HomeSMART

Made with HEART, Serves you SMART.

WHAT is HomeSMART?

- A Smart Home system **especially made for the disabled and the elderly.**
- Clients will not have to request assistance from others to access home appliances;
- The user can control ALL the home appliances **effortlessly.**
- Our product aims to provide a **smart, convenient** life to the disabled, and creating a **comfortable** living condition for them.

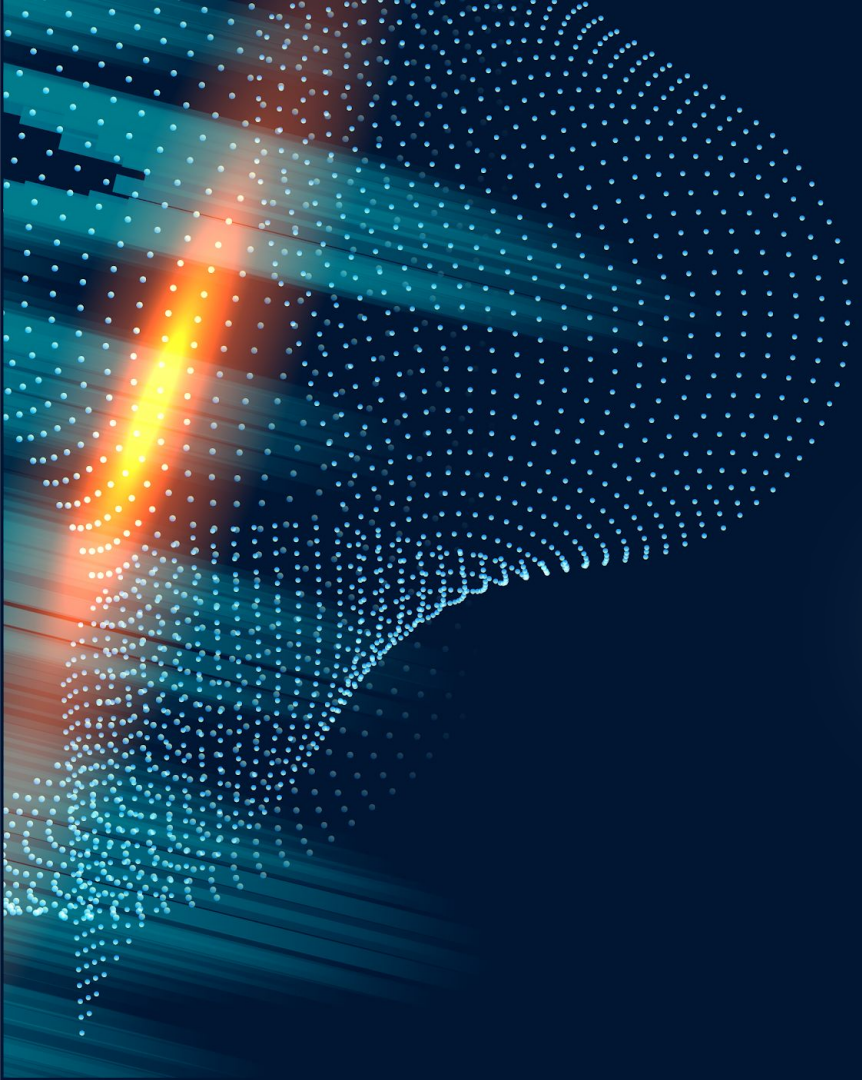
WHY the disabled?

Identified problem:

- Workers in labor force cannot tend to people with disabilities at home
- In 2021, it was estimated that over 15% of the total population had disabilities → in fact, one of us also has colour blindness, a kind of disability
- This is a significant number of people with disabilities that need help!
- With aging population, the number is anticipated to increase.

Proposed solution:

- The objective of this project is to provide an integrated system of smart home appliances for **everyone** who has disability, from grassroots to wealthy families.



Functions

Functions

Basic smart home functions:

- Light
- Air conditioning
- Open door
- Open window
- Open curtain
- Open fan

Specialized smart home functions:

- Request assistance
- Detect inactivity
- Detect fall accident

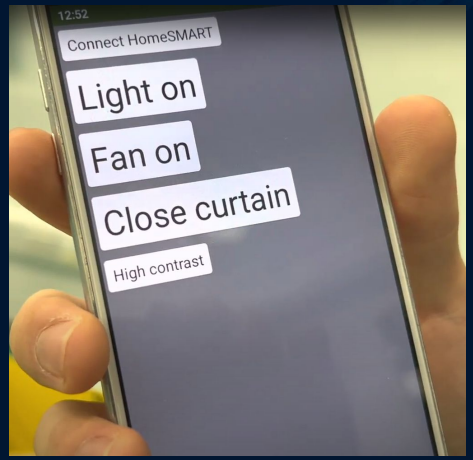
Detailed description of functions

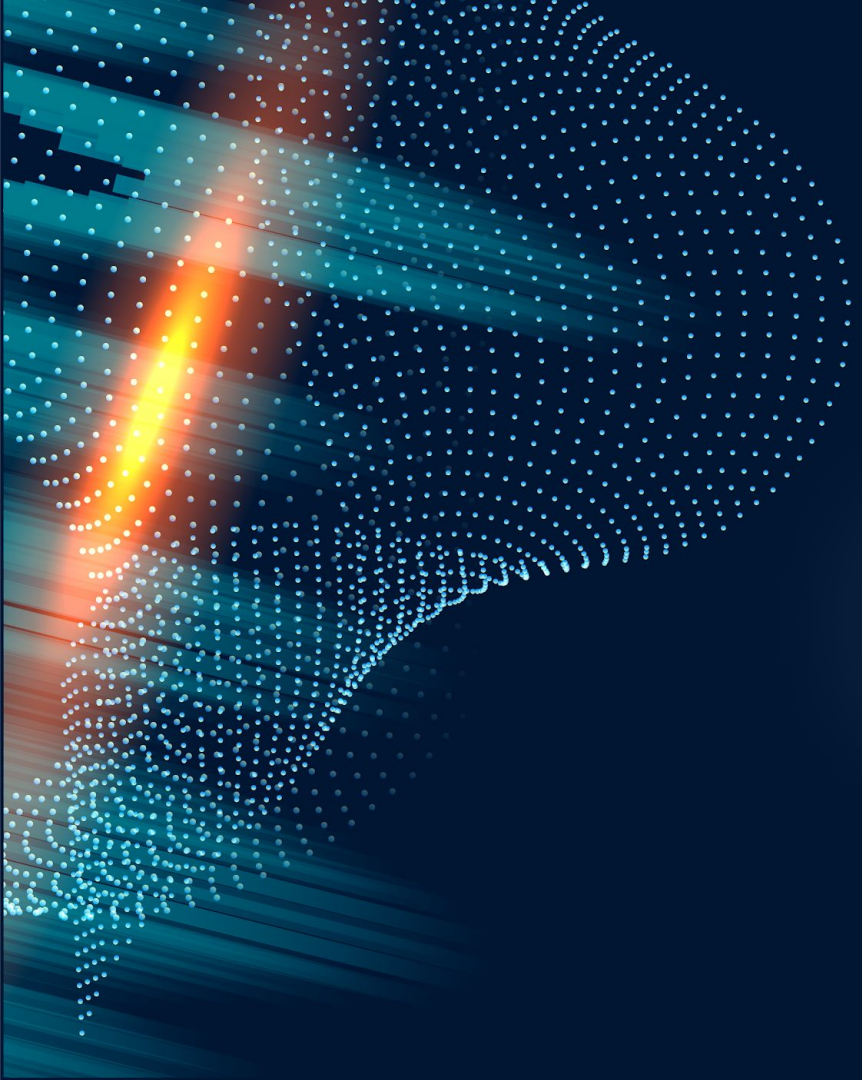
Function	Command	Response	Device/sensor used
Light	Turn on/off the light	Sure, turning on/off the lights	Voice recognition system (VRS), bluetooth, LED light
Door	Open/close the door	Sure, opening/closing the door	VRS, bluetooth, ultrasound
Curtain	Open/close the curtain	Sure, opening/closing the curtain	VRS, bluetooth, motor
Fan	Turn on/off the fan	Sure, turning on/off the fan	VRS, bluetooth, motor
Play music	Play the music	Sure, playing the music	built in function of the phone
Set timer	Set a timer for ~ seconds	Sure, setting the timer for ~ seconds	built in function of the phone
Sudden drop motion sensing	Is there any accident*	Yes / No	accelerator built in the phone

Table 1 summarizes the input commands by the user and responses by the application for conventional functions.
* if no response from the user within 10s, the system will connect to the medical service immediately

Mobile application

- The app will receive input from the user via voice recognition system (VRS) and execute the user's request.
- The VRS has access to all the sensors and appliances so VRS along with the sensors and appliances operate as an internet of things.
- Our smart home module consists of various conventional smart home functions, as well as more specialized functions tailor-made for clients with different disabilities.
- Both conventional and specialized functions may be activated by using the VRS in the application.
- Or, alternatively, our app offers an easy-to-use button control.



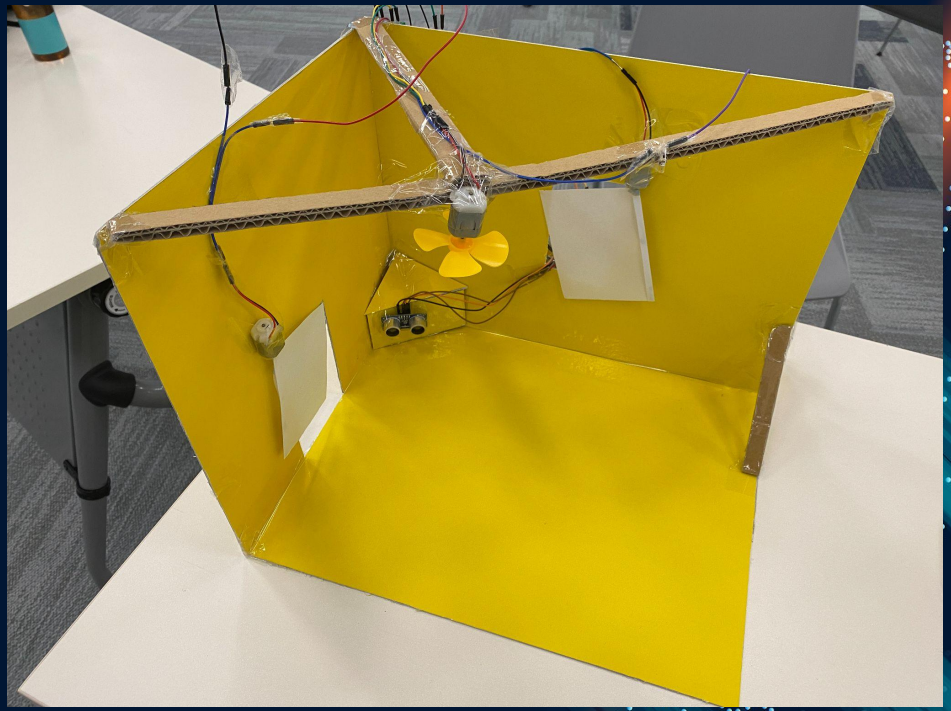


Prototype

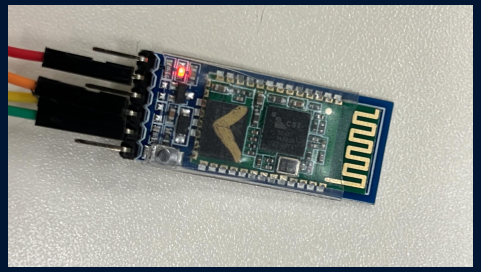
Design of prototype

Specifications...
- 40cmx30cmx30cm cardboard house

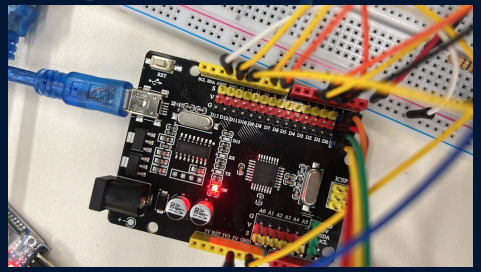
Functions include:
- Fan
- LED lights
- Curtain
- Door
- Music playing
- Fall detection
- More can be added through future updates



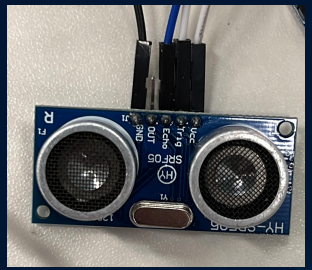
Technical equipment used in prototype



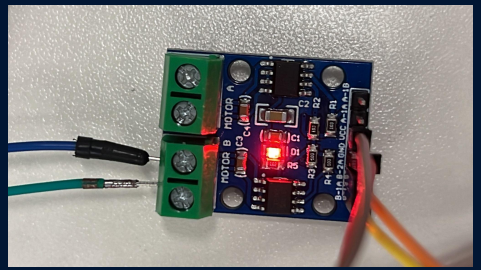
Bluetooth sensor



Arduino UNO Mainboard

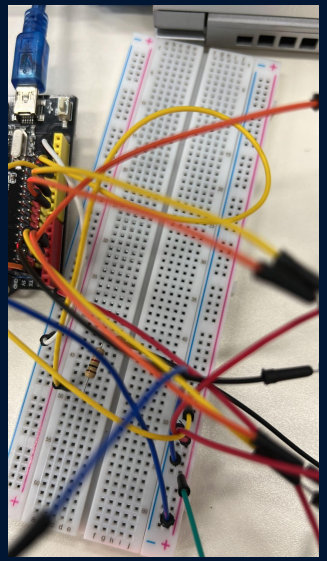


Ultrasound sensor

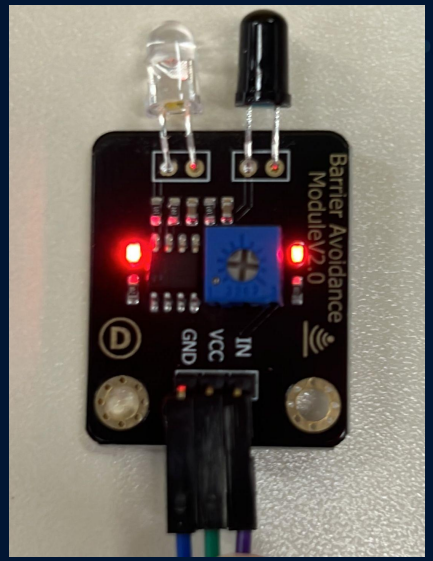


Motor driver

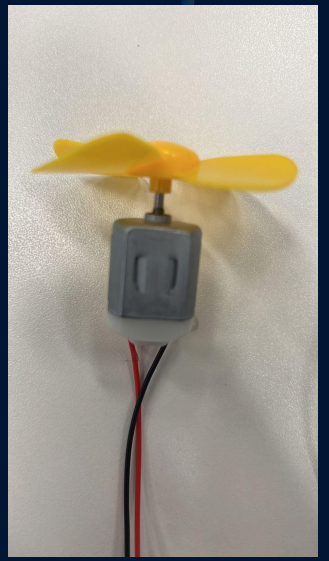
Technical equipment used in prototype



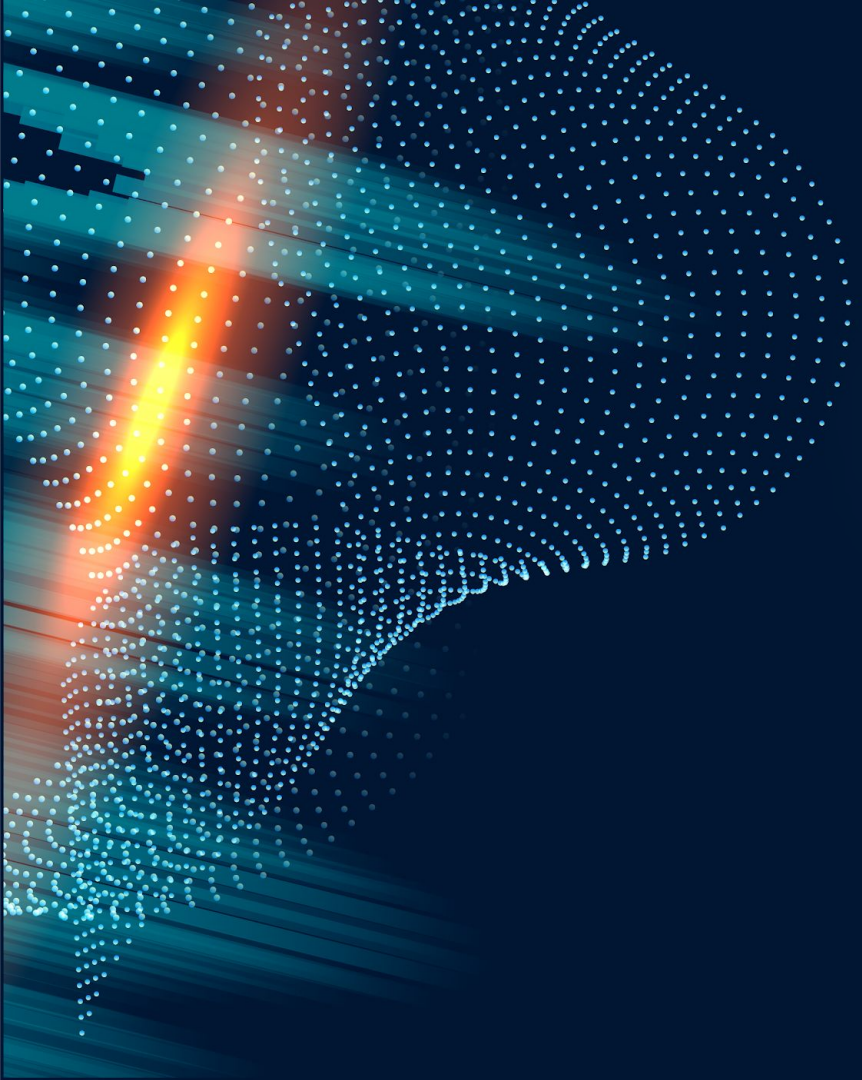
Breadboard



Infrared sensor

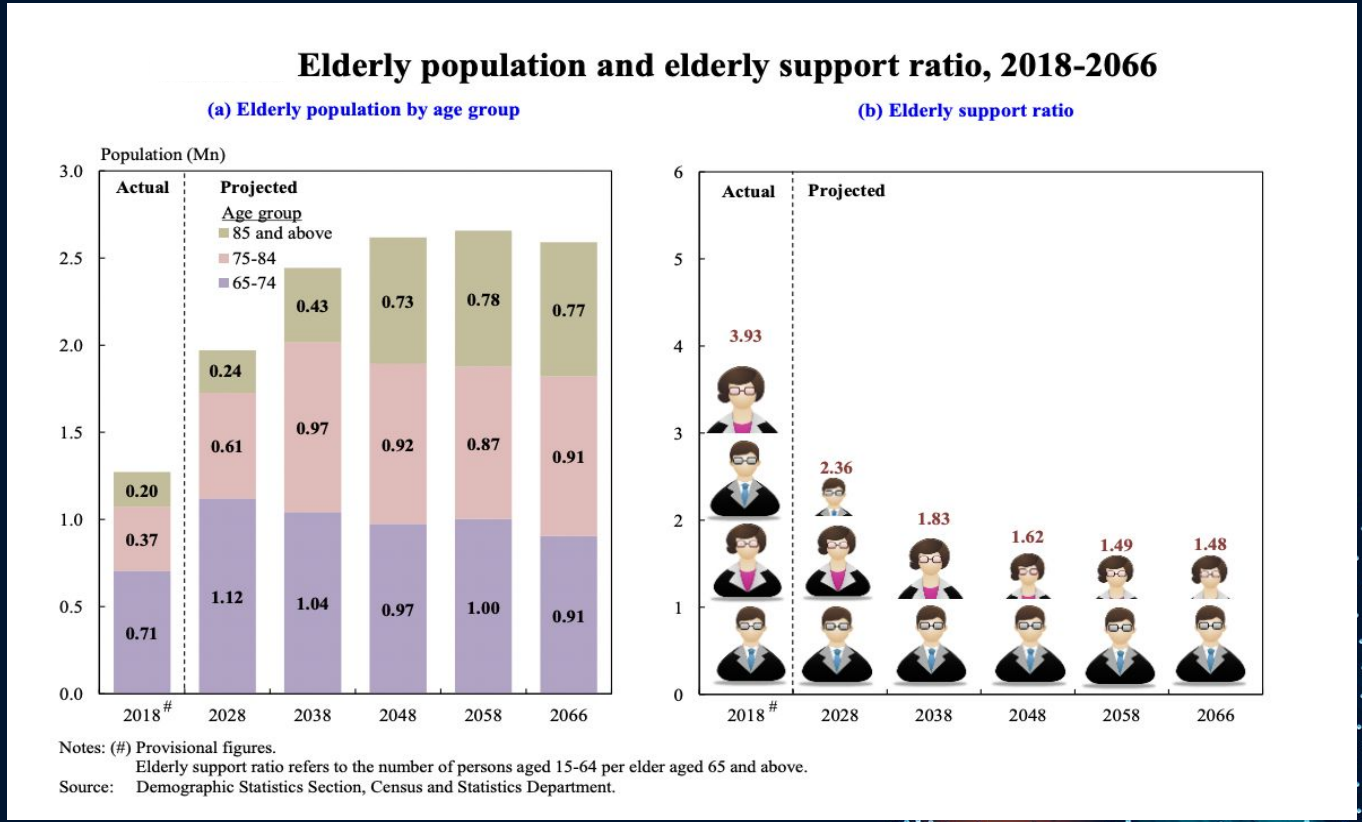


Motor and fan turbine

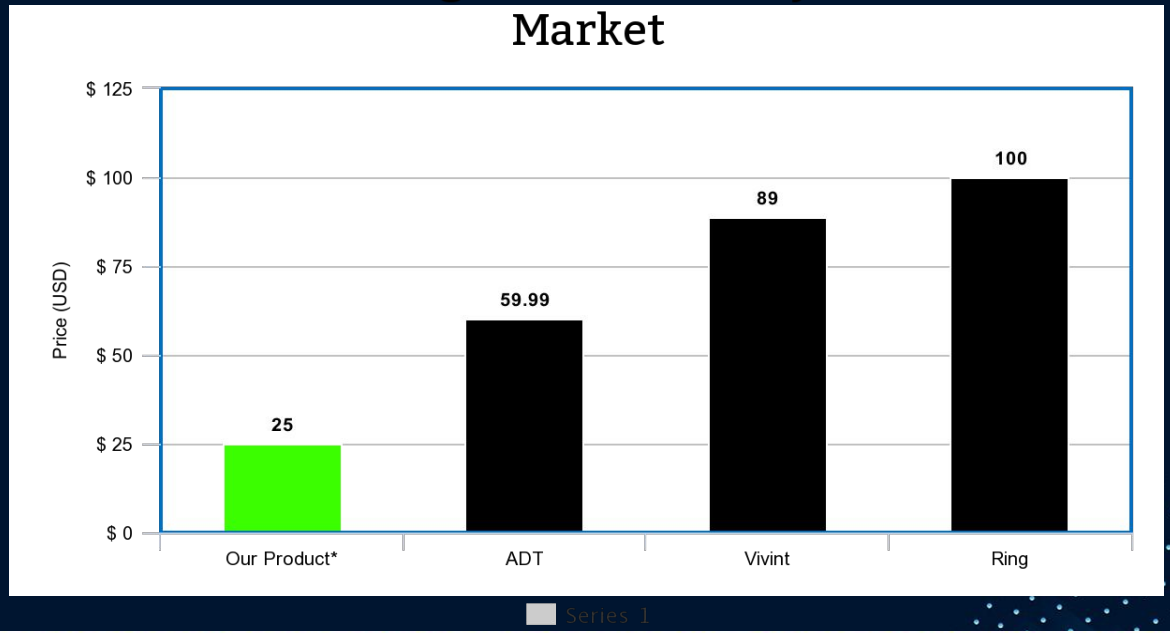


Business plan

The needs for our product



Price comparison with existing market



*our product includes all the Smart Home components such as lighting, automatic door and so on while the others only include the system without the components

Potential factors affecting our business

Political

- **The rights to access different sensitive information** such as news, weather, travelling, location of different facilities etc.
- **The background of our company**

Economical

+ **Promotions made to the public**, for example, the advertisement and the discount offered for the public.
+ **The sourcing cost of materials for our home AI design,** for example, Arduino hardwares and connecting cables.
+ **The local market economic phases**, for example, trough and depression, will affect the purchasing power of consumers and decrease their incentive to buy our product.
+ **The restrictions of borrowing set up by the banks** which will likely reduce the amount of venture capital available to us.

Potential factors affecting our business

Social

- **The diversity of functions offered by our design compared to similar products** currently in the market such as Google Home and HomePod.
- **The simplicity of using our product** compared to the products in the market.
- **The space taken up by our products in normal home living environment**.
- **The reliability and image of our company** on offering such kind of product and the professional qualifications obtained by our product.

Technological

+ **Internet of Things**
+ **Maturity of production skill**
+ **Battery life and lasting continuity of our product**

Product competitiveness

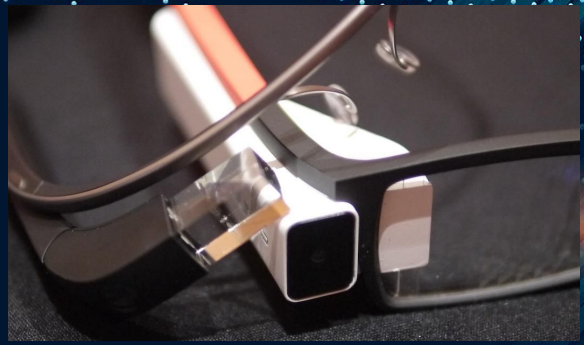
Budget option : We offer our product at a much lower price than the other similar products in the market

Functionality : Our customers can own our Smart Home system and a set of Smart Home components at one purchase

Targeting eldery and the disabled: Our company has foreseen the problem of aging population and we understand the difficulties faced by the disabilities & our product is designed for them.

Future ideas on HomeSMART

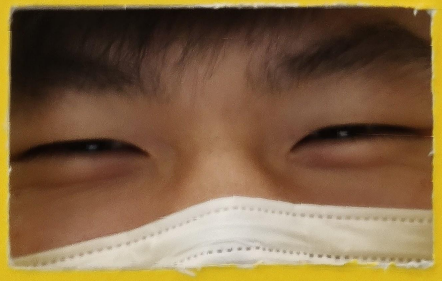
- **Wearables**
  - Smartwatch with **voice assistance**, **basic control & fall detection**
  - Glasses with ultrasonic sensor that alert the users when approaching an obstacle.



- **Mobile application extension**
  - Add a motion camera to detect the movement of the disabled
  - Add an infrared sensor to measure body temperature
  - Allow family members/guardians of users to view the current status of the user to ensure their safety and health
  - Send notifications to the family members in case of an accident

Product limitation & solutions

Limitations	Solutions
• Short battery life on wearables	• Having small solar panels that recharges the battery on wearables
• Elderly may not have smartphones to install the app	• Offer a simple smartphone pre-installed with HomeSMART • Using wearables such as a smartwatch pre-installed with HomeSMART
• Others' voices may interfere the voice recognition system of the app	• Write an AI to recognize the voice of the user and only accept audio input from the user



Thank you

Together, we build an inclusive world.