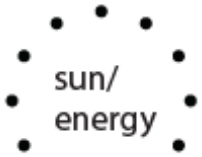
S.M.A.R.T. Green House Project

Sustainability Management Automation Research Technology

Sustainable Garden Design

Innovation Driven by Design

s.m.a.r.t.
greenhouse



Collective Learning

greenhouse

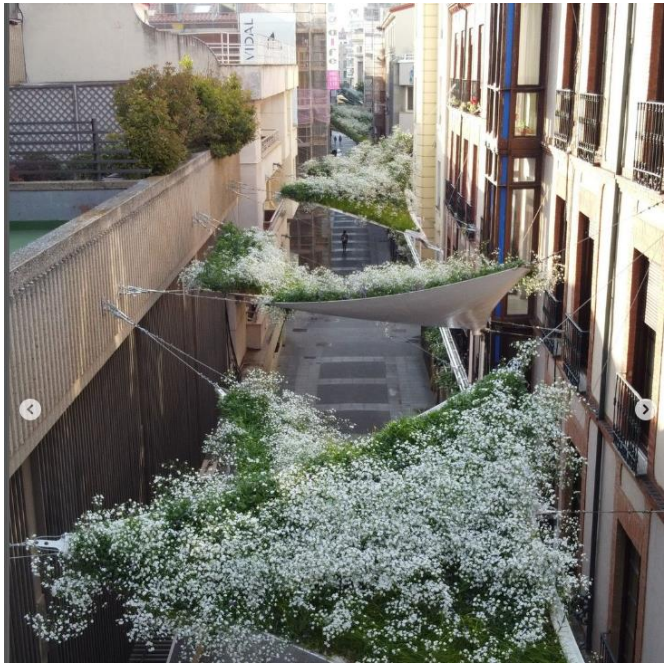
Soil/ Water/ Air

Harnessing Renewable Resources
Cleansing Existing

References

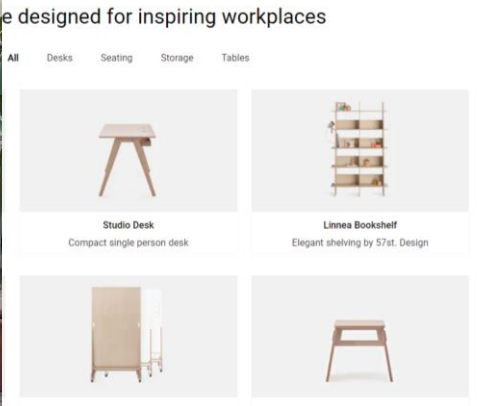
Fog Catchers: Water

Bio Toile: Producing Energy



Green Shades: Temperature

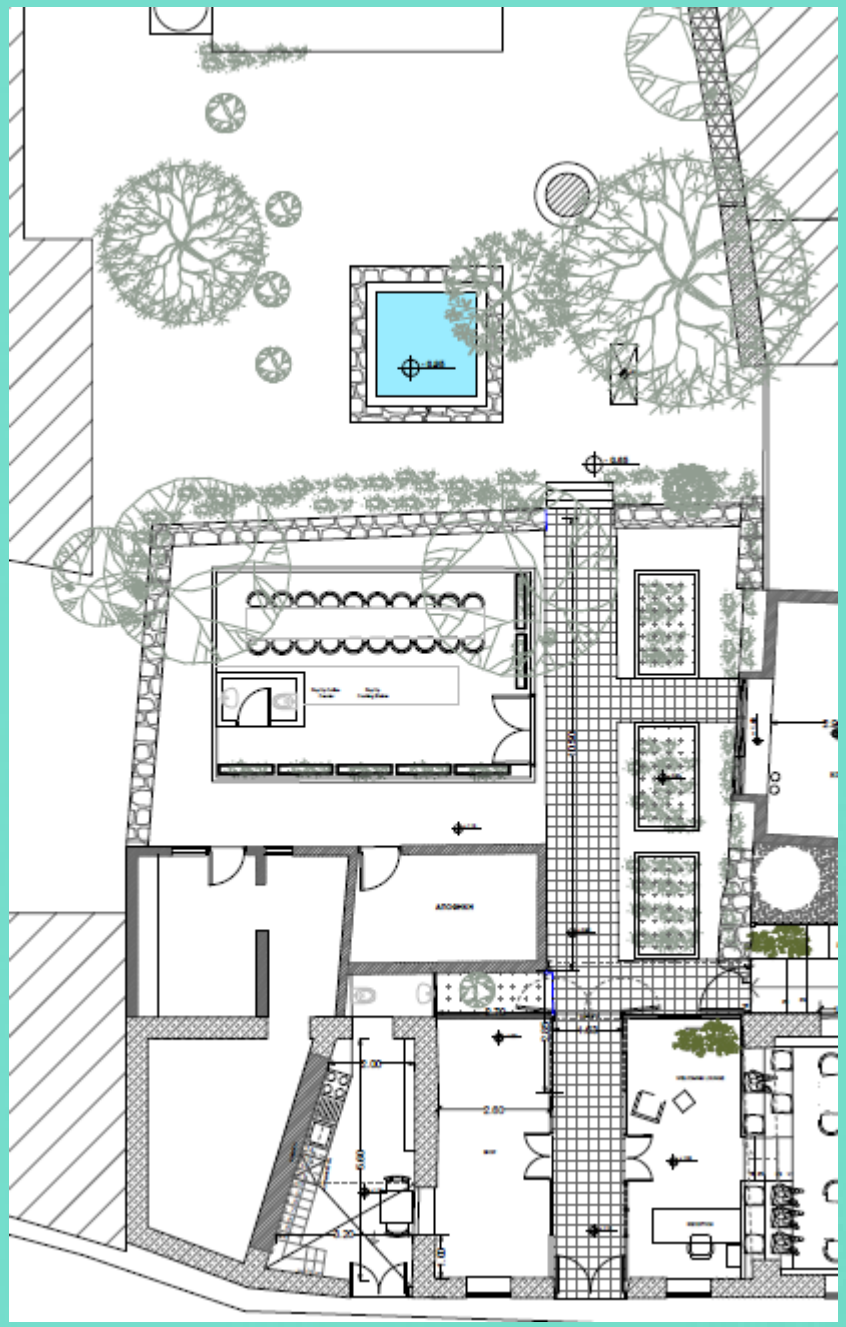
Portable planting modules



Open Source Furniture - Tech

Purpose: To support responsible food growth through hands-on learning

WeGrow / WeConnect / WeLearn



Green House Space

[Area: 6 m x 8 m x H 4 m]

Cultivation of plant-based food

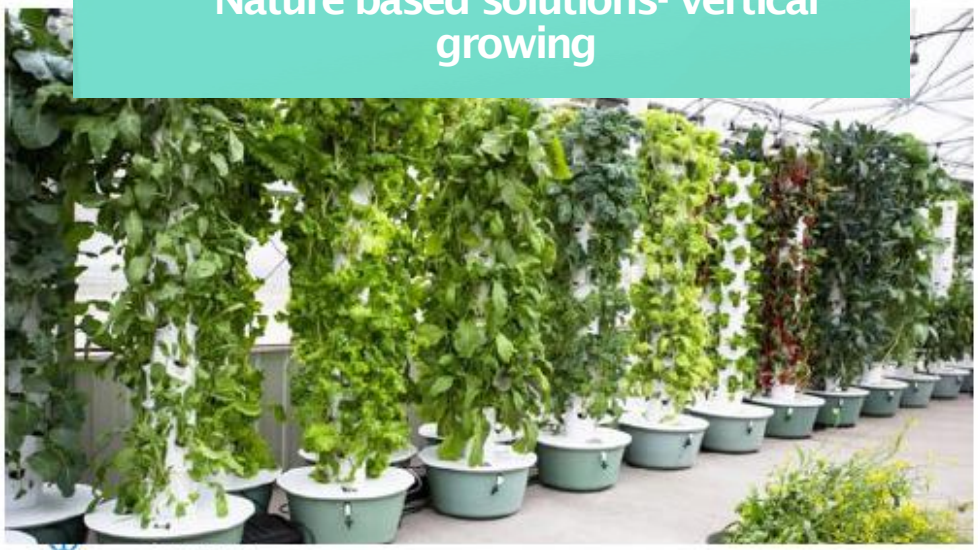
Room for training
(20 people capacity)

Space for cooking/ testing

Sensory Systems*

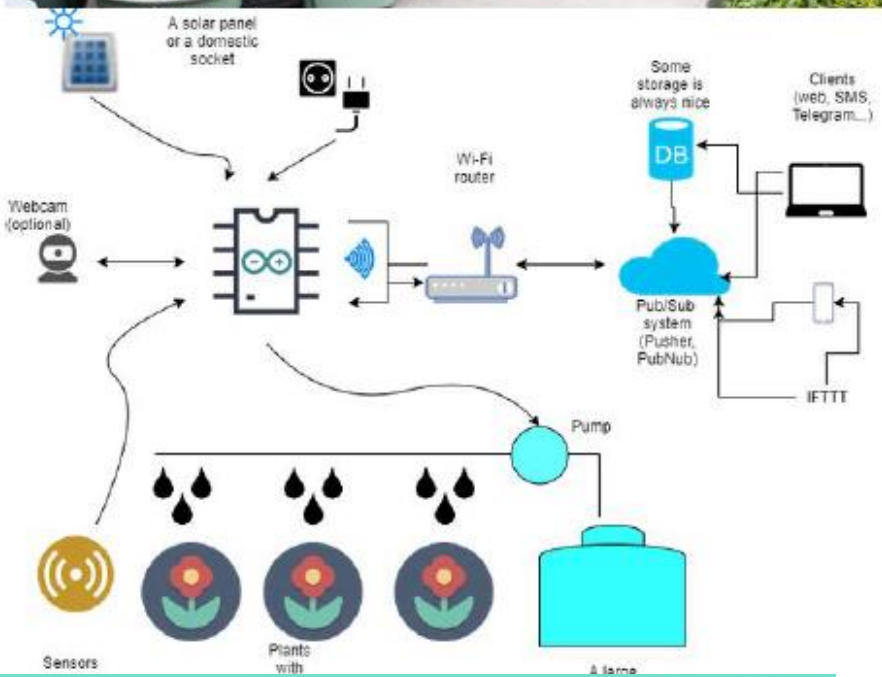
Proposed Design

Nature based solutions- vertical growing



Technology: opensource, affordable solutions

Building from Waste Material Experiments



Internet of things, sensory systems, data collection processing and optimization

Current Challenges at the Gardens Pilot Area

I am writing few of the things we can work around:

1. Mosquitos/ Flies/ Ants in the 6 months a year: https://www.amazon.com/BIOGENTS-BG-Mosquitaire-CO2-outdoor-mosquito-trap/dp/B09884YS4H?th=1 if you consider this a good solution may I purchase now and consider it part of our inventory?
2. Management of the GREEN House (Entrance access with fingerprint, know how many people are inside, lock/unlock remotely
3. Soil Condition with watering it seems it becomes hard over time- might be an issue with the water quality received form idatopromithia .
4. Noise control : if there is a way to control the high sounds coming in/ out of the smart house area
5. Cats puing on the food growth soil
6. Knowing in the water lastika an estoupposan
7. Being able to open the water remotely or know how much water is used
8. Temperature control (too hot too cold) controlling fans to restore temperatures
9. Understand the quality/sickness of the produce
10. Electricity consumption received from renewable sources (water movement. Wind, sun and any other) it seems that the photovoltaics are inconsistent and not enough. Some times there is a problem with photovoltaics and cant tell if it is the batteris or dirty panels. If there is a way to know great.

Technology - Sensory Systems – Input Data

Management	**Sustainability (Environmental External Factors)**	**Human Condition (Internal Factors)**
Access- fingerprints	Sensors relating to food growth management (water, soil, air , sickness)	Physical Senses: (Eyes)Ambiance Control (Sound)Noise Reduction (Touch)Mosquitos/ flies (sound wave production) (Smell) Scents
Counting People	Sensors relating to environmental quality (CO2, Humidity, other)	Emotional: Stress/ Calmness Concentration
Cameras/ Security	Systems that based on renewable energy (water filters, rain harvest, biogas waste, photovoltaics)	Model processing data to provide output function

Filter Choice: Affordable, Based on Renewable Energy, Easy to Use

Types of Sensors that can be used.

1) Air quality sensors - Air quality sensors measure levels of pollution, carbon dioxide and other particulates in the air.

2) Cameras - Capture visual data. Can track people, movements, location in the premises

3) Biomedical sensors - Biomedical sensors measure a person's vital signs, like heart rate and oxygen level. Using a wearable device like a bracelet.

4) Humidity sensors - Humidity sensors monitor humidity, or the amount of water vapor, in the air. Manage comfort and energy use.

5) Motion sensors - These sensors use infrared radiation or ultrasonic waves to detect motion, safety applications, trigger things.

6) Proximity sensors - These sensors bounce infrared radiation or ultrasonic waves off objects to detect their presence. Measure distance from a Point of Interest

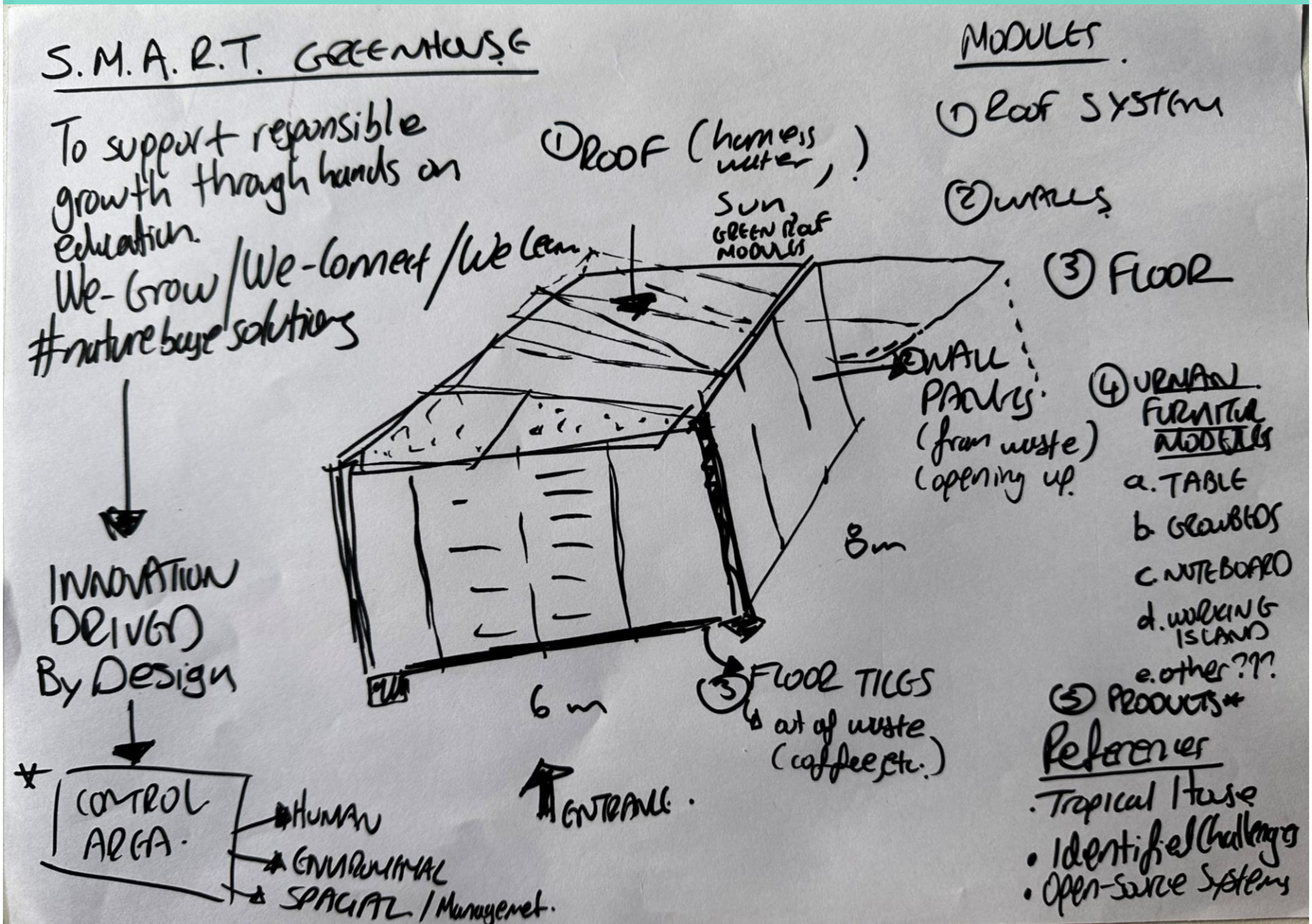
7) Temperature Sensors - Temperature sensors detect changes in temperature, measuring the amount of heat there is in an environment.

8) Flow sensors - Flow sensors measure how quickly a liquid or gas flows past a certain point in a tube or pipe. A flow rate that's too fast or too slow could indicate a problem, like a leak.

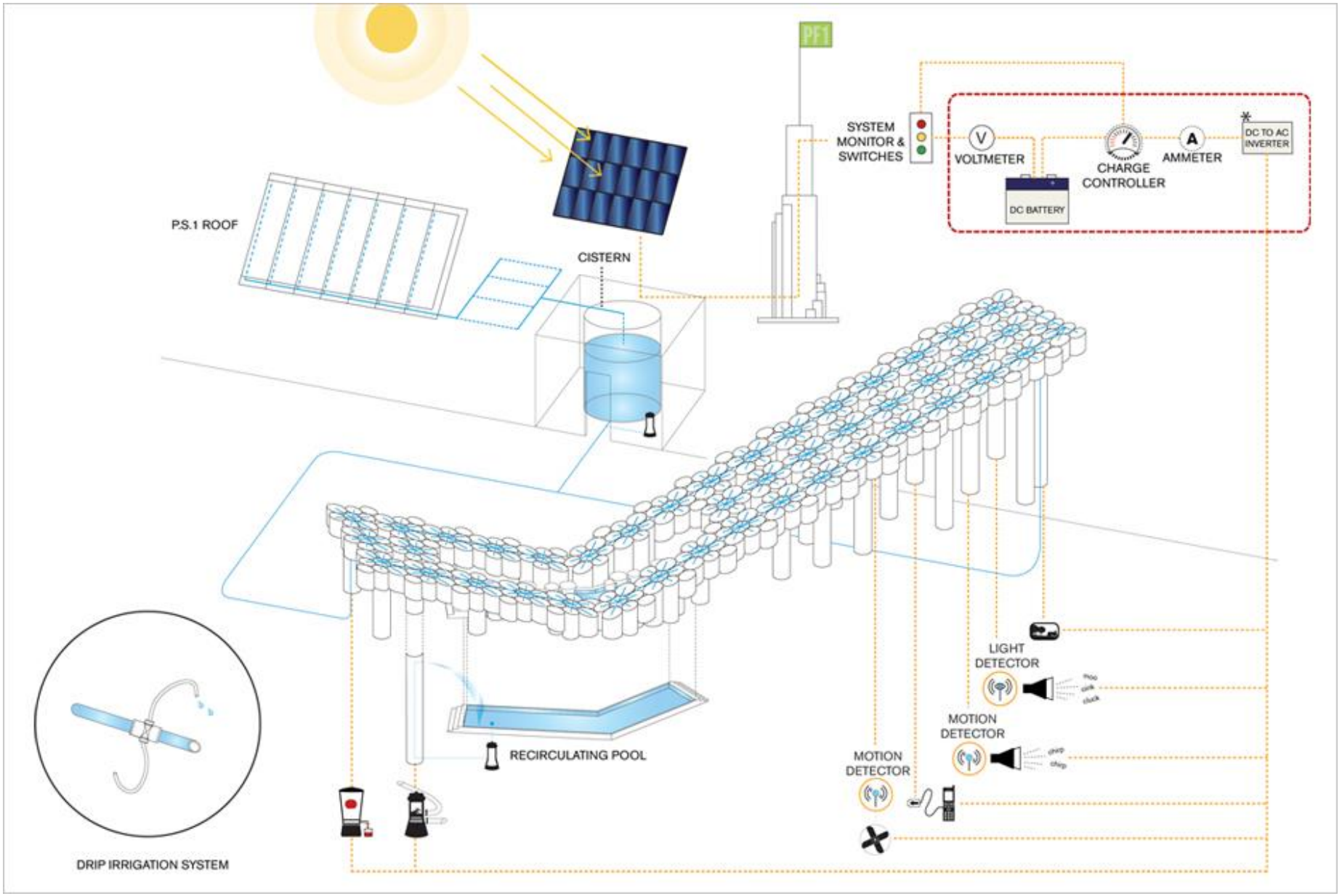
9) Chemical sensors - Chemical sensors detect chemical changes like radiation and pH levels in air or liquids.

10) Earth observation satellites can be used to monitor the health of urban areas, including air quality, water quality, and noise pollution

Design Approach Work in Progress

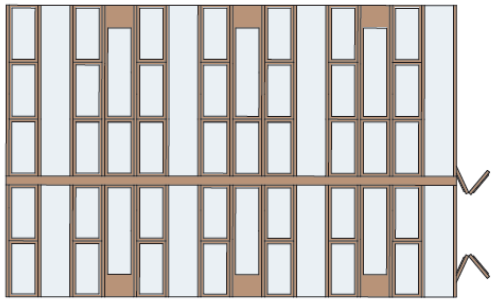


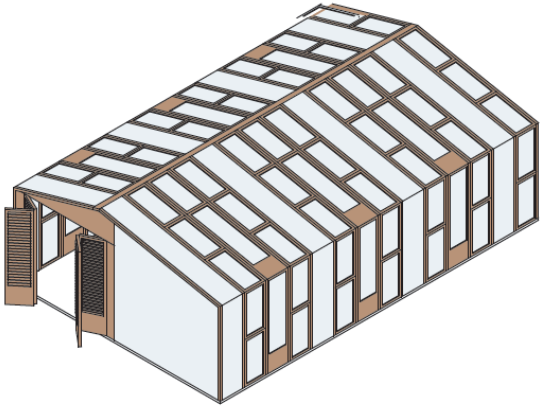
Design Approach Work in Progress



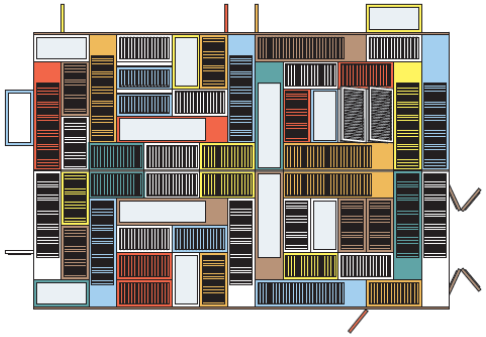
Design Approach Work in Progress

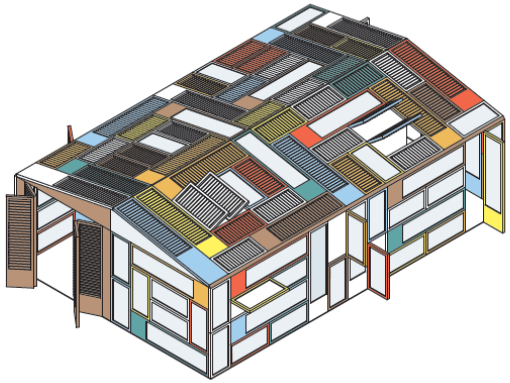
1st Idea (with upcycle windows)



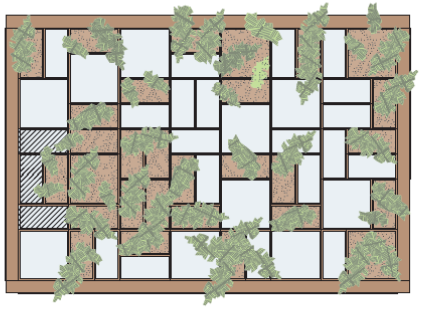


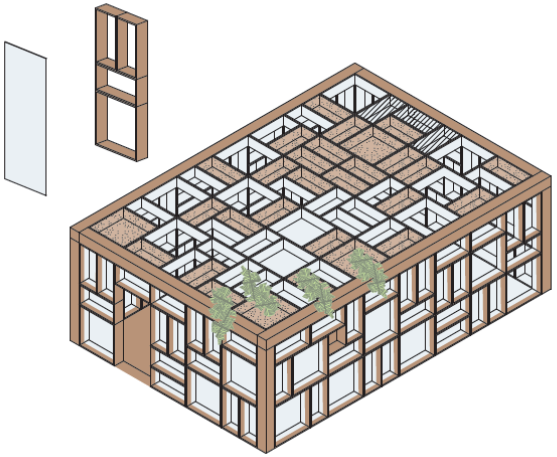
2nd Idea (with upcycle windows)





3rd Idea (modules+green roof)





“As social entrepreneurs
We all have a dream
And extremely engaged
In reaching that dream –
But we need support to
Be able to do it.”

Anna Lindh,
Right to Play Sweden

Thank you

s.m.a.r.t. greenhouse

Let’s Stay in touch!!

hello@greenhouseproject.eu
https://greenhouseproject.eu/

Find us on social media

- smartgreenhouseproject
- smartgreenhouseproject