FloraSync

Biomimicry Detector Device

physical computing
3D Modeling/Printing
Arduino

This project merges nature and technology for sustainable urban living. Moisture detection devices, shaped like living organisms with LED lights and a responsive pistil, indicate plant hydration needs. Placed strategically in cities, they create a two-way communication channel between humans and nature.
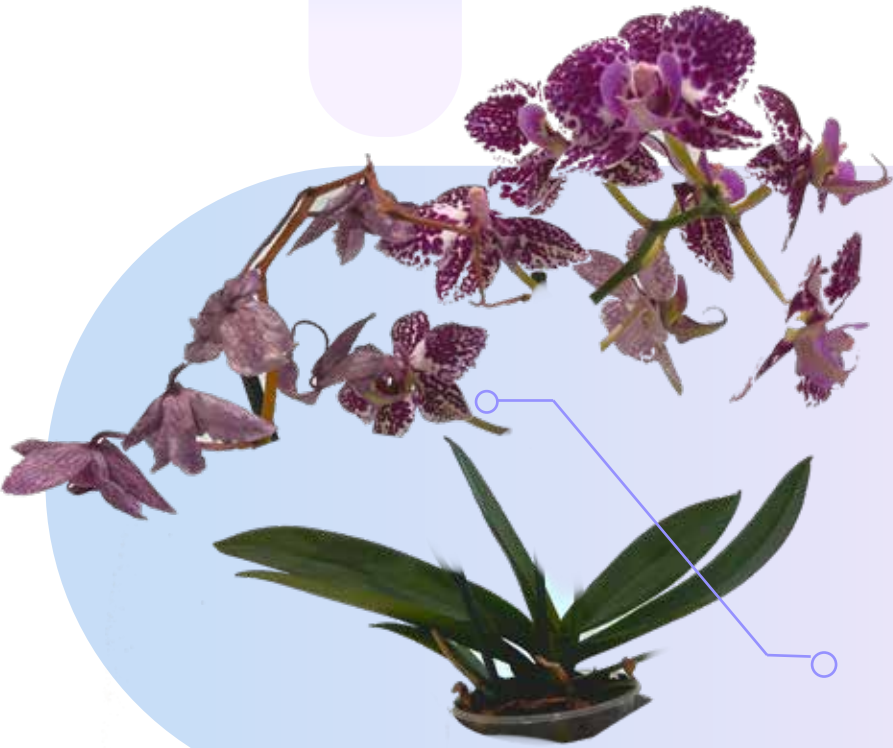
Independent project 2021

Ideation

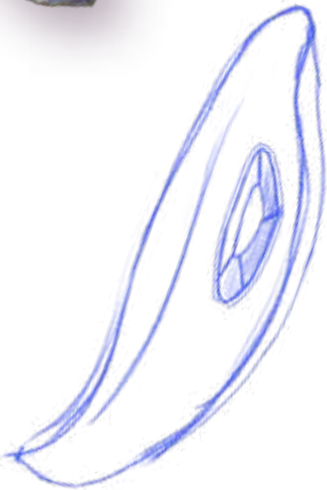## Finding the Form

Biomimicry Appearance

Robot that can imitate plants and form a community with plants aesthetically integrates with its surroundings

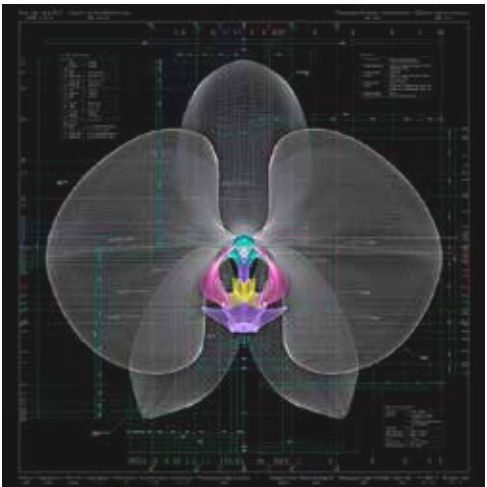Picture of my house plant orchid

The shape of succulent plants are able to collect excess water and transfer them to their root.
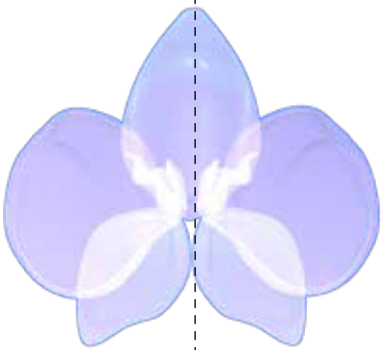
Picture of a succulent plant leaf

Inspiration

Artist-Macoto Murayama / 村山 誠
Digitally deconstructed flower

Phalaenopsis Sogo Yukidian, 2017

Technology

PlantWave is a technology communicate between plants and humans through the translation of plant biofeedback into musical sounds.eletrical variations in plant.

BioUrban robotic tree

created by BioMitech and dubbed BioUrban, the project is an artificial tree that, like its natural peers, absorbs pollution and returns clean air to the city.

Sustainable Urban Living
Incorporating house plants aligns with the principles of biophilic design, which seeks to integrate nature into human-made environments. Indoor plant improv psychological (mental) well-being
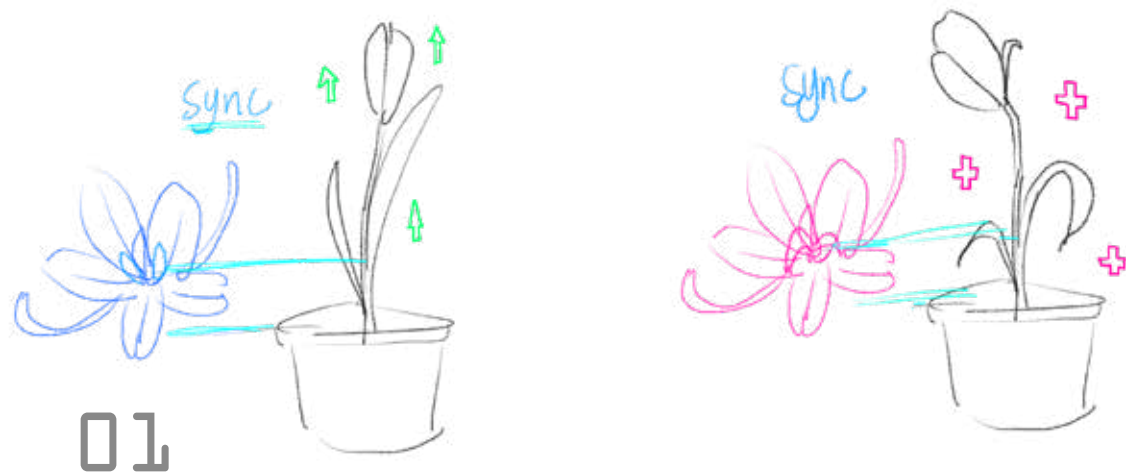
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Independent project 2021

Concept

Biomimicry Detector Device

Future concept of FloraSync envisions a seamless integration of technology and nature, transforming our urban landscapes into vibrant, sustainable eco-systems.

Network of FloraSync devices interconnected system. Users could communicate by sharing data about environmental conditions and optimizing responses of different house plants collectively

Allowing for more comprehensive monitoring of plants. Beyond moisture detection, sensors now measure light exposure, temperature, nutrient levels, and other factors, providing a holistic view of plant health.
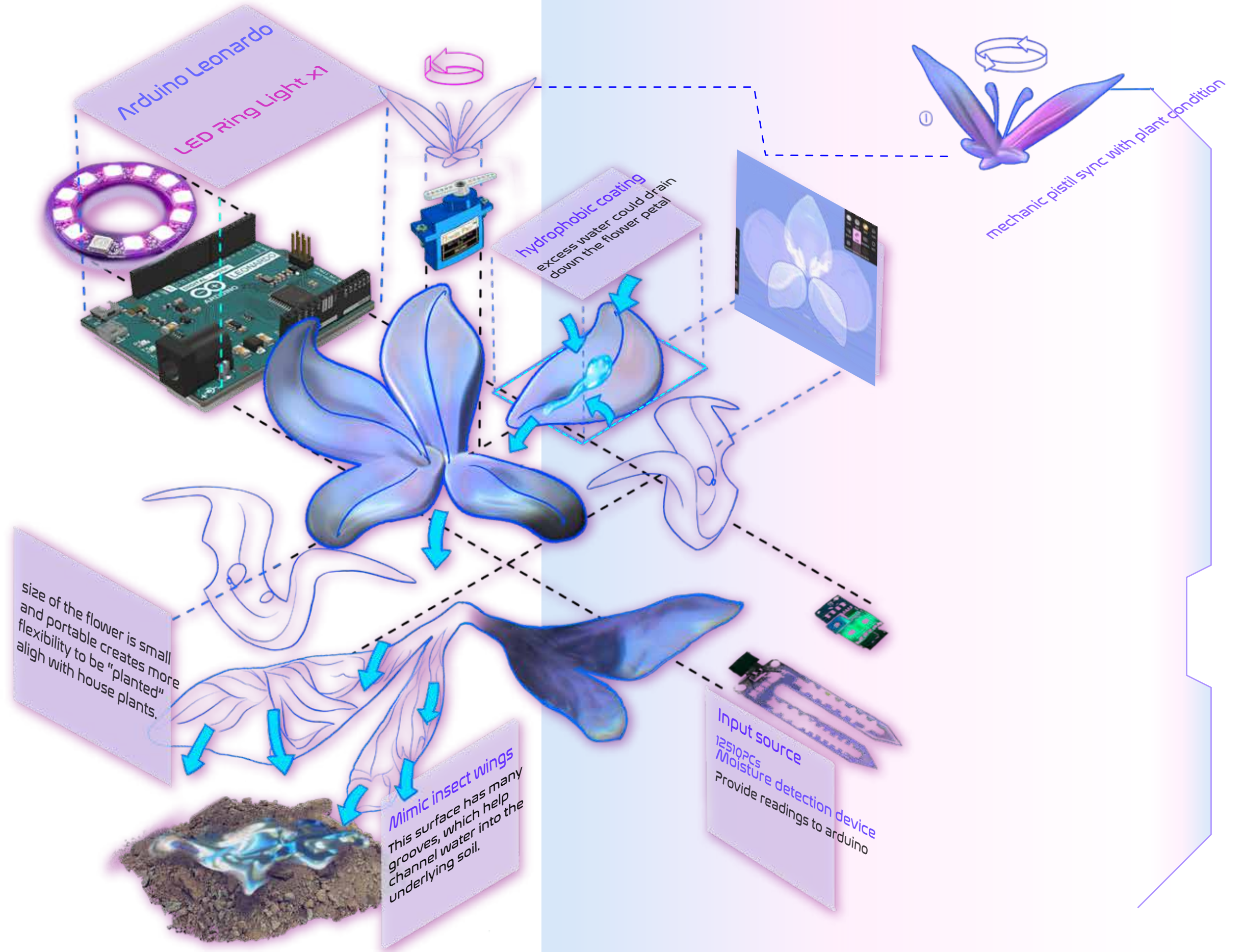
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SOIL MOISTURE
42.34%

I NEED SOME SUNLIGHT

SOIL TEMPERATURE 10°C
LIKELY TO FORM PSYCHROPHILE

Design Details

Arduino Leonardo

LED Ring Light x1

mechanic pistil sync with plant condition

hydrophobic coating
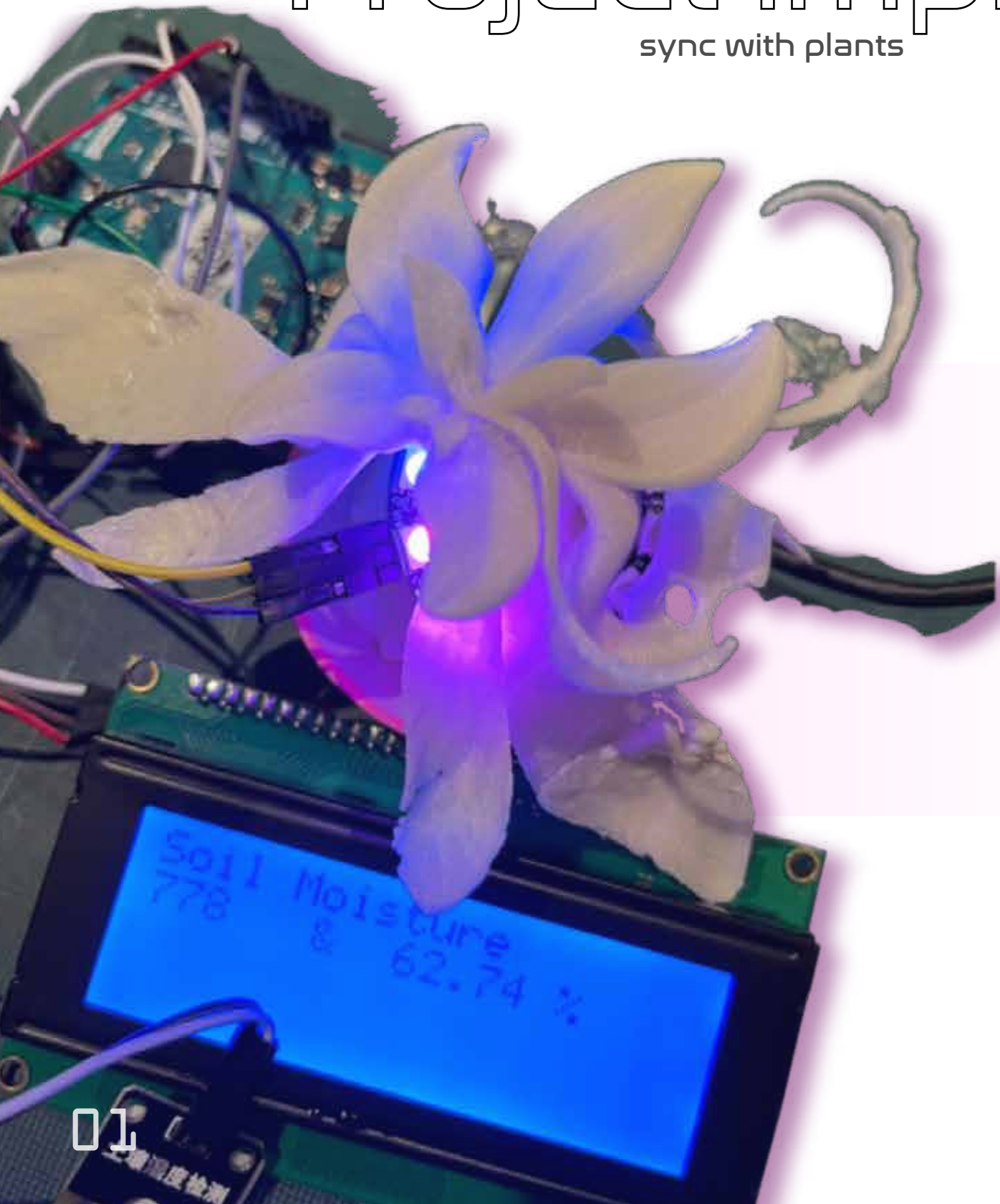excess water could drain down the flower petal

equipment used

1.2.3. 3D printed flower body
4. Arduino Leonardo
5. Air Moisture detector
6. LED Light Ring
7. Transparent Resin
8. 9. 12510PCs Moisture detection device
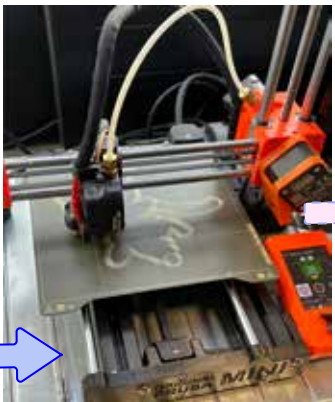10. SG 90 micro Servo

size of the flower is small and portable creates more flexibility to be "planted" align with house plants.

Mimic insect wings
This surface has many grooves, which help channel water into the underlying soil.

Input source
12510PCs Moisture detection device
Provide readings to arduino

Project implementation

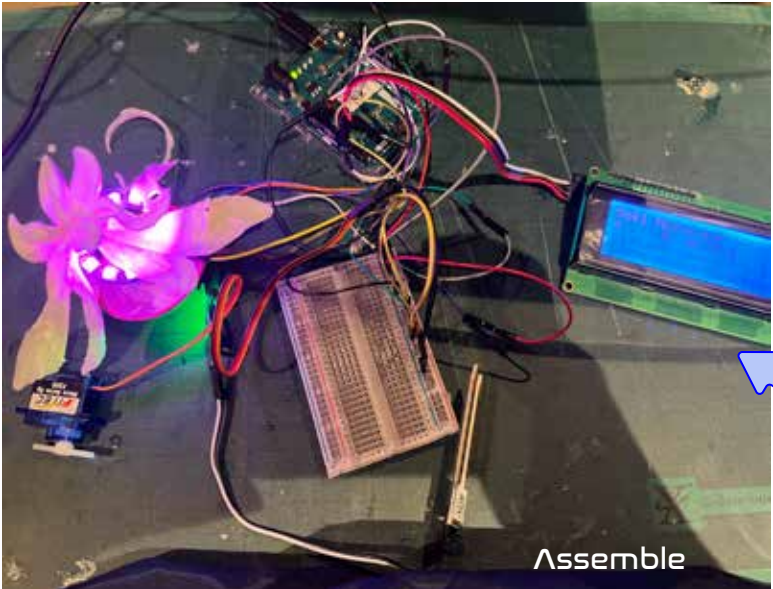### sync with plants

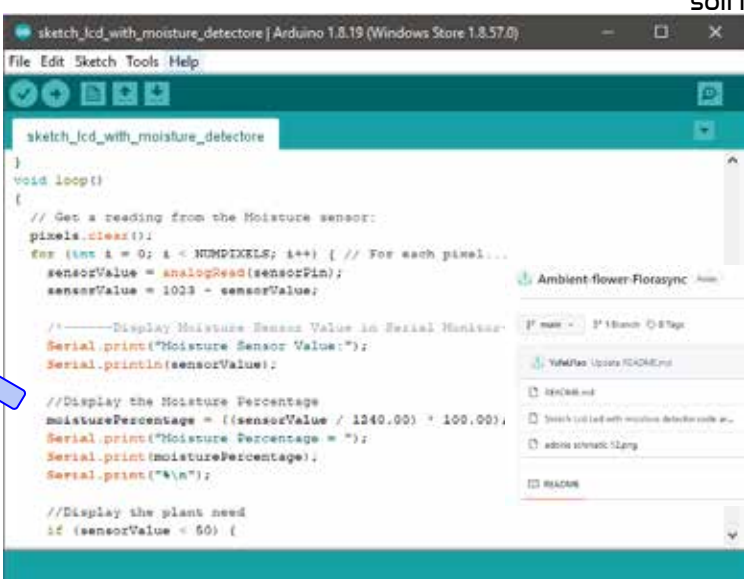Slicing using prusaslicer

3D Printing

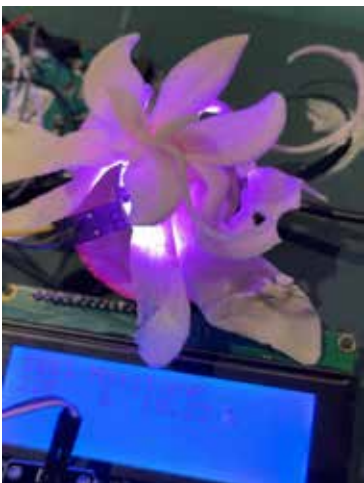Original model

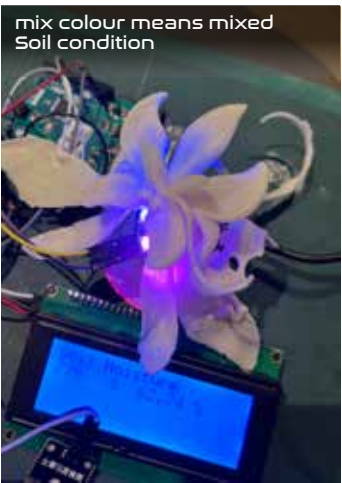Testing eletronics 12510Pcs soil moisture detetor

Assemble

Testing code
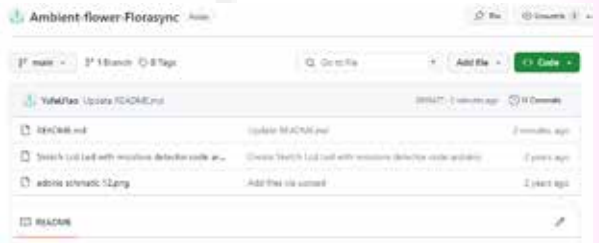
Uploading code on github repo

mix colour means mixed Soil condition

Testing in actual flower pot under day-light

using wet material creating moist environment

Light changed when watering the soil

Creating different senarios to adjust device settings

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