Creative Making:
Advanced Physical Computing

Love Death And Eternity

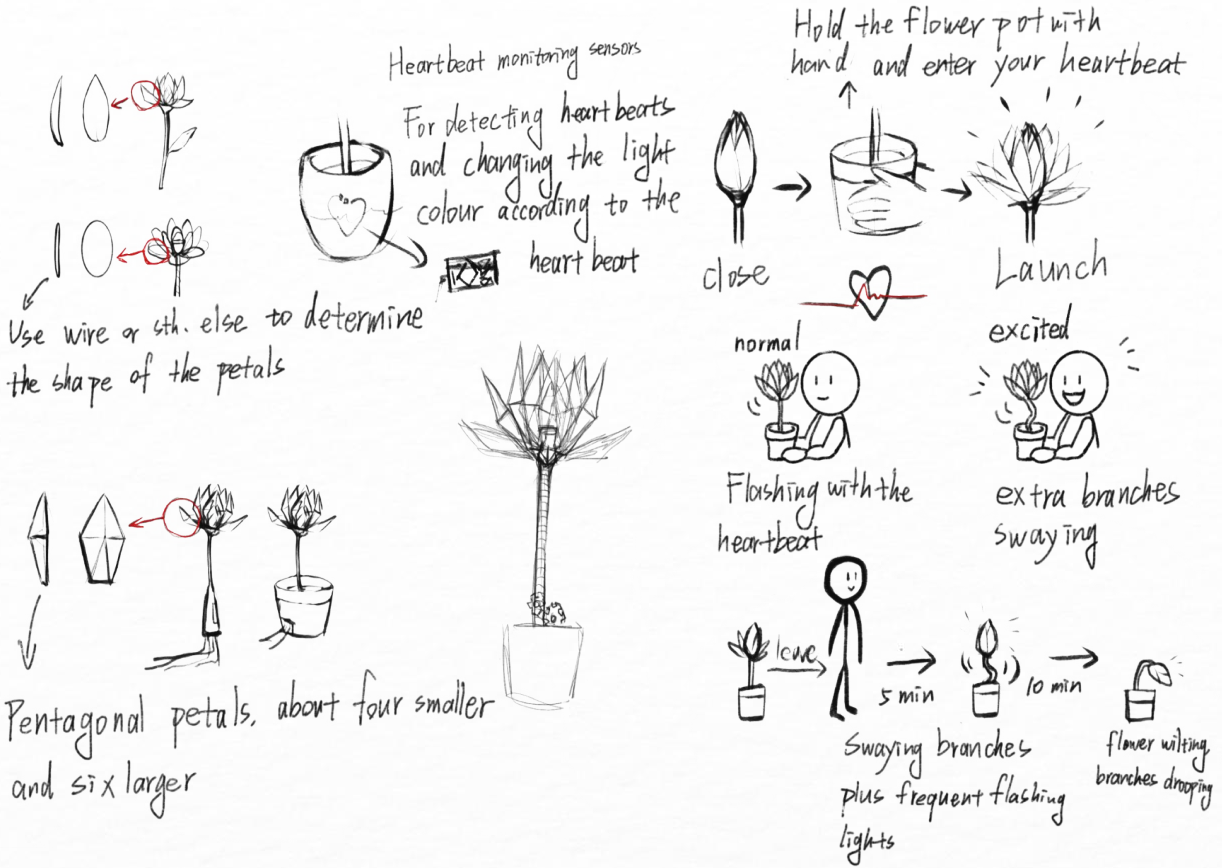
Project Member:
YanZhang
Yuwei Fei
Jiaxin Liang

Project Topics:
An Interactive Mechanical Plant

Final Project Group Work

Storyboard

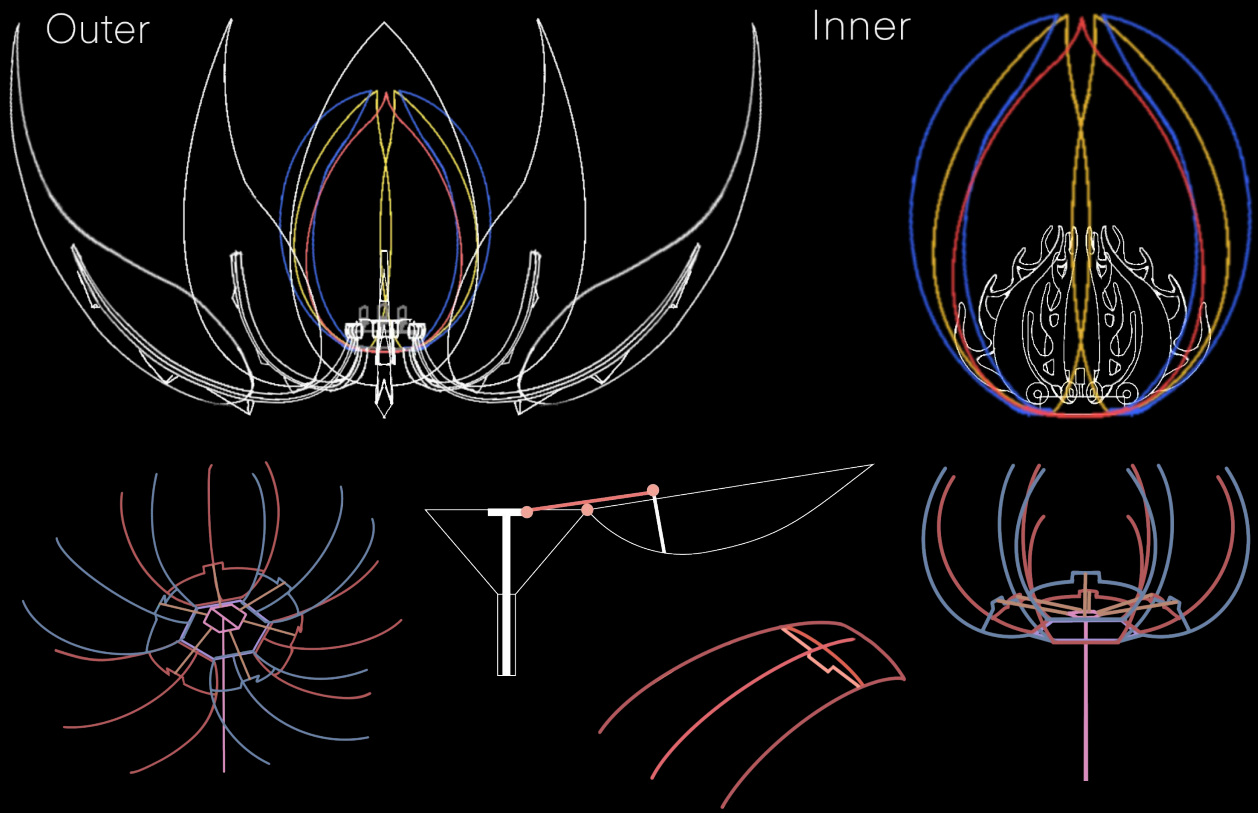
The inspiration for our project came when I bought a flower in Sainsbury in October. I took good care of it, but I couldn't keep it alive. I was depressed and shared it with the group to find them all going through this experience. So we decided to work together to create a plant that wouldn't die.



Brainstorming

Plants are born of our love, Plants come from death but are far from dead, and we share our heartbeats with it, and the moment when the lights shine on our faces is short and eternal.

The plant can burst into color with just a touch of the heart rate sensor. light will change with your heart rate. Its petals will open and light up, dancing. And play some sound.

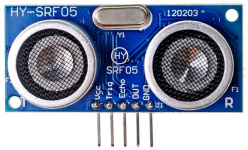


Sketch

We designed the shape of the petals and the lever principle so that the servo drives the flower rod to control the opening and closing of the flower.

Output

Input



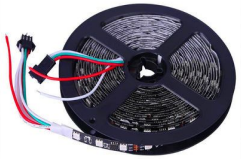
Ultrasonic Sensor

Control Petal Move

Motor

Heart Rate Sensor

Control light flashing



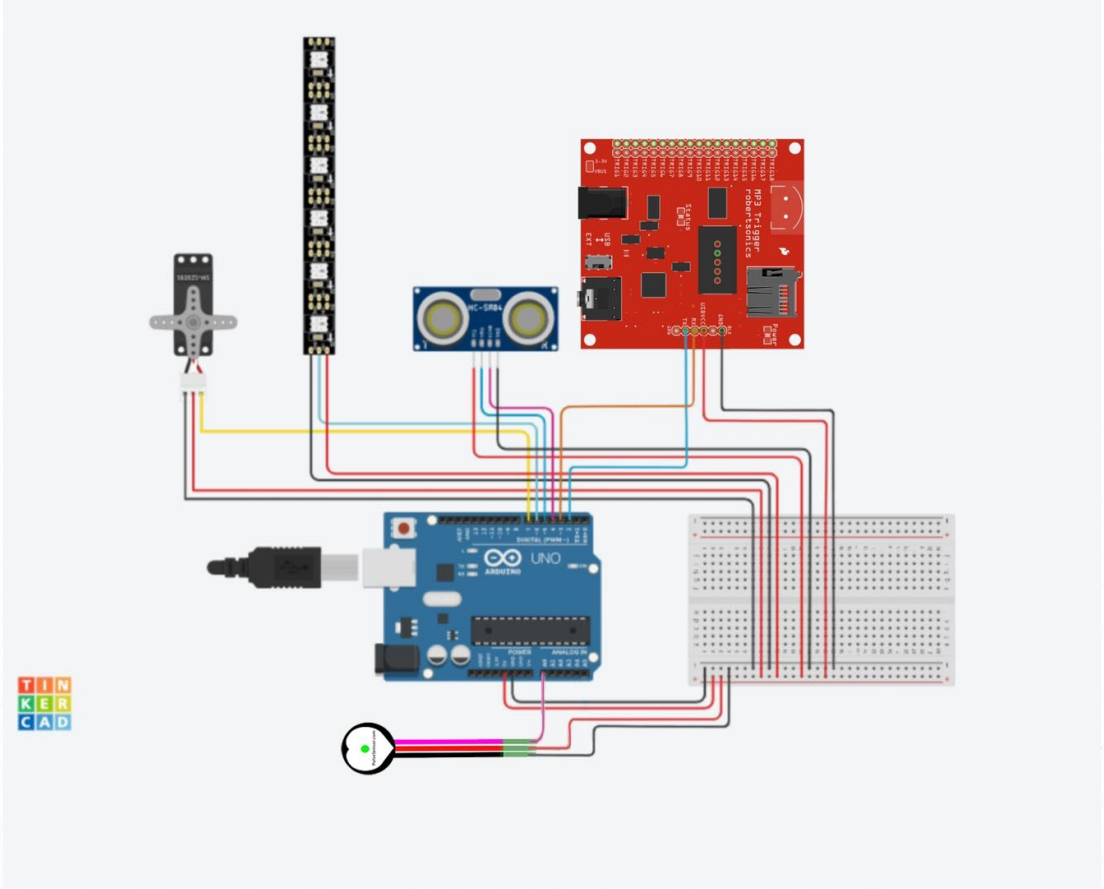
LED

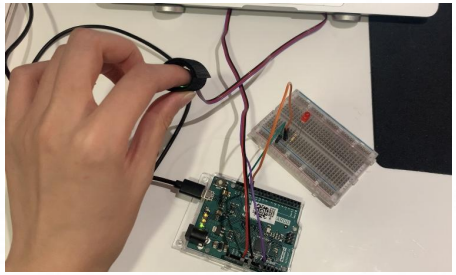
MP3 Trigger

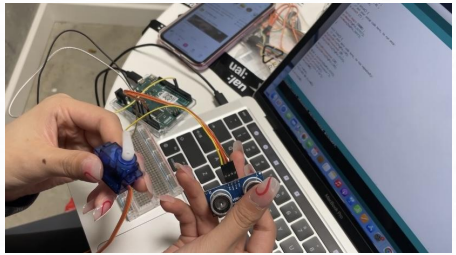
Control sound playback

Speaker

Circuit Diagram



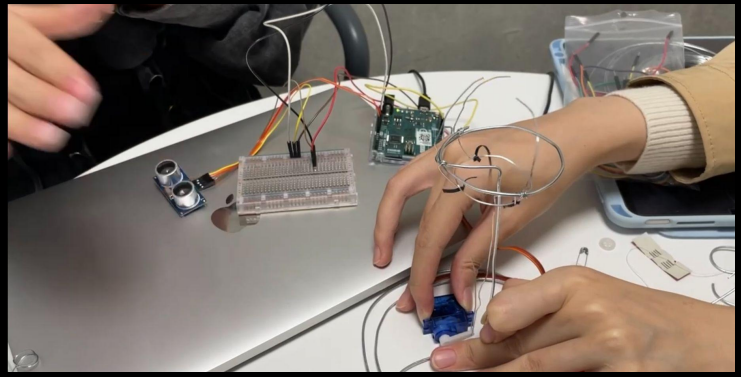


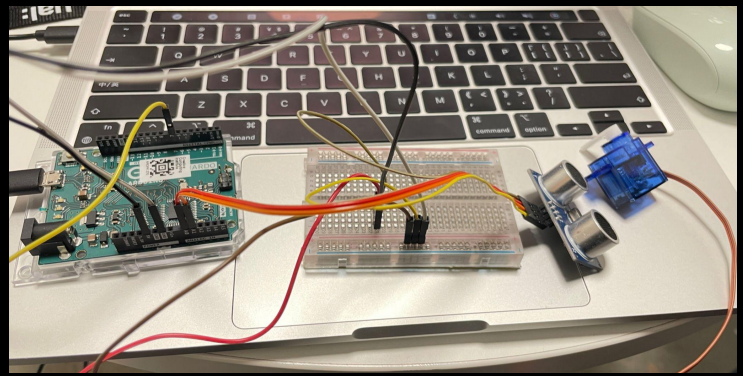


Test the code

Heart Rate Sensor
Ultrasound Sensor
MP3 Tigger

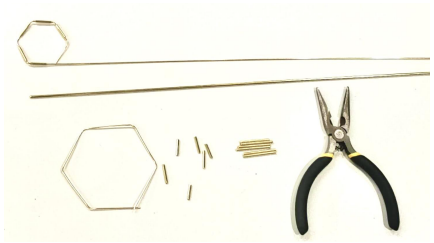
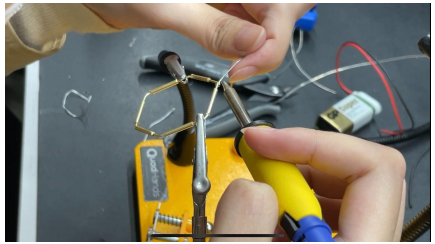
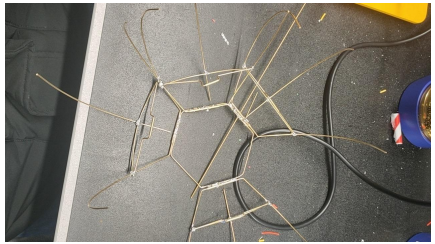
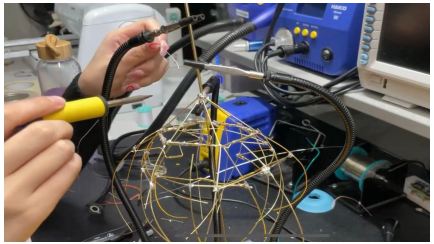
Our initial Heart Rate Sensor didn't work, we replaced three of them, and the light belt wasn't working because of poor contact with the code.The servo started to turn in the wrong direction, and the force was too small. We replaced the larger servo and changed the code.The MP3 Tigger always make a lot of noise. Only pure human voices were the best

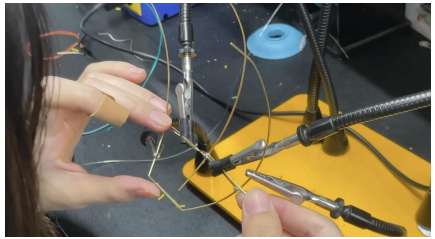
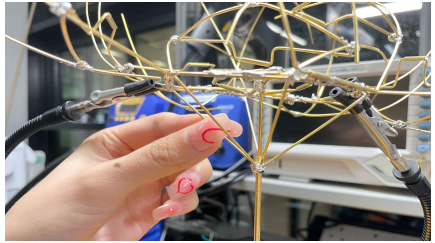
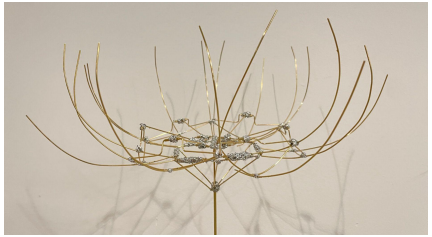




Demo

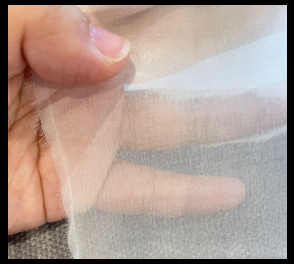
First, we made a simple sample to test our ideas. We used iron wire to make the skeleton structure and used ultrasonic sensors and steering gear to test whether the pushing structure can be realized. Although the sample is relatively crude, it basically achieves our goal, but the opening and closing structures are not ideal. In the subsequent model-making, we need to reconsider the new and strong structure to achieve it.

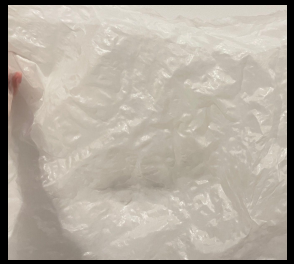




Make A Skeleton

We had a big problem with cutting the copper pipe. We could not cut the copper pipe and keep its shape. Eventually, with Peter's help, we found a way: we gently cut the copper pipe with a saw, slightly reshaped it with pliers, and sanded it down with sandpaper.when we were welding, we felt the welding of molten tin can touch anything, except our copper pipe and copper wire! We tried sanding copper tubes and wires with sandpaper, and maybe it helped a little, but it didn't help much. We made up for it many times. It took a lot of patience and perseverance.



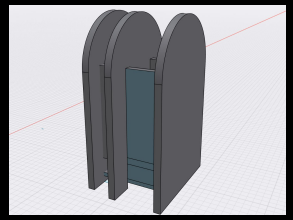


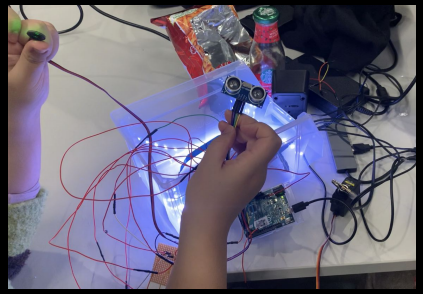



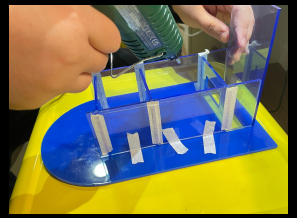
Fabric Processing

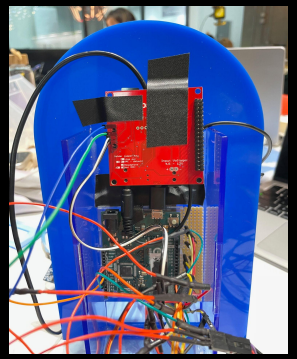
- Washing
- Tailoring
- Dyeing
- Bronzing
- Paste flower

We wanted to use translucent organza to make the flowers look lighter and more beautiful, but organza is not easy to shape and it is difficult to dye.We use glue to wash the fabric, and the fabric obtained after drying will become stron, ger, stiff, easy to handle, and easy to color , so that tcche organza can be changed according to our ideas.





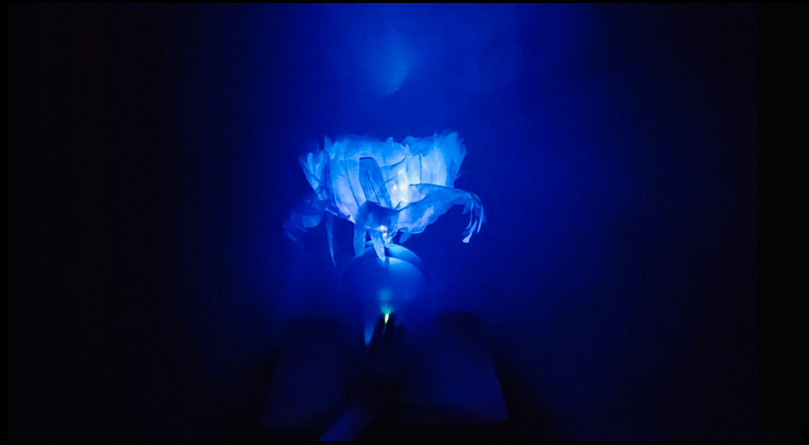


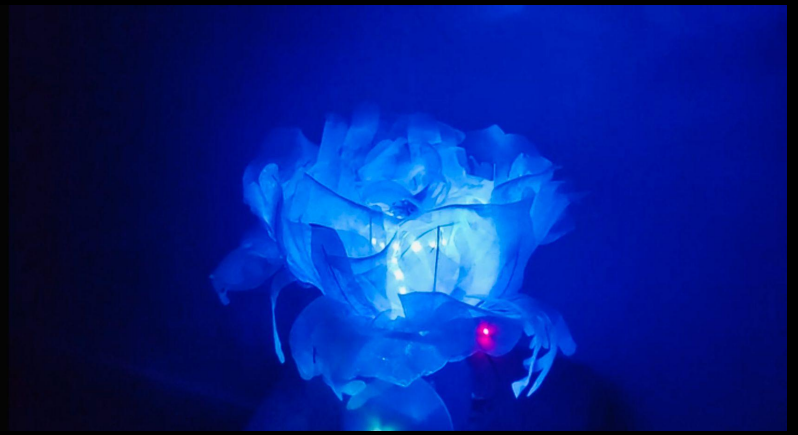


Design And Assembly

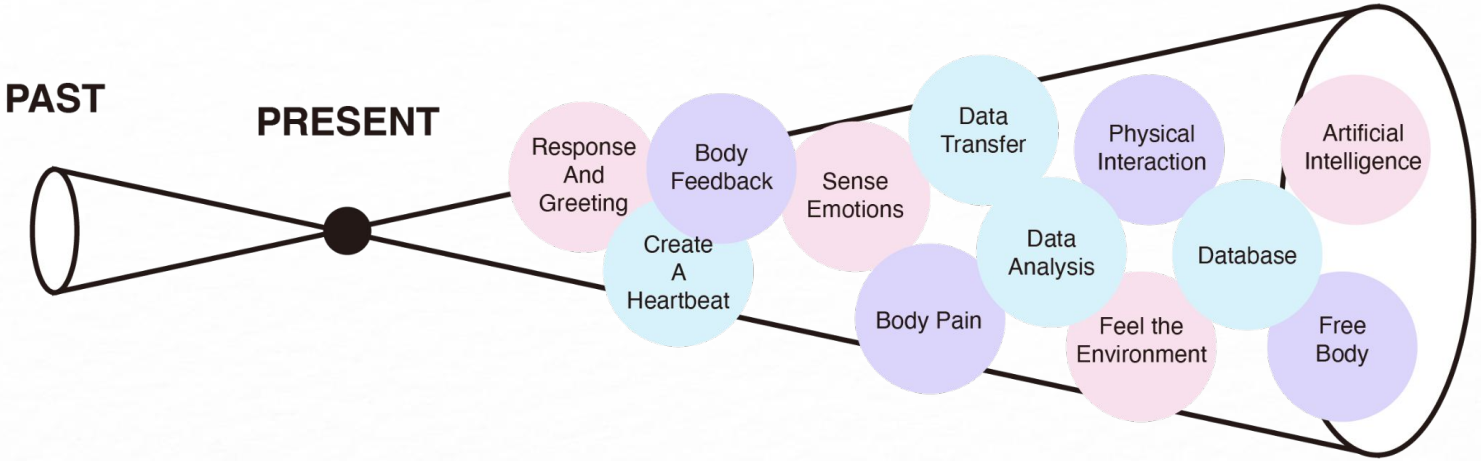
- Design modeling
- Laser cut acrylic
- Assemble
- Test code

We designed a home for flowers and wanted to use acrylic in various color combinations to achieve a gradient effect, but the actual operation was not a one-time success. We chose a variety of different color effects such as transparent, frosted, and solid colors.Of course, due to the need to place Arduino components inside, we need to make holes in the acrylic, and after adjusting the positions of the holes many times, the assembly is finally completed.





Video Link: https://youtu.be/fOG-7o2Zhss



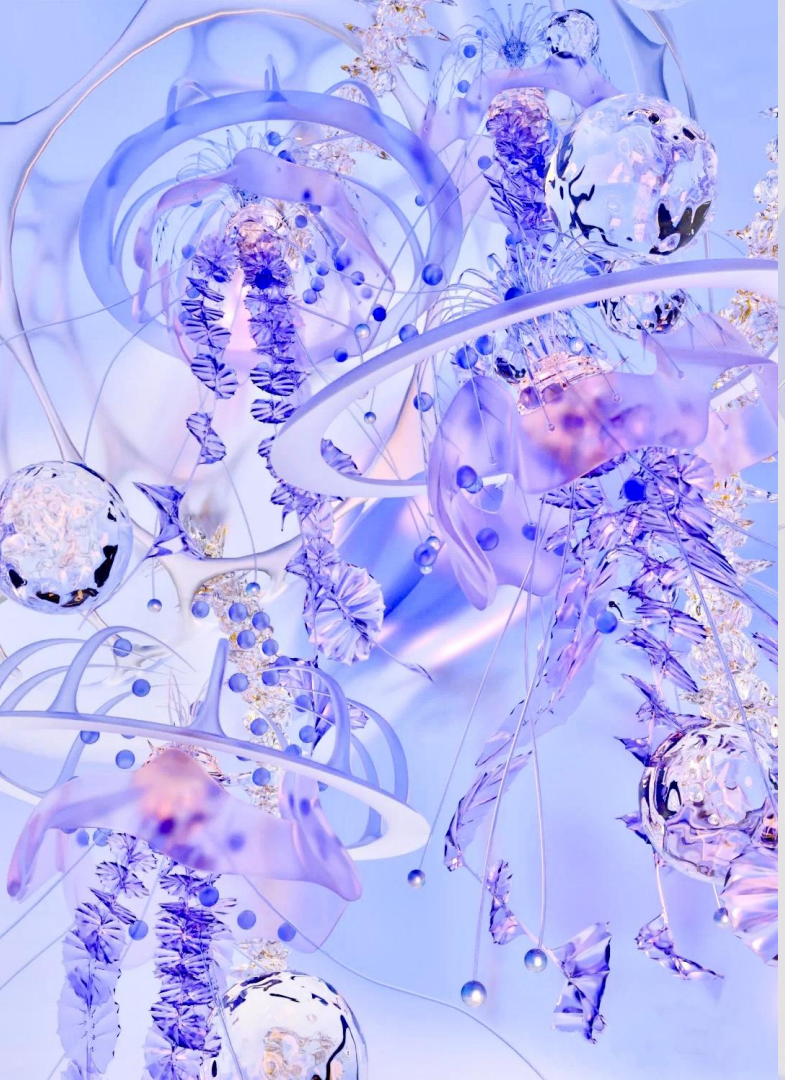
Future

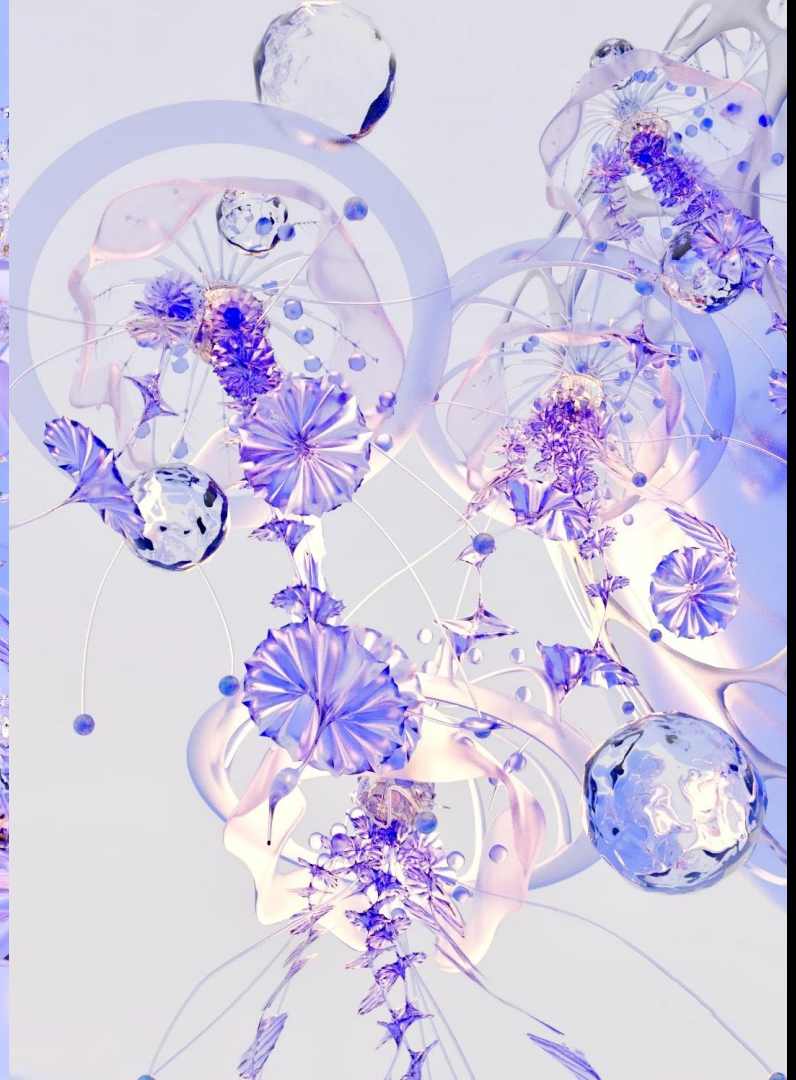
Form

In the future, people can customize their own exclusive plant forms. The material of plants can also be explored. In addition to solids, other materials such as fluids can also be selected.

Function

Plants can have more practical functions and can have built-in artificial intelligence chips to communicate with people and become new family members. Plants can also be bundled with smart furniture systems to become smart housekeepers.





Imagine
The
Future

Thanks For Watching