



ARCHI-Farmer

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Executive Summary prepared for the Biomimicry Institute, 11/20/2020

UN SDGs

Goal 3: Good Health and Well-being

Goal 9: Industry, Innovation and Infrastructure

Goal 11: Sustainable Cities and Communities

NATURE INSPIRATION

Concave-eared Torrent Frog

Mimosa

Desert Snail

NEEDS

Funding investment

AIoT equipment investment

Coding training

Type 1 sensors (decibel meters)

Type 2 sensors (light sensors)

FOUNDING TEAM

- Hung Yi Lai – Acoustic Specialist and green technology engineer
- Shin Yu Wang – Architecture designer and material developer
- Shu-Miaw Chaw – Botany consultant

CONTACT INFO

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BIOMIMICRY
INSTITUTE

Sustainable and efficient noise proof and shading installation on outer wall of buildings. Our product, Sensitive Wall, solves urban noise and energy consumption problems. It is also an attractive and eco-friendly dynamic choice for façade.

PROBLEM & OPPORTUNITY

1. Increasing urban noise, which may be up to 110dB, can negatively influence people's lives and health.
2. High energy consumption caused by high solar radiation absorption of building envelope in tropical and subtropical area.
3. Low green coverage ratio of cities like New Taipei City.

SOLUTION

A vertical green barrier system composed of rotatable planter units can respond to environmental changes and block noise and solar radiation. In simulations, it was proved to reduce up to 75% of the sound energy and 61.3% of the radiation absorption of a building, thereby reducing the energy consumption of interior.

BIOMIMICRY IN PRACTICE

Inspired by Concave-eared torrent frogs, we designed a dynamic green barrier and adopted two aspects of *Mimosa pudica* leaves to address these problems (noise, solar gain and green coverage). The material and shape of the unit imitated the shell of the desert snail for light-weight, structural strength, and lower evaporation .

REVENUE MODEL

Product sales and fee for service at the beginning (B2C) and go to licensing in the future (B2B2C). We are looking forward to cooperating with people that embrace new green technology and create environmental value.

TRACTION

Take use of AIoT to achieve more sustainable and healthier living environment. The installation is adaptive and flexible for various surfaces. Selected as a finalist in the 2020 Intelligent Green Building Design Competition.

TEAM

Our award-winning team is composed of experienced designers with material development and acoustic background. Our international consultant team covers multiple fields from botany, mechanical engineering, construction and marketing.

NEXT STEPS

We have a schedule for prototyping different segments, and we expect to build up a 1:1 demo for patent. To achieve that, we have a plan to raise US\$10,000 in funding.