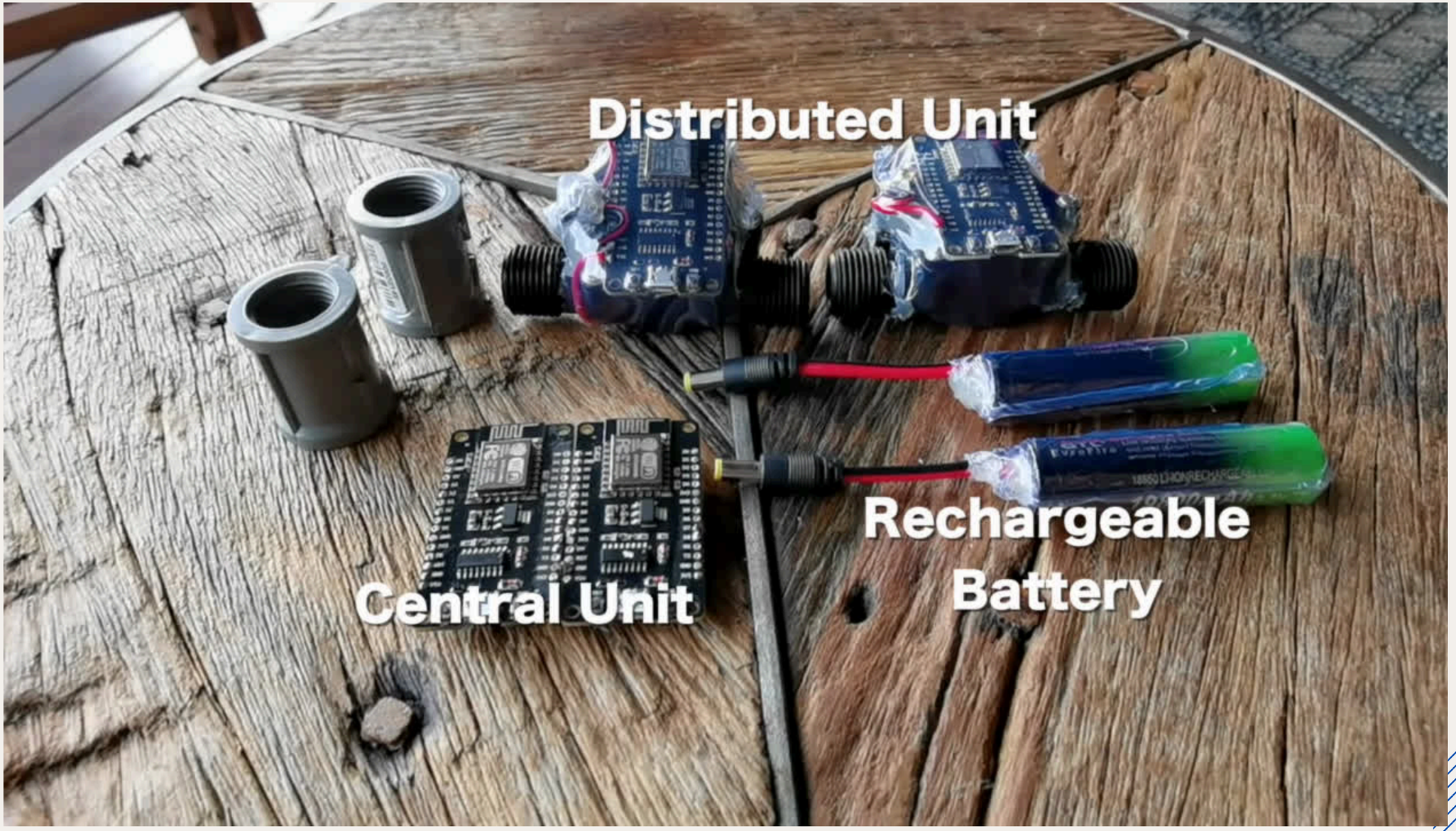
- MONITOR WATER USAGE
- ALERT WATER OVERUSE

AquaTally

Count Every Drop
Make Every Drop Count

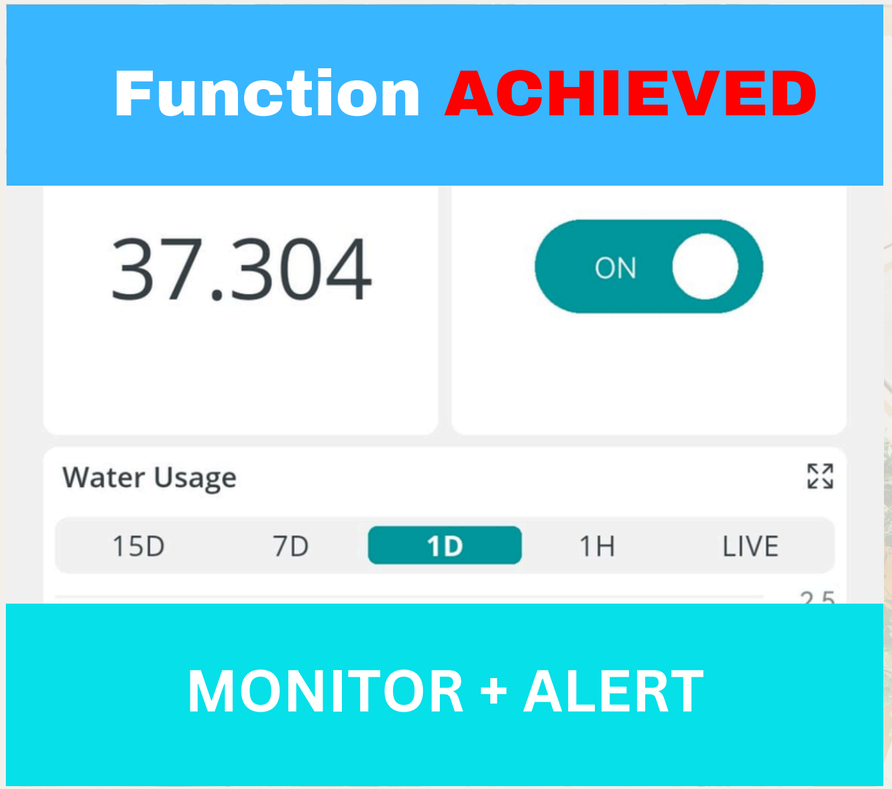
- MONITOR WATER USAGE
- ALERT WATER OVERUSE
- DRIVE BEHAVIOUR CHANGE

DEMONSTRATION



FUNCTIONALITY

Function ACHIEVED



MONITOR + ALERT

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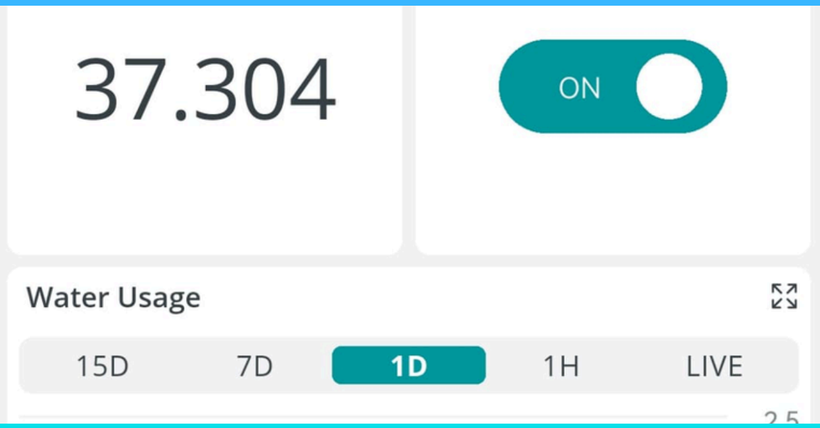
Function ACHIEVED



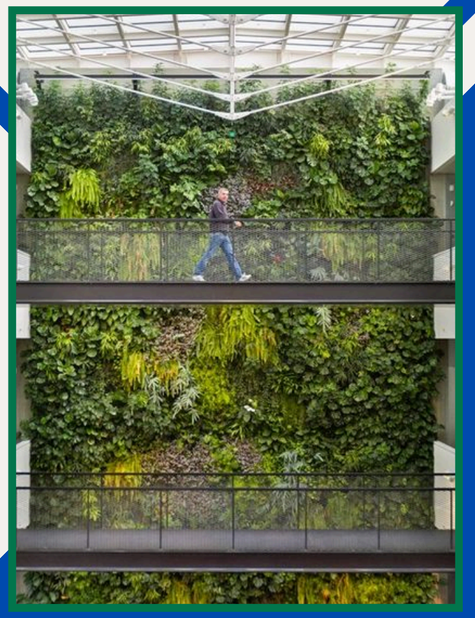
MONITOR + ALERT

Measurement

1986	2024-05-02 11:08:12	0	device001
1987	2024-05-02 11:08:22	0	device001
1988	2024-05-02 11:08:32	0	device001
1989	2024-05-02 11:08:42	0	device001
1990	2024-05-02 11:08:52	0	device001
1991	2024-05-02 11:09:02	0	device001
1992	2024-05-02 11:09:12	0	device001
1993	2024-05-02 11:09:22	0	device001
1994	2024-05-02 11:09:32	0	device001
1995	2024-05-02 11:09:42	0	device001
1996	2024-05-02 11:09:52	0	device001
1997	2024-05-02 11:10:02	0	device001
1998	2024-05-02 11:10:12	0	device001
1999	2024-05-02 11:10:22	0	device001
2000	2024-05-02 11:10:32	0	device001
2001	2024-05-02 11:10:42	0	device001
2002	2024-05-02 11:10:47	0.15	device001
2003	2024-05-02 11:10:50	0.15	device001
2004	2024-05-02 11:10:58	0	device001

DATA COLLECTION + STUDIES

PRODUCT INSTALLATION

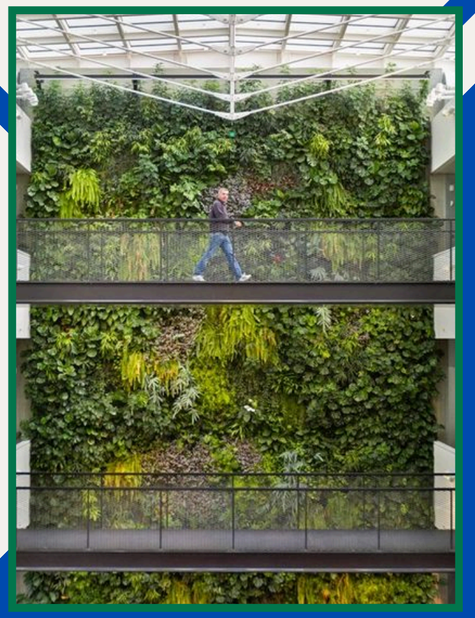


Community - Household

Need: Monitoring

- Installed in households in Langkawi
- Record water usage in different appliances
- Identify main water wastage source
- Optimise water consumption

PRODUCT INSTALLATION



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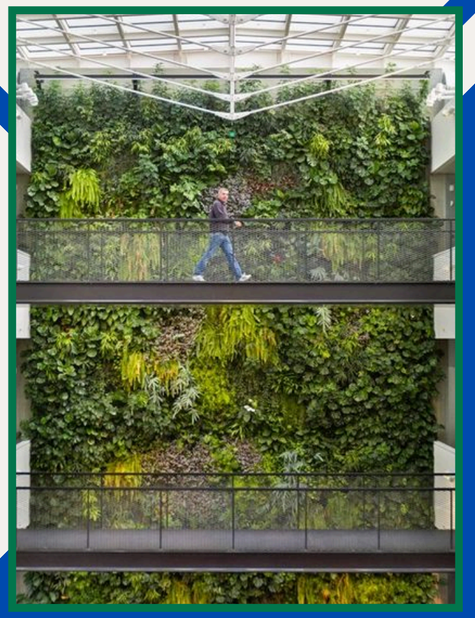
Tourism - Hotels

Need: Alerting

- Installed in resorts and airbnb in Langkawi
- Alert tourists on high water consumption
- Instill awareness in tourism industry

PRODUCT INSTALLATION



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LEMBAGA PEMBANGUNAN LANGKAWI

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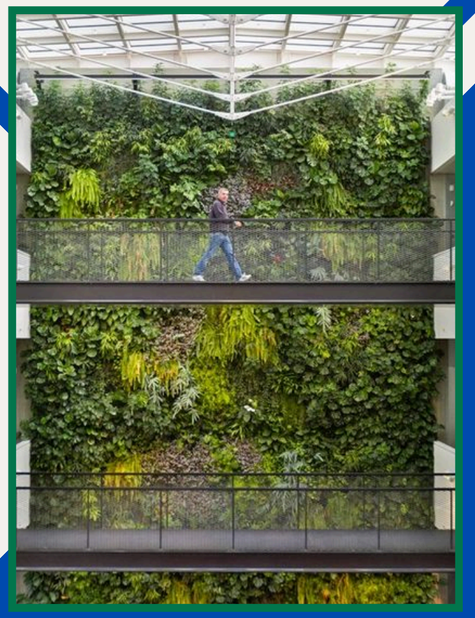

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LEMBAGA PEMBANGUNAN LANGKAWI

UNDERWATER WORLD LANGKAWI

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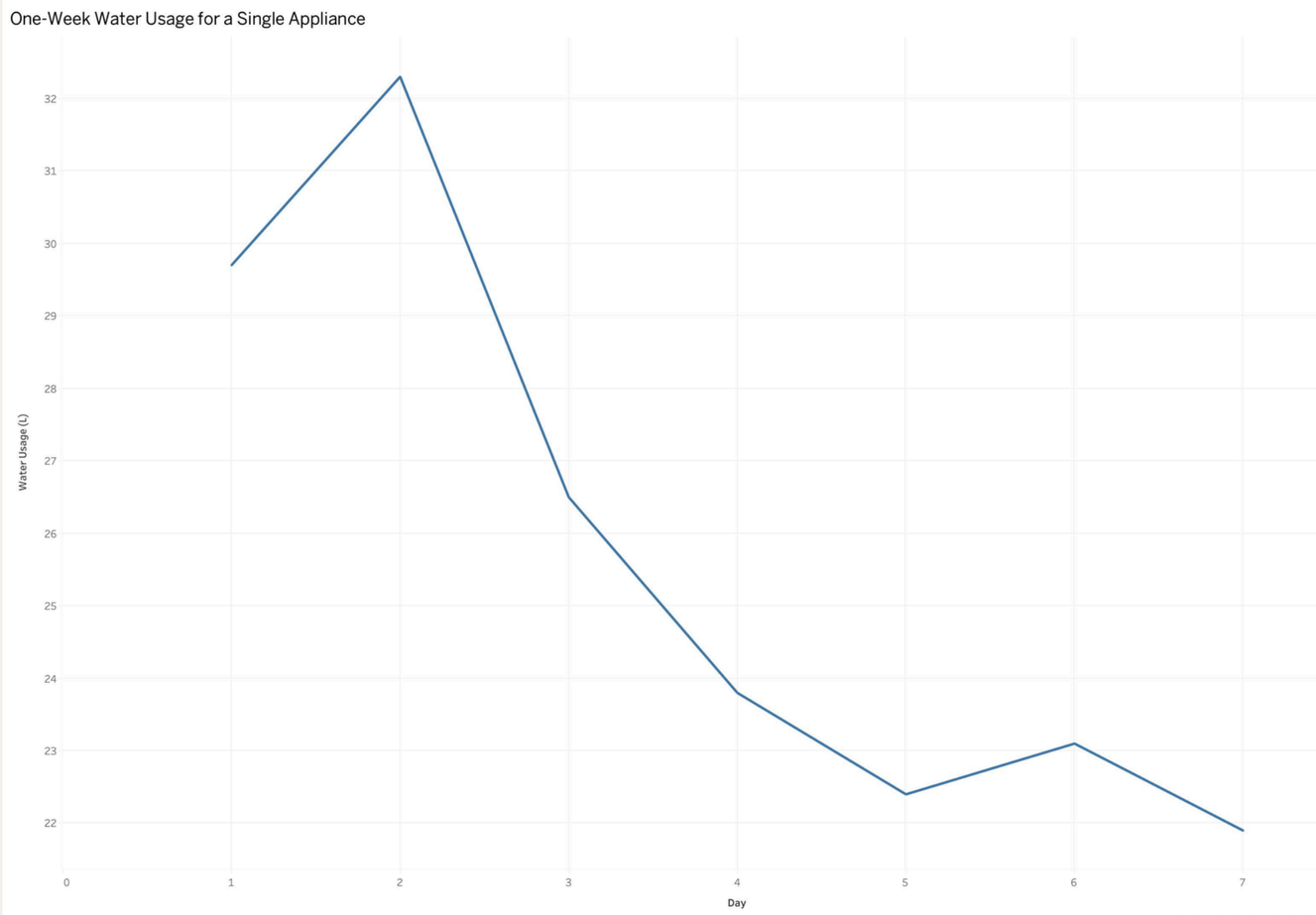
PROJECT IMPACT

AquaTally - CH2O

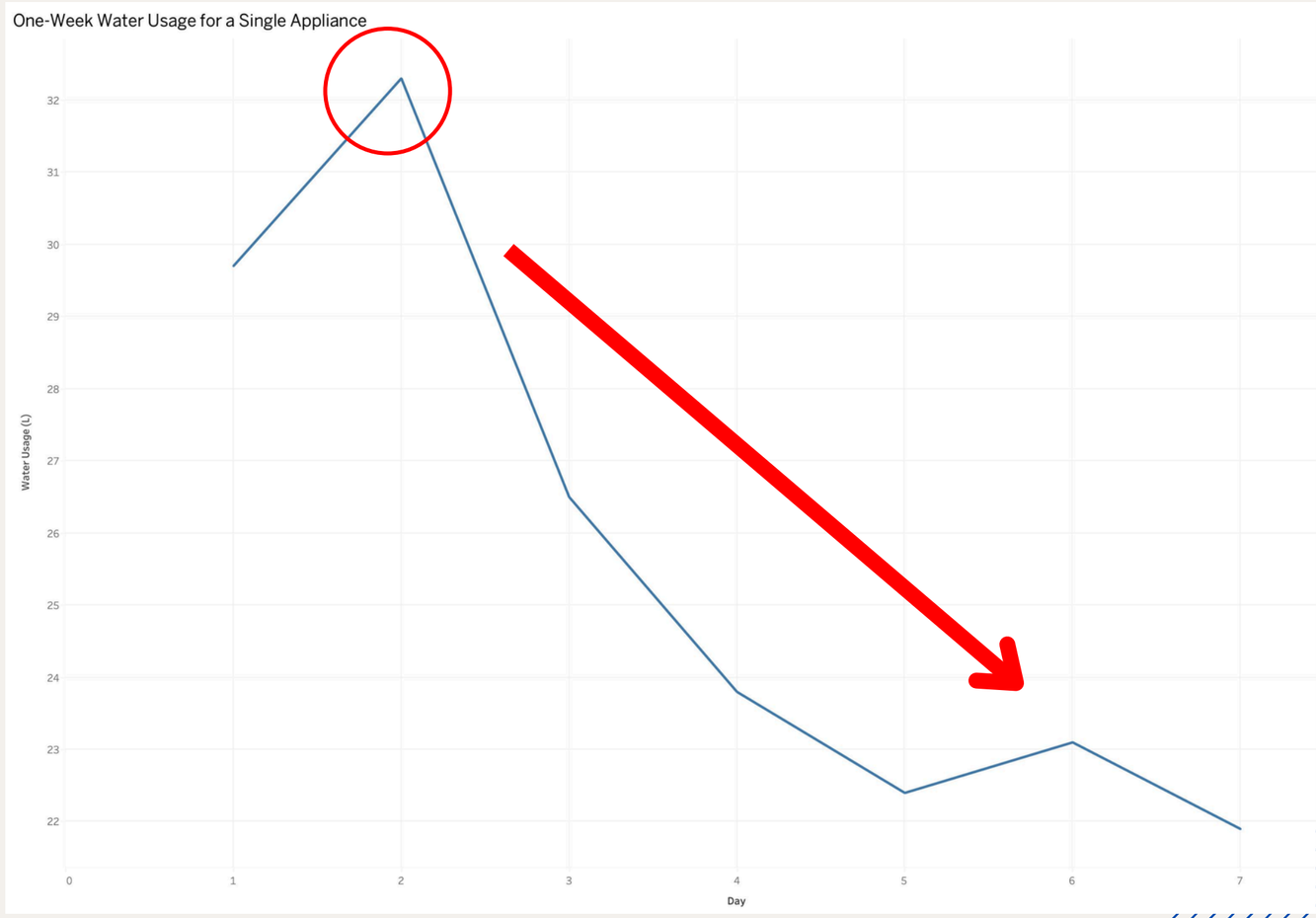
REDUCTION IN WATER USAGE



PROJECT IMPACT

AquaTally - CH2O

REDUCTION IN WATER USAGE



Reduction of 8 litres per day per appliance

PROJECT IMPACT

1

Household

Save 400,000 litres per day

PROJECT IMPACT

1

Household

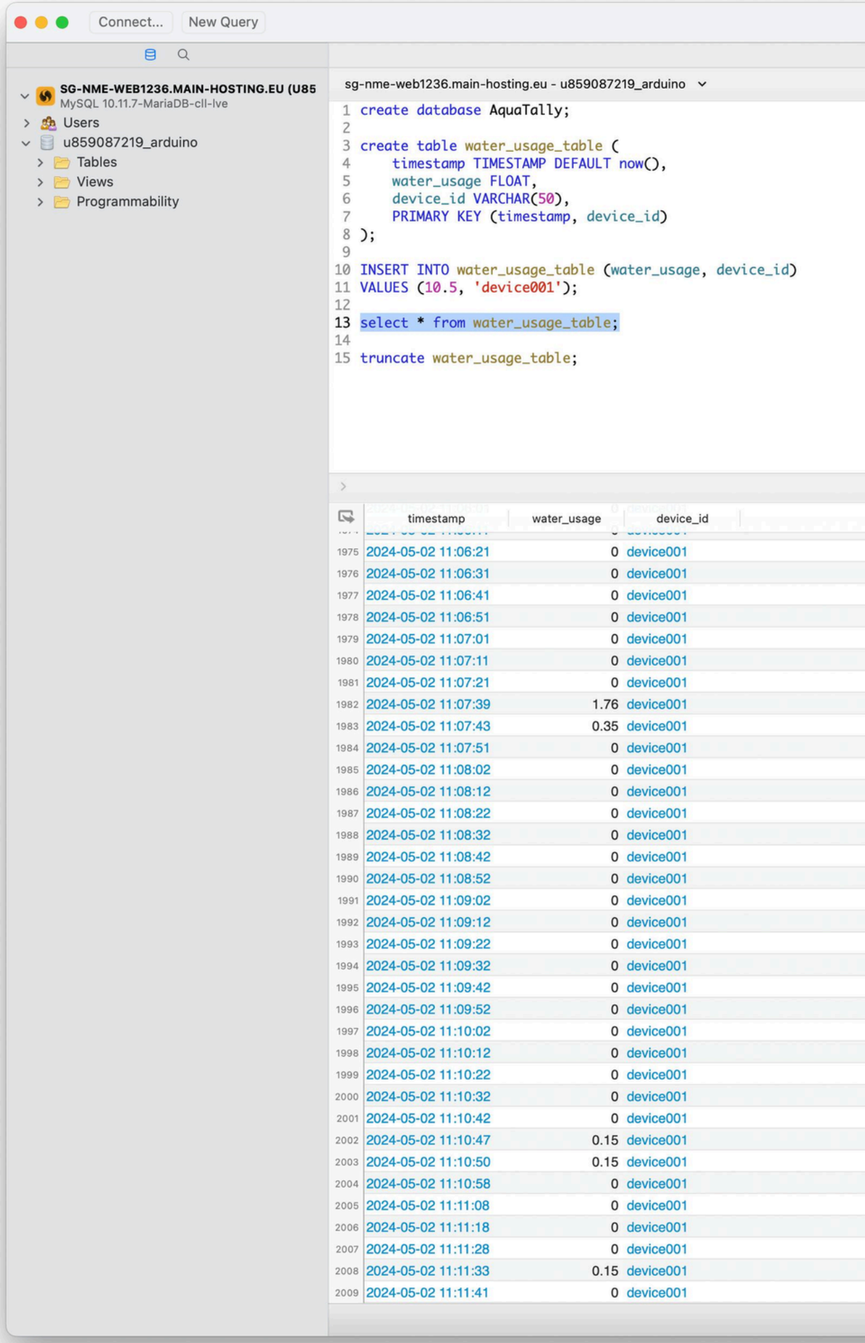
Save 400,000 litres per day

2

Tourism Industry

Save 10,750 litres per day

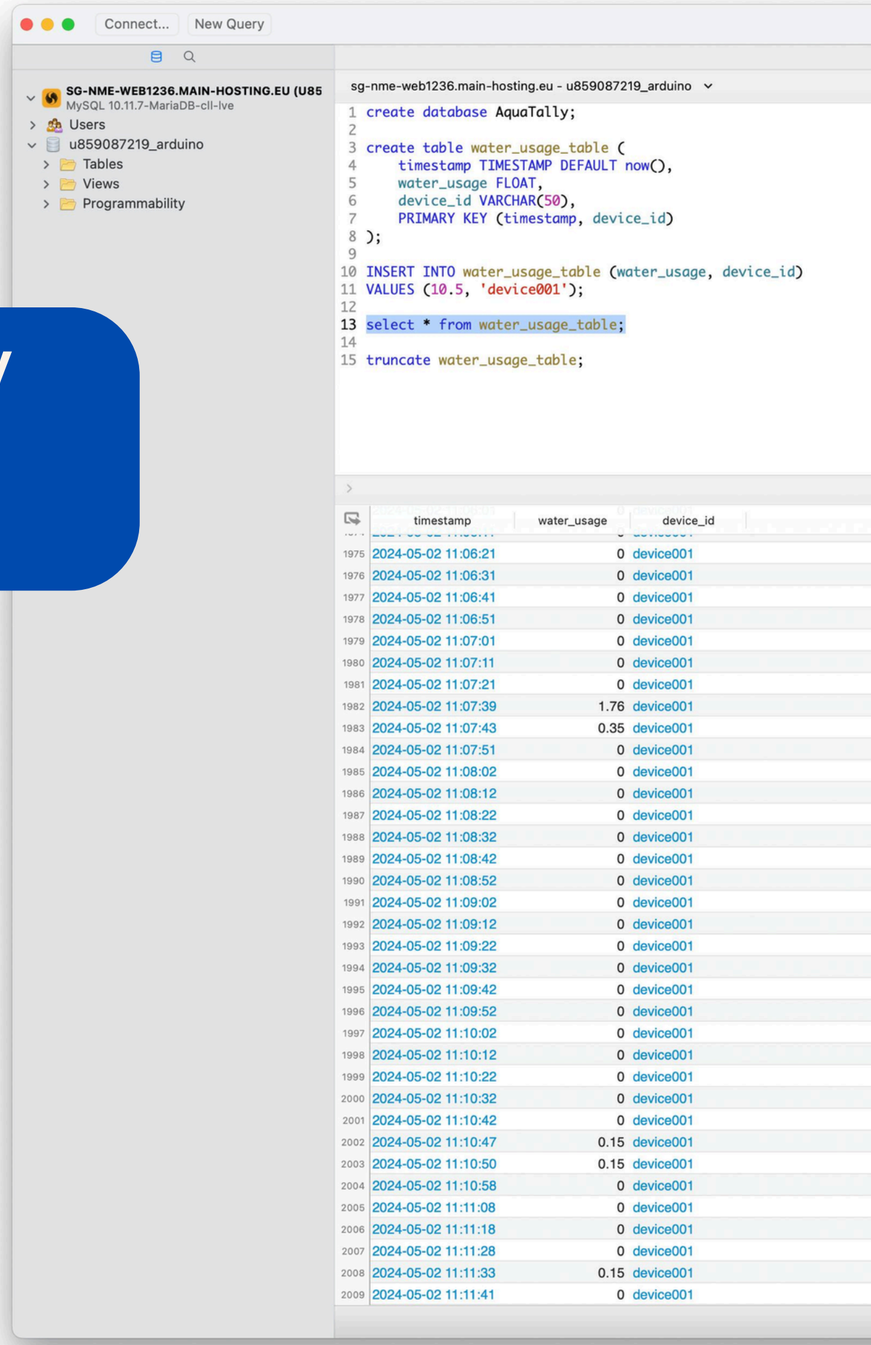
POTENTIAL DATA USAGE



POTENTIAL DATA USAGE

Water Behaviour Study

- Regional Impact
- Tourism Analysis



POTENTIAL DATA USAGE

Water Behaviour Study

- Regional Impact
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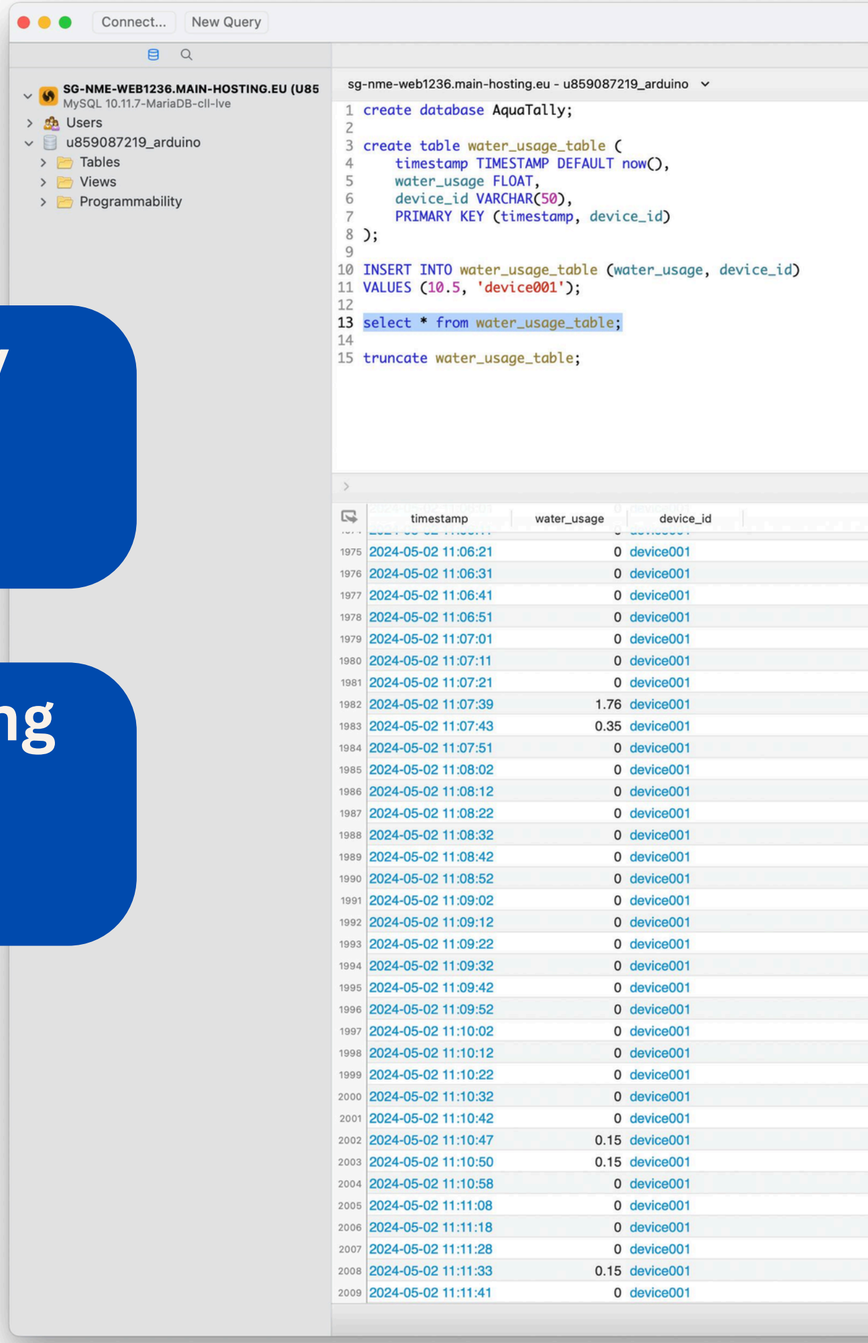
Informed Decision Making

- Urban Planning
- Resource Allocation



POTENTIAL DATA USAGE

Water Behaviour Study

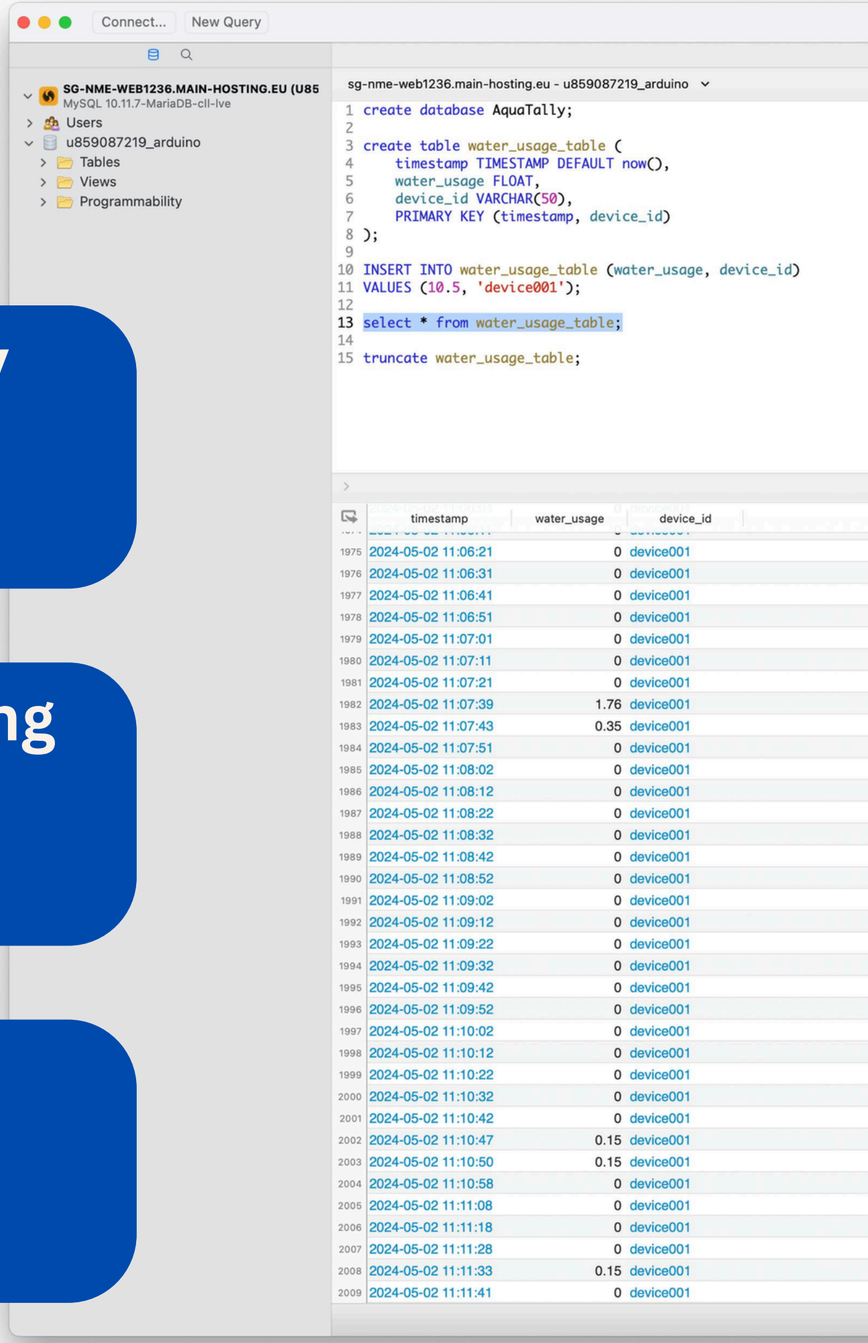
- Regional Impact
- Tourism Analysis

Informed Decision Making

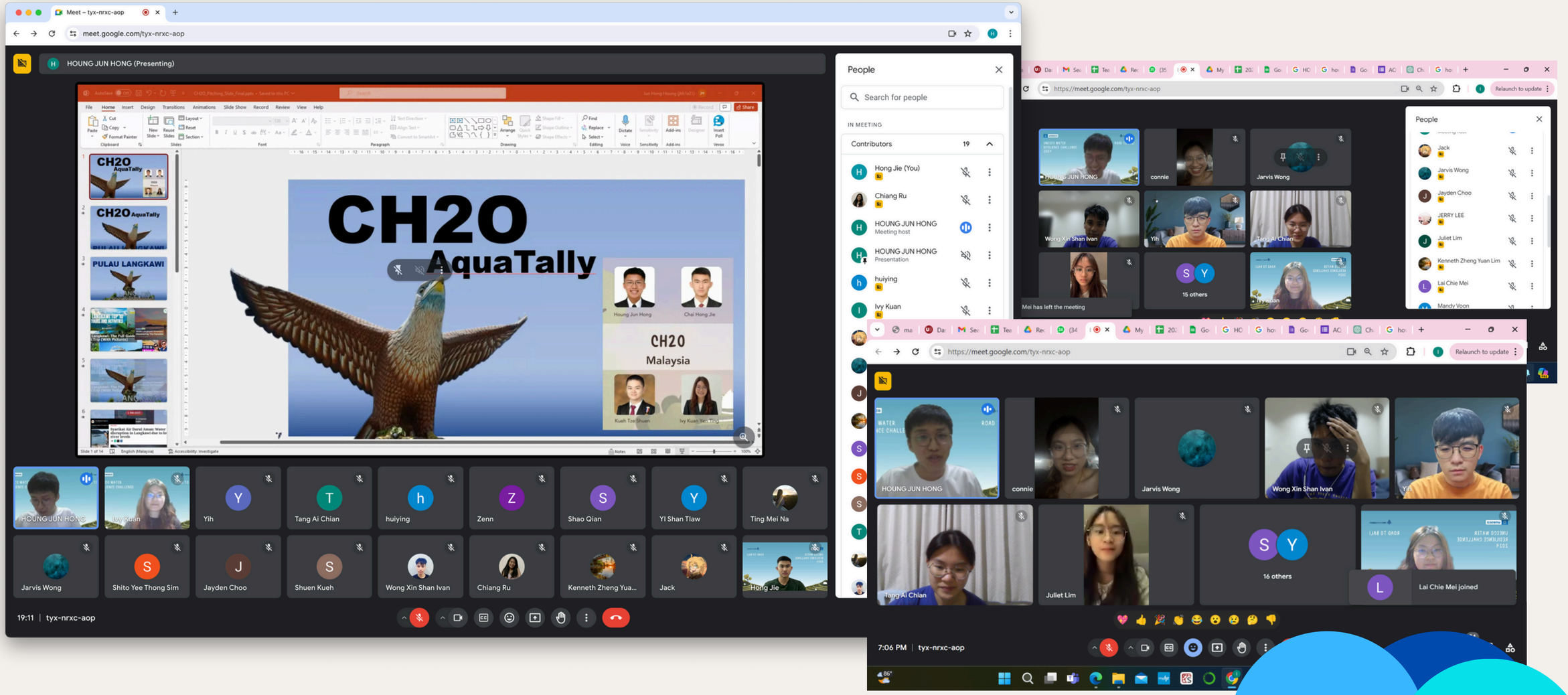
- Urban Planning
- Resource Allocation

Awareness Education

- Data Visualisation
- Correction in Action



PUBLIC DISSEMINATION



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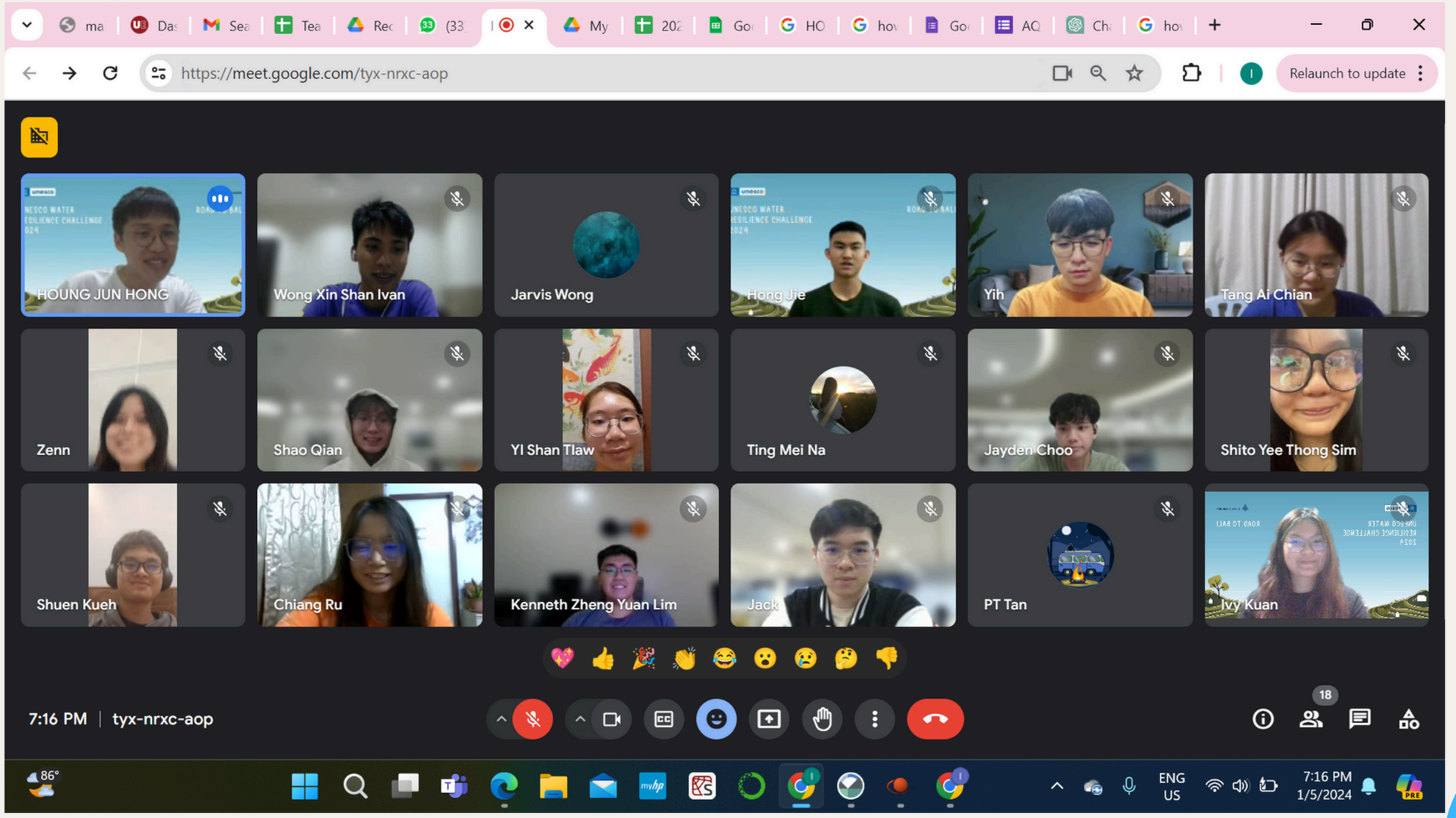
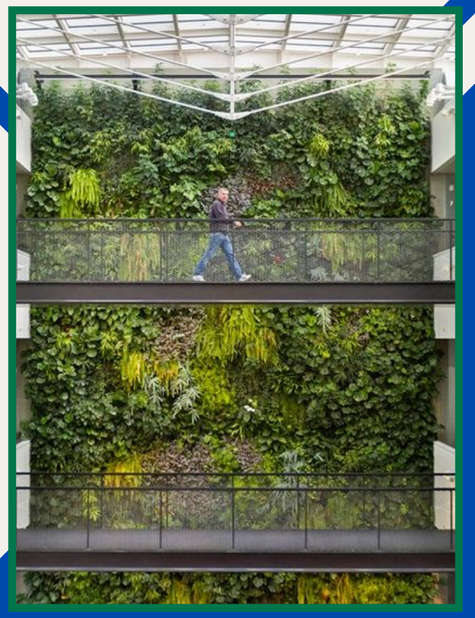


INCENTIVE FOR SUSTAINABILITY



Community - Household

Monitoring

- **Reduction in monthly water bills**
- **Leaderboard system in the community**
- **Voucher reward scheme**

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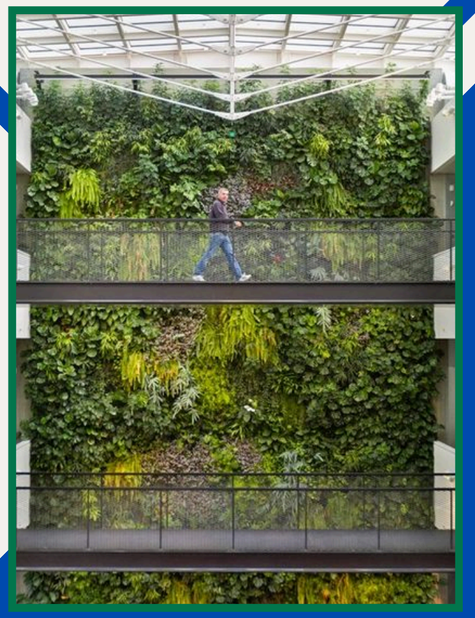

Community - Household

Monitoring

- **Reduction in monthly water bills**
- **Leaderboard system in the community**
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Tourism - Hotels

Alerting

- **Collaboration with SADA to recognise hotels in climate efforts**
- **Improve ESG branding**
- **Advertisement by reputational bodies**

PROBLEM STATEMENT

Water Overuse in Langkawi due to Tourism led to Frequent Water Shortage

PROBLEM STATEMENT

Water Overuse

Tourism

Water Shortage

PROBLEM STATEMENT

Tourism

Water Shortage

PROBLEM STATEMENT

Water Shortage

PROBLEM STATEMENT

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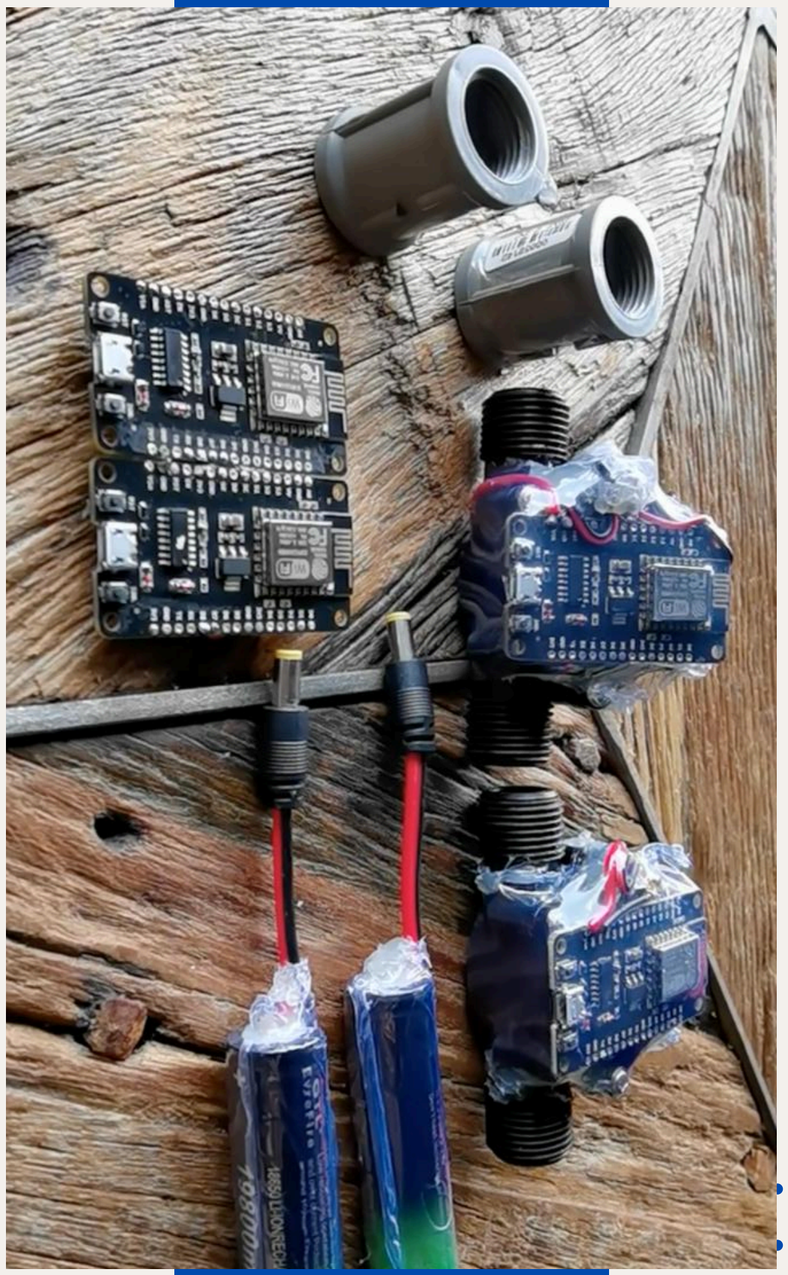

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