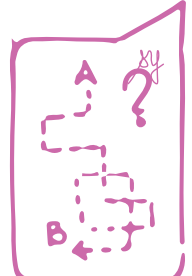
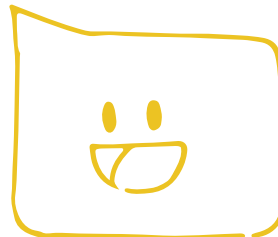
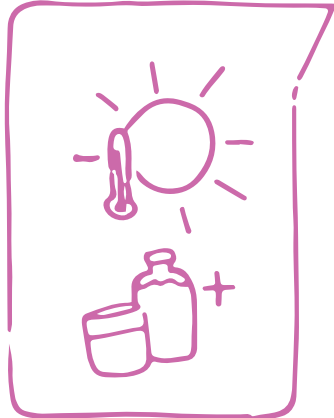
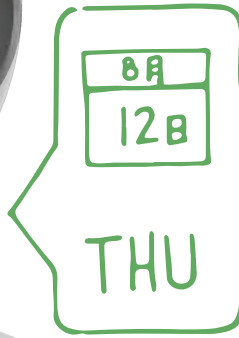
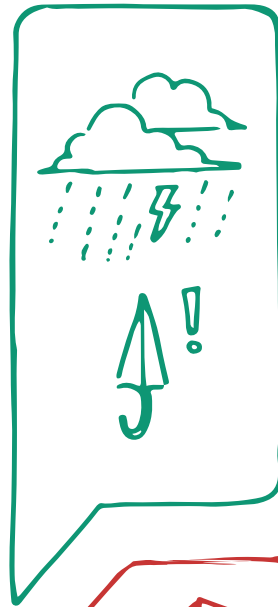
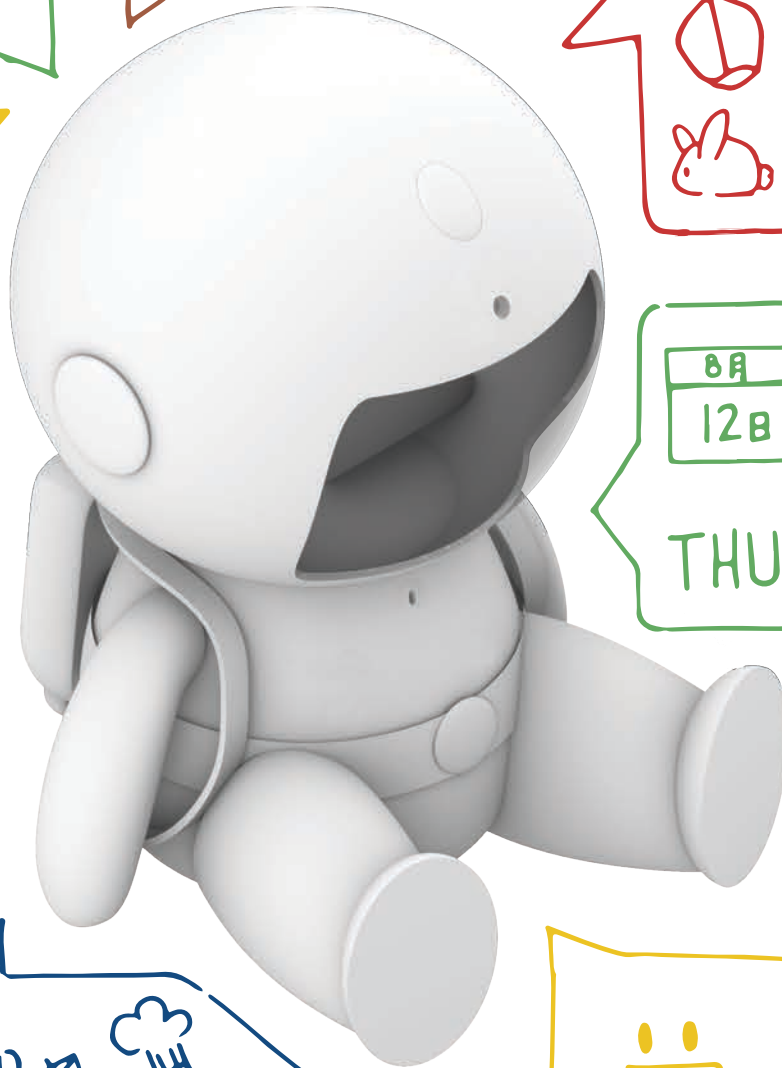


長者中心語音互動機械人共創報告



長者中心語音互動機械人共創報告 Report on Co-designing Interactive Voice Response Robot for Elderly Centre

主辦機構
Organiser



捐助機構
Funded by



社創行動項目夥伴
Partner for Action Project



社創行動項目設計顧問
Design Consultant for Action Project

eureka

社創行動項目技術顧問
Technical Consultant for Action Project



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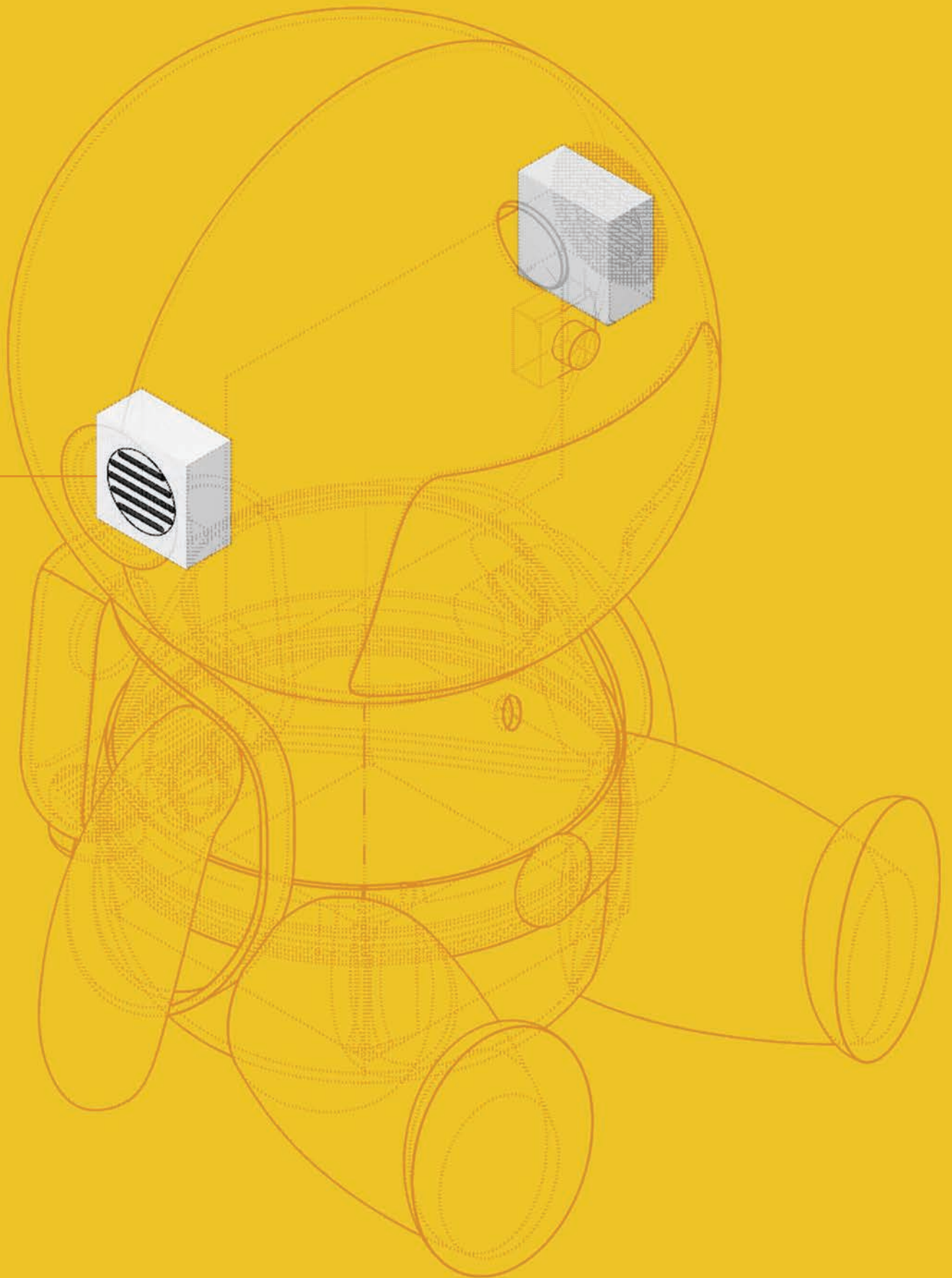
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1 前言

FOREWORD

Listen
聆聽



前言 FOREWORD

所有人都會老去。那麼，當我們年老的時候，想過一個怎樣的生活呢？

隨着戰後出生的「嬰兒潮」世代漸漸踏入老齡階段，到2036年，香港的長者人口（65歲或以上）將佔總人口的三分之一；此外，屆時的香港人口中位數更會達50.9歲¹，即全港半數人口在15年後都將成為50+，踏入「初老」的人生階段。「嬰兒潮」世代與其父母輩在身體狀況、教育程度，及科技應用能力上都有很大的差異，對服務的需要和期望亦有所不同。長者服務需要不斷變化以應對兩代長者不同的需要。

香港長者服務發展的40多年間，一直積極演進，以滿足長者人口不斷變化的需求。² 當中的長者地區中心和長者鄰舍中心，在推動「積極老齡化」方面，發揮著至關重要的作用。面對長者人口改變、服務種類增加、各項資源未能互相補足等問題，我們更需要提前為長者服務作長遠規劃，思考20年後，甚至50年後的長者中心，應該要成為怎樣的模樣，才能迎合未來的長者需要。

2019年9月，「理大賽馬會社創『騷·In·廬』」第五季以「長者中心再想像」為題，召開「十萬分一」社創研討會，並邀請了三間在地理位置、服務人口組成及中心定位各有特色的長者中心作為策略夥伴，一同進行「再想像」。

Everyone will age. How would you like to live your life when you grow old?

As the “baby boomer” generation gradually enters the old age group, by 2036, elderly population (aged 65 year-old and above) will account for one-third of Hong Kong’s total population. In addition, the median age of the Hong Kong population by then will reach 50.9 years old¹, meaning that half of the population in Hong Kong will become 50+ in 15 years. There are considerable differences in the physical condition, educational level, and technological literacy between the “baby boomer” generation and their parents. Their needs and expectations for elderly services are hence very different. Elderly services need to be constantly changing to meet their diverse needs.

Over the past 40 years, elderly services in Hong Kong has been actively evolving to meet the changing needs of the elderly population.² Among the services, District Elderly Community Centres (DECCs) and Neighbourhood Elderly Centres (NECs) play a vital role in promoting “Active Ageing”. In the face of the changing elderly population characteristics, increasing variety of services, and the lack of complementary resources, we need to plan ahead for long-term elderly services and consider what the elderly centres should look like 20 years, or even 50 years, from now, so as to meet the needs of the elderly in the future.

The Season 5 “One from Hundred Thousand” Social Innovation Symposium of PolyU Jockey Club “Operation Solnno” began in September 2019 with the theme “Re-imagine Elderly Centres”. We have invited three elderly centres with different characteristics in terms of location, service demographic and positioning to be our strategic partners in the “re-imagination” process.

We organised co-creation workshops with stakeholders of the elderly centres, including social workers, elderly members, as well as members of the public from diverse sectors to enable the elderly to enjoy a more prosperous and colourful life, and to address the physical and mental needs of the elderly. We encouraged participants to boldly use their imaginations, break the boundaries from traditional models of elderly services, and create solutions together using Design Thinking.

During the “Action Project” stage, we worked with the three elderly centres to select three of the six solutions from co-creation workshops for trial implementation and promote Active Ageing from different perspectives. These solutions include a digital platform for event registration and promotion for H.K.S.K.H. Lady MacLehose Centre Dr Lam Chik Suen District Elderly Community Centre, a mechanism that assists members in self-organising activities for Haven of Hope District Elderly Community Service, and an Interactive Voice Response robot that facilitate information dissemination for TWGHs Fong Shiu Yee Neighbourhood Elderly Centre. Although the starting points of the three projects are different, all the design processes have demonstrated the possibility of using technology to assist the development of elderly centres.

This report documents the design process and recommendations of our collaboration with TWGHs Fong Siu Yee Neighbourhood Elderly Centre (FSYNEC) and design consultant Eureka from November 2019 to September 2021 to design “Tung Zai” as the communication ambassador at the centre. While the average age of the members of FSYNEC is relatively higher, and the smartphone penetration rate is lower than the two other partnering centres, the concept of using a robot to facilitate communication was in fact proposed by the elderly member. This reflects that creativity is never bound by technological literacy, and the elderly are very eager to catch up with the ever-changing digital trend.

我們舉辦共創工作坊，與策略夥伴不同層面的持份者，包括長者會員與社工，以及不同領域的公眾人士，以能夠讓長者享受更豐富多姿的生活為目標，針對具體的設計挑戰、回應長者的需要。我們鼓勵各參加者從不同角度，大膽發揮想像，打破傳統模式的局限，以設計思維共創解決方案。

在「行動項目」階段，我們與合作的三間長者中心，從六個共創方案中，挑選了三個來試行，嘗試從不同角度推動「積極老齡化」。當中包括：

「香港聖公會麥理浩夫人中心林植宣博士老人綜合服務中心」的活動報名及推廣的電子平台、「基督教靈實協會靈實長者地區服務」的便利會員自發組織活動機制，以及「東華三院方肇彝長者鄰舍中心」為促進溝通的語音互動機械人。雖然三個項目的出發點有所不同，在設計的過程中均展示了以應用科技協助長者中心發展的可能性。

這份報告紀錄了在2019年11月至2021年9月期間，我們與東華三院方肇彝長者鄰舍中心及設計顧問Eureka合作，設計「東仔」機械人作為中心溝通大使的細節及建議。雖然東華三院方肇彝長者鄰舍中心的會員平均年齡較高、智能手機普及率亦較另外兩間長者中心低，但以機械人促進溝通的概念，正正是由長者會員提出的。由此可見，創意並未因他們對科技的熟習程度而改變，長者亦十分渴望趕上科技日新月異的時代。

考慮到長者因不懂使用科技而產生的挫折和沮喪感，我們思考如何將長者友善的元素加入設計，提升產品的科技包容度 (digital inclusiveness)，提高機械人的親和力，讓科技走近長者的生活。如此一來，科技才能長遠為長者服務發展帶來正面影響，例如讓人工智能幫助長者中心傳遞資訊，甚至分擔更多工作。

儘管因為受疫情影響，令各計劃有所延礙，我們很感恩得到「東華三院方肇彝長者鄰舍中心」的支持。沒有各中心同事熱心推動項目試行和長者參與，我們實在難以達至目前階段性的成果。

最後，我們期望「長者中心再想像」三個社創行動項目的設計成果可供不同地區的長者中心參考，亦能為長者服務的發展提出新的觀點和角度，促進長者中心轉型，使服務內容及操作模式更切合新一代長者的生活需要，更有效地朝「積極老齡化」這個目標進發。

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香港理工大學
賽馬會社會創新設計院總監
實務教授 (規劃)
2021年9月

Considering the frustration of the elderly in applying technology, we incorporated elderly-friendly elements into the design, enhanced the digital inclusiveness of products, and increased the robot's affinity to bring technology closer to elderly. In this way, technology can positively impact the development of elderly services in the long run, such as having artificial intelligence to help elderly centres transmit information and even share more work with centre staff.

Despite the delay of projects due to the COVID-19 epidemic, we are very grateful for the support from our Action Project Partner TWGHs FSYNEC. Without the enthusiastic support from centre staff and the keen involvement of the elderly, we could hardly achieve current results.

Finally, we hope our three design solutions of the "Re-imagine Elderly Centres" Action Projects can serve as a reference for other elderly centres in different districts and provide new perspectives for the development of elderly services, so as to facilitate the transformation of elderly centres and align the service contents and operation model with the practical needs of the new generation elderly, with the wish to facilitate the progress to achieving Active Ageing.

Ling Kar-kan, SBS

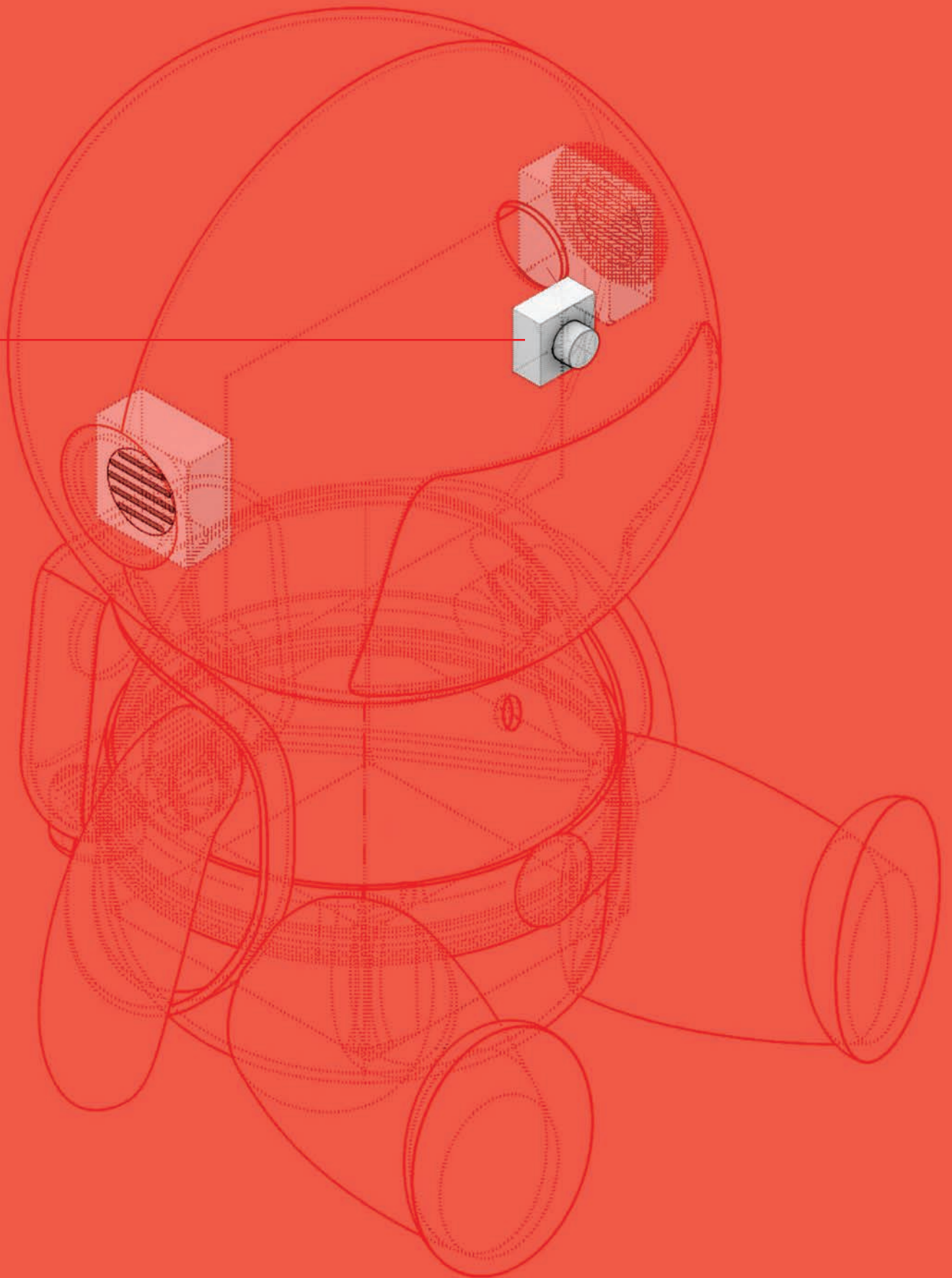
Director,
Jockey Club Design Institute for Social Innovation
Professor of Practice (Planning)
The Hong Kong Polytechnic University
September 2021

¹ 香港統計月刊2017年10月，2017年至2066年香港人口推算，FA6，香港特別行政區 政府統計處，
<https://bit.ly/31iiJNx>
FA6, Hong Kong Population Projections for 2017 to 2066, Hong Kong Monthly Digest of Statistics October 2017, Census and Statistics Department, Hong Kong Special Administrative Region, <https://bit.ly/31iiJNx>

² 第一間老人社區服務中心於1979年誕生，由耆康會柴灣創辦，提供康樂、社交活動及社區支援。在2002年，香港公益金表示因經濟不景導致善款減少，從2003年起不再資助長者中心後，政府增撥資源發展長者服務，並於2003年重整長者地區中心及長者鄰舍中心的服務。(大人雜誌，2018)
The first elderly community centre was established in 1979. It was founded by The Hong Kong Society for the Aged (SAGE) Chai Wan to provide recreational, social and community support for elderly. In 2002, after The Community Chest of Hong Kong stated that donations were reduced due to the economic downturn and funding for elderly community centres was therefore ceased in 2003, the Government allocated additional resources to develop elderly services. In 2003, the Government reorganised the service development of District Elderly Community Centres (DECCs) and Neighbourhood Elderly Centres (NECs). (Big Magazine, 2018)

2 背景 BACKGROUND

Observe
觀察



背景 BACKGROUND

積極老齡化：長者與中心有效溝通的重要性 Active Ageing: Importance of Efficient Communication between Elderly and Centre

我們相信，作為長者在社區內聚集的空間，長者中心可以發揮促進長者積極老齡化的作用。

除了提供輔導、外展和轉介服務外，長者中心還在組織社交和康樂活動，以及協調區內或鄰里間的長者方面扮演重要角色。他們有責任將政府和其他非政府組織活動及相關資源的最新信息，傳遞給會員及於附近居住的長者。

由此可見，長者中心需要確保與區內長者有有效的溝通，從而向長者提供服務信息，讓他們有方法得知並獲取相關的資源。

再者，有效的溝通同樣有助長者中心接觸和招募更多新會員，包括新一代的長者，以鼓勵他們積極參與社區活動。

As a space for elderly to gather in the community, we believe that elderly centres can play the role in facilitating Active Ageing in elderly.

Apart from providing counselling, outreaching, and referral services, they also play a role to organise social and recreational activities, as well as coordinating services to elderly within the district or neighbourhood. They have the responsibility to disseminate the latest information about activities and related resources from the Government and other NGOs to members and elders living in their areas.

Therefore, it is important that effective and efficient communication is ensured to deliver service information to elderly so that they know what existing resources they can acquire and where to find them.

This can also help elderly centres to reach and attract more elderly, including the newest generation, and to encourage them to participate actively in the society.

以科技促進長者中心服務 Facilitate Elderly Centre Service Provision with Technology

Given that the younger elderly of today are already curious about new technologies and how to use it, imagine in the near future when an even younger generation (those who may be working age adults today) come to the elderly centres, they would be even more familiar with the use of smartphones and computers. In the same way that technologies advance, so too should elderly centres.

For instance, traditional ways of promotion and information distribution such as posters and brochures may not be as efficient as they were in the past, while provision of services must also incorporate new technologies to maximise the impact elderly centres bring to the society.

There are different levels and areas where technology could help improve the services of elderly centres. One of the positive ways which it could facilitate Elderly Centre service provision is by increasing and improving the visibility and accessibility to the services which could help the staff to optimise tasks and break physical and geographical barriers to reach people.

Visibility means whether the information distributed by the staff is visible to the elderly in the neighbourhood, including existing members and non-members. For example, the centre staff uses phone calls to inform the elderly members about the notices. To minimise the workload, they can consider broadcasting messages to elderly through different social media platforms when members are more accustomed to the use of smartphones and the Internet.

Accessibility refers to whether the elderly in the neighbourhood are able to access the desired service information of the centre when they have certain needs. For instance, elderly centres now rely heavily on using seasonal newsletters to list upcoming events for elderly. Elderly must reach the centre physically to receive activity information. However, when the use of websites and other social media platforms are highly acceptable by elderly in the near future, elderly centres can utilise these platforms to allow elderly to access desired information remotely.

與長者的互動過程中，我們發現年輕長者對使用新科技更加開放和好奇。我們預計將來會有更多年輕長者願意接觸新科技，及將會有更多人前往長者中心，所以相關服務亦需要更新。

例如，因為年輕長者對智能電話等資訊科技更為純熟，傳統以海報和小冊子作為宣傳和信息發放的方式，可能不再如過去那樣有效。這方面必須結合新技術，令長者中心的服務發揮最大的社會功能。

科技可以在不同層面上，協助改善長者中心的服務，其中，包括讓長者更方便、容易接收長者中心的資訊。這樣能幫助職員打破地域界限接觸社區內的長者（中心會員及非會員），提升長者中心的服務。

例如，隨著長者逐漸習慣使用智能手機和互聯網，長者中心可考慮透過各種社交媒體發放資訊，以減輕職員慣常需要逐一撥電話予長者的工作量。

同樣地，當長者需要取得中心的活動資訊時，現時，他們會親身前往中心索取每季通訊；未來，中心可以利用社交媒體和互聯網，讓長者遙距獲取所需資訊。

東華三院方肇彝長者鄰舍中心的背景 Background of TWGHs Fong Shiu Yee Neighbourhood Elderly Centre

東華三院方肇彝長者鄰舍中心（下簡稱「中心」），於1989年11月28日啟用，為東華三院屬下第三間長者中心，位於九龍觀塘秀茂坪邨秀明樓地下128-134號。

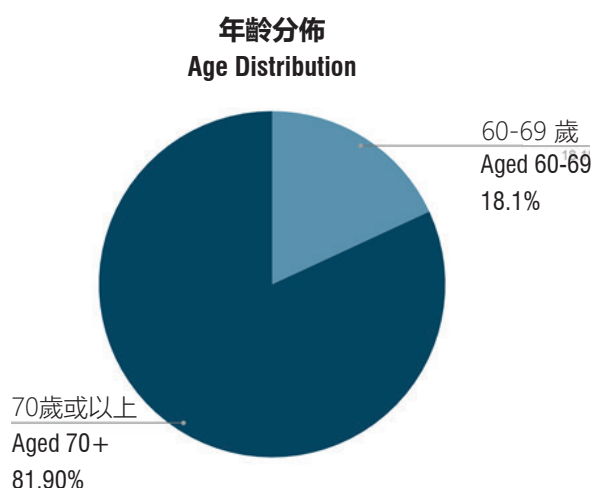
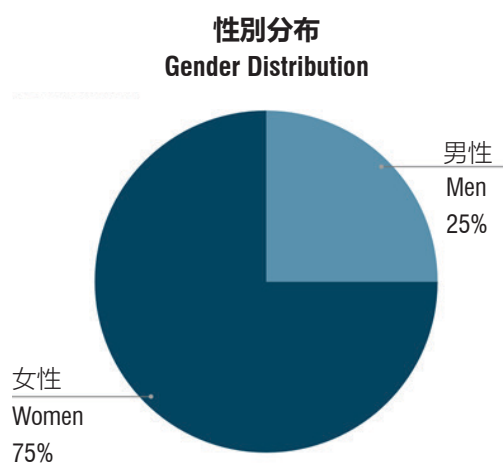
中心的服務目標是鼓勵長者積極生活及善用餘暇，發揮潛能，達致「老有所為」的精神。服務包括支援長者解決個人、家庭及生活上的困難，以及為需要照顧長者的人士提供社區支援。

據中心的統計資料顯示，2019年中心的入住人數達697人，其中70歲以上長者居多，並以女性佔大數。

TWGHs Fong Shiu Yee Neighbourhood Elderly Centre (referred to as “Centre” hereafter) commenced its service on November 28, 1989. It is the third elderly centre under Tung Wah Group of Hospitals. It is located in Sau Mau Ping, a residential area in the Kwun Tong District, at the ground floor of a public estate.

The Centre aims to provide diversified services to elders and caregivers in Kwun Tong District, encouraging the elders to lead an active life. Services of the Centre vary between offering different activities for acquiring new skills and socialising to offering community support services and assisting in solving family and daily life problems.

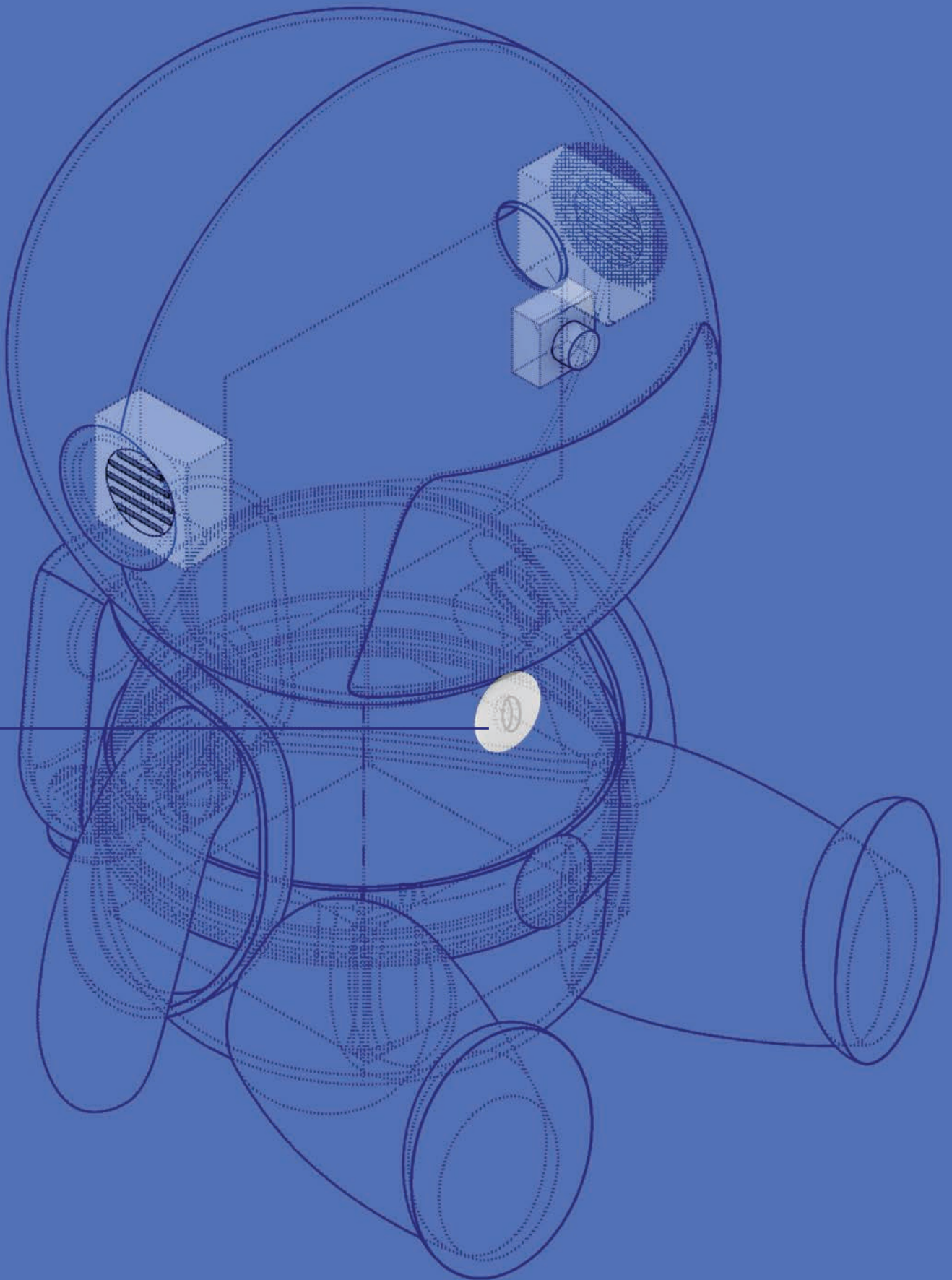
According to the statistics provided by the Centre, it has 697 members in 2019. Most of them are over 70 years old and most of them are female.



[1] 2019年中心會員的統計資料。
Demographics of members of the Centre in 2019.

3 共創工作坊及社創研討會 CO-CREATION WORKSHOP & SOCIAL INNOVATION SYMPOSIUM

Talk
交談



共創工作坊及社創研討會

CO-CREATION WORKSHOP & SOCIAL INNOVATION SYMPOSIUM

概覽

Overview



在前期的研究階段，中心的職員反映指，向會員不定期發放臨時服務資訊存在一定的困難。由於大多數長者並不習慣使用智能手機，線上交流或即時短訊，在他們的情況並不完全有效。現時，電話仍是雙方在有限時間內相互交流的最佳方式。

除了溝通問題，中心亦反映在招募義工上存在困難。隨著中心義工年紀漸長，他們開始退出義工團隊。至於其他體能較好的年輕長者，由於他們較喜歡有趣和具挑戰性的活動，他們成為義工的意向亦較低。

考慮到以上難題，JCDISI向參與共創工作坊的團隊提出了兩個設計挑戰：

- (A) 促進會員與職員溝通的策略
- (B) 促進義工發展的計劃

During the preliminary research stage, the centre staff reported certain difficulty in communicating with the members about irregularly released ad hoc service information. Since most of their members are not used to using smartphones, online communication and even instant messaging are not completely effective in their case. For most of the time, the good old telephone call is still the best way for both sides to communicate with each other within limited advertisement time.

Besides the issues with communication, the centre also reported other difficulties in recruiting new volunteers. As the volunteers in the Centre grew older, they started to quit the volunteer team. While other young-olds who have higher physical ability would prefer activities that are more interesting and challenging, they are less motivated to become volunteers.

Having these difficulties in mind, JCDISI proposed two design challenges for the participating teams in the co-creation workshops:

- (A) A strategy that promotes the communication of members and staff
- (B) A scheme that fosters the development of the volunteer programme

During the co-creation workshops, the teams conducted further research with the centre staff and members to acquire deeper understanding about the situation. The research process included interviewing the users, visiting the site, discussing and defining the problem and developing the ideas.

在共創工作坊中，共創團隊與中心職員和長者會員進行研究，以更深入地了解情況。研究過程包括：訪問用戶、實地參觀、討論和界定問題，以及構思方案。



[2] 共創團隊在引導師的帶領下為設計挑戰構思解決方案。

Facilitators leading the teams to develop solutions for the design challenges.

After brainstorming and discussing, each team picked and further developed one idea, then presented the idea in the form of a storyboard to the design consultants. Design consultants provided professional advice and feedback for the teams to further adjust and refine the solutions. At the end of the process, those ideas were presented at the Symposium as a conclusion to the co-creation process.

經過「頭腦風暴」及其他討論環節，共創團隊選出其中一個構思並作加以發展，再以故事板的形式呈現。設計顧問隨後提供建議，團隊再調整方案，最成在研討會上展示和發表成果。



[3] 共創團隊把在「頭腦風暴」環節所得的意念分門別類。

Co-creation teams categorising their ideas generated during the brainstorming session.

共創團隊提出的設計方案 Design Solution Proposed by Co-creation Teams

共創團隊的構思不但有趣，而且極具潛力。經過初步改進，兩個方案皆為幫助長者更容易獲取資訊和吸引年輕長者前來這個社區兩個挑戰帶來新的可能。

The co-creation teams' ideas were interesting and full of potential. After some refinement of the initial proposals, two different possibilities for the Centre were formulated to help the elderly have easier access to information and to attract the young elders to this community.

方案 A Proposal A

方案 A 的構思是為中心創建一個宣傳角色，這個角色可以移動到區內不同地方，宣傳中心及其活動。

Proposal A brings the idea of creating an advertising character for the centre and that could be moved to different places, to promote the centre and its activities.

這個宣傳角色能夠為長者提供中心活動、天氣、出行方式等資訊。從職員的角度看來，它能夠為中心提供額外幫助。據中心表示，職員有時需忙於應付大量訪客，一些長者就會無人看管照顧。此時，這個宣傳角色便能幫助減輕職員的工作量。

From the staff's point of view, this mascot could be an extra hand to the Centre since it would be able to give information about the centre's activities, weather, how to get around etc. These extra help would relieve their stress because according to the staff, sometimes, many visitors could come at once and they would be quite busy, leaving some elderly unattended.

這個可愛、自動化的角色能把技科帶到長者的生活當中，吸引他們更常來到中心。從長者的角度看來，他們可以從這個宣傳角色獲取服務和活動資訊，無需打擾職員。

From the elderly's point of view, that cute automated mascot could be a new way to introduce technology into their lives and to attract new and returning people to the Centre more often. Additionally, elders can receive service and activity information from this mascot without having to disturb the staff.



[4] 由長者在共創工作坊以樂高製作的宣傳角色「東仔」原型。

A lego prototype of advertising mascot "Tung Zai" made by elderly at the Co-creation Workshop.

E組 宣傳易

「宣傳易」善用現有宣傳渠道，非常「易做」，重新將資訊展示分類及改進海報設計，令人「易睇·易明」！我們活用生活上的觀察，甘劍峰公仔傳播資訊，大大提升活動資訊傳播的吸引度！由此可見，宣傳易「行出一小步」，將現有事物重新整合，便能大大提升宣傳效力，達到「宣傳一大步」！

測試過程及發現

測試過程

- 兩款海報設計配置
- 中心內的不同位置：牆、櫃面、電視牆、電視牆內

測試結果

- 大部份吸引長者興趣
- 願意觀看活動資訊
- 已願意於生活上再有助聽覺
- 活動名稱及位置為主要資訊
- 一週海報顯示一個活動資訊最為適宜

需要已修改的地方

宣傳海報設計：

- 色彩、顏色具鮮明對比
- 增加文字行距
- 活動資訊方式及位置
- 張貼高度應離牆口以上
- 茶水間位置張貼活動資訊
- 於黃昏會場於多時處，以留空位置於更均等
- 緊急活動資訊張貼於牆壁位置

事件：

- 非非文字，多圖案，互動宣傳方式
- 重新設計電視牆版面，吸引會員注意

最後設計

1. 傳單 中心-持枱處

2. 大電視 中心-持枱處旁(大電視)

3. 多面展架 善用中心3個位置

4. 活動資訊 中心-蓋印處

5. 電視牆 中心-持枱處

設計特點

海報設計

- 多圖少字，一目了然

海報展示位置

- 集中，分類，張貼在注目位置

善用電視

- 利用其動態畫面及顏色，突顯重要活動

事件

- 互動公仔，提升注意度，多感官接觸，令不識字的長者能接收活動資訊，減省人手

您認為還有什麼可以改善的地方？

主辦機構 | 長者中心與會員發展處
參與中心 | 康樂二區活動區長者服務中心

編輯成員 | Edna Tso, Hok-lu Chen, Melping, Cheryl, Amy (Facilitator)

[5] 共創團隊製作的方案 A 介紹展板。

Solution panel of proposal A designed by the co-creation team.

方案 B Proposal B

方案 B 建議中心每季提供3-4個培訓主題讓義工選擇，使義工服務以義工的興趣為導向，而非配合中心事務。

義工先進行體驗及培訓，再進行服務。進行服務後，中心為義工舉辦分享會，讓義工長者向其他中心會員闡述服務內容及感受。

為了鼓勵長者持續參與義工服務，於中心張貼義工時數排行榜，並訂立義工服務獎勵計劃。

宣傳方面，改以生動的文字配會引人目的圖像製作宣傳品，使海報及單張更吸引。

Proposal B suggested the centre provide 3-4 training programmes every quarter for the volunteers to choose, so that volunteer services are oriented towards the interests of young-olds, rather than towards Centre's priority.

Volunteers undergo training before providing services, and sharing sessions will be held afterwards, allowing them to share their work and express their feelings with other members.

To encourage volunteers' continuous participation, a Volunteer Leaderboard will be posted in the Centre, and rewards will be given to the volunteer of the month.

In terms of publicity, posters and leaflets will be changed to lively texts and images, making the advertisement more attractive.

活齡攝影大使

留住回憶，留住這刻

通過4節訓練，你就輕易使用智能手機幫拍中「免費拍獨家庭照」的幸運會員影底開心的一刻。既有意義又可以學到新手機。

快快報名成為我們中心的【活齡攝影大使】吧！



[6] 由共創團隊為推廣多樣化活動設計的宣傳海報。

Posters for diverse activities proposed by the co-creation team.


金齡義導啟航計劃 F組

以「學習、參與、應用」及「權利導向」模式為基礎；中心設計三個義工訓練活動供義工根據自己的興趣選擇參與。活動完成後以嘉許禮回應義工的無私精神。


方案設計強調過程的重要性。過程著重跟義工建立關係及投入感；釋出義工強項及鼓勵參與活動設計。最後讓完成訓練的義工參與社區活動；接觸社區不同群體（如新居民、智障人士等）從而增加義工的滿足感及長期服務社區的動力。

目標對象需求

目標對象：



50-60歲人士




福利及支援中心義工

特點：



部分需要日間工作




善用電腦溝通工具



嘉許禮以發揚，愛尚參與精神


需求：



多元溝通平台





學習新技能



「學習、參與、應用」，「權利導向模式」的實踐

測試過程及發現

測試方式：工作小組設計及宣傳三項適合「少耆」興趣的義工服務，以義工培訓作基座，測試目標對象對培訓課程的反應。


測試結果：

街坊和你遊	20
暖杯Love	17
街坊好意	07

宣傳地區：「街坊和你遊」報告者年齡分佈

電話	15人	中心傳呼	12人	新址	4人
65-70		71-75		81-85	

最後方案

1. 初試期：中心張貼海報，印製單張，進行街站
2. 報名：每季提供3-4個培訓主題讓義工選擇，作下一季度優先培訓之內容。
3. 服務前：按平度性推行培訓
4. 服務中：經過體驗及培訓後，進行服務
5. 服務後：為義工舉辦分享會，展銷服務內容及感想
6. 分享、獎勵、持續：憑貼義工時數作依據，訂立義工服務獎勵計劃

這個方案改變了什麼？

義工服務設計改變：以義工興趣為導向而承接配合中心事務

招募義工之宣傳品：根據資料活化或生動的文本介紹配以引人注意的圖像

義工角色：更重中心的合作夥伴，擔任服務提供前進一步推廣「老有所為」精神




你認為還有甚麼改善的地方？



主辦機構 | 發展義工參與中心專責啟發方案
參與中心 | 東華三院方福齡長者關懷中心

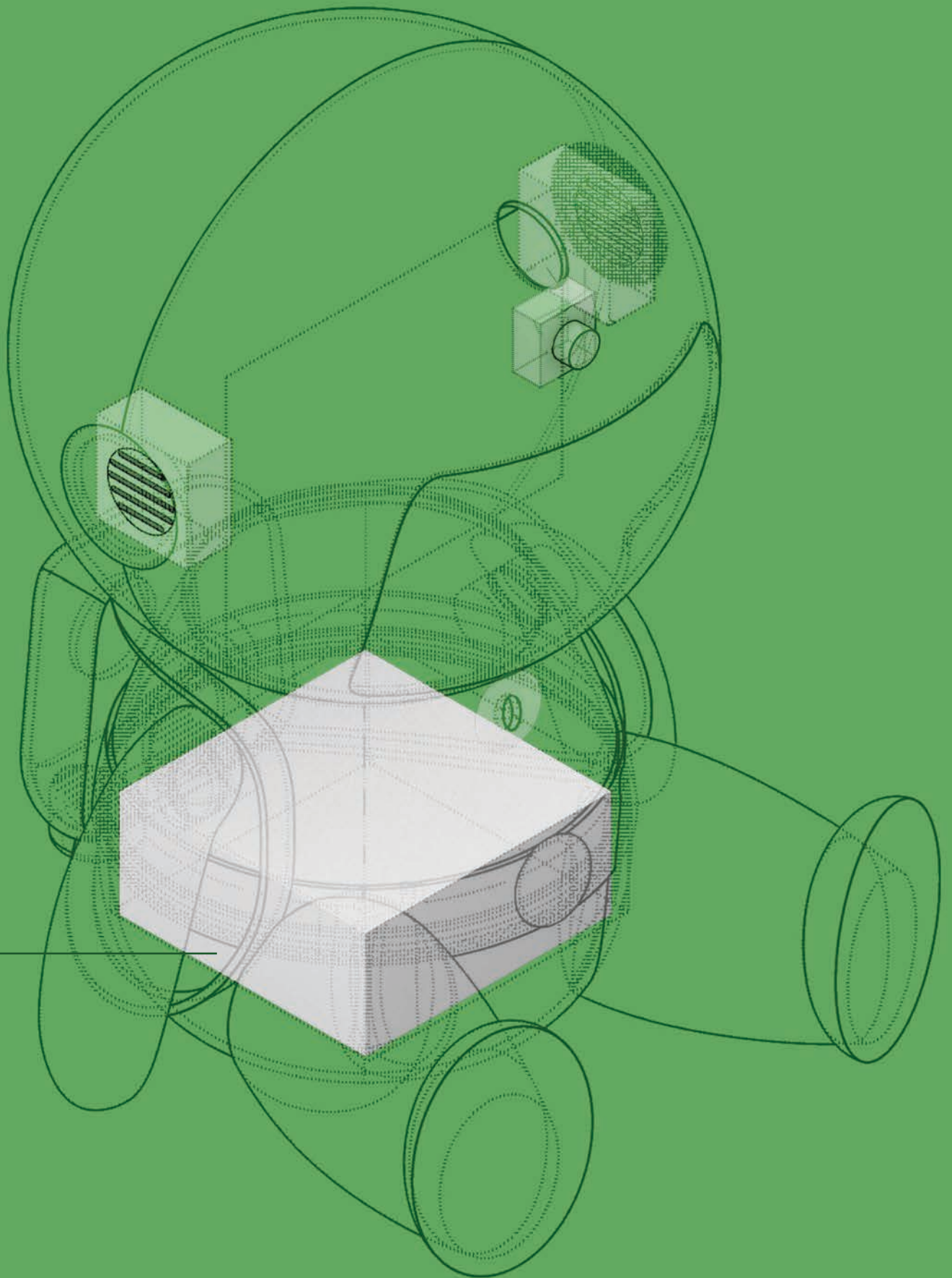
服務成員 | Simon Edith, Sam Kin, Cecile Yan, Simon Jennifer (Facilitator)

[7] 共創團隊製作的方案 B 介紹展板。

Solution panel of proposal B designed by the co-creation team.

4 行動項目 ACTION PROJECT

Analyse
分析



行動項目

ACTION PROJECT

簡介

Introduction

上述兩個方案均能為中心注入新元素。經過討論後，職員及長者比較喜歡方案 A 的構思。因此，團隊於2019年11月展開了「東仔」行動項目。

「東仔」是長者在共創工作坊中構思出來的名字。「東」來自「東華三院」的第一個字，而「仔」有「小東西」的意思，帶有可愛的聯想。

共創團隊提出方案後，設計團隊便構思如何進一步開發及製作機械人原型。

設計團隊最初由JCDISI和設計顧問Eureka組成。Eureka是一個由建築師和室內設計師組成的團隊。但由於方案跟建築、空間和中心環境沒有直接關係，因此其他合作夥伴獲邀加入團隊：

- **Roborn:** 一家專注於開發機械產品和技術的公司。
- **Tints HK:** 一家提供多樣化產品的產品製造商，產品包括喇叭、復古產品、文具、以至其他小工具。

Both proposals had great approaches on how to refresh the centre's status with the introduction of new elements. After discussion with the staff and the elderly, Proposal A was appointed as their favourite idea and hence the team kick-started the "Tung Zai" project in November 2019.

"Tung Zai" (東仔) is the name given to the communicative robot during the co-creation workshops. "Tung" comes from the Chinese initials of TWGHs, whereas "Zai" means "little thing" in Chinese, and is an association to cuteness.

After the co-creation teams' proposals were presented, it was the design team's turn to further develop the idea for a functional prototype.

The design team firstly consisted of JCDISI and design consultant Eureka, a team of architects and interior designers. But since the proposal was not directly related to architecture, spaces and the centre environment itself, other partners were invited to reinforce the design team:

- **Roborn:** a tech company specialised in robotic products and development of tech solutions that brings people and technology to work together.
- **Tints HK:** a manufacturer of personalised products with the most diverse range of merchandise, from speakers to retro products, stationary and other gadgets.

定義問題 Problem Definition

With “Tung Zai”, the design team aims to alleviate the following problem of the Centre:

1. Members seldom use technology for communication

Most of the Centre’s members are above 70 years old. For most of them, technology is not part of their daily lives. So what is usual and easy for the younger generation, such as the use of smartphones and computers, is not that easy for them.

2. Low literacy rate of old-old

According to the centre staff, there is a percentage of illiterate elderly in the area. The fact that they cannot understand printed information forces the communication to rely on either visiting the centre or calling.

3. Communication becomes heavy workload for staff

Since the communication channels are reduced and the ones that work require manual operations, the staff often finds themselves overloaded with work.

4. Delayed information transmission

The difficulty in communicating with the centre and getting the information needed in time is also one of the main issues elderly face. For example, some of the elderly reported that they had missed the chance to apply for different services and programmes since they know the information only after the application deadline.

5. Low visibility to non-members

The centre is located at the ground floor of a housing estate but it has hidden signage indications. Some of the staff reported that many of the elderly in the area have no idea about the existence of the centre as well as the services they provide. The spatial restriction along with the always closed windows, contribute to a low visibility and not so inviting environment for those who are not familiar with the centre and the building.

設計團隊希望透過「東仔」，為中心改善以下問題：

1. 會員甚少使用科技作溝通渠道

中心的會員大多為70歲或以上的長者，對科技感到陌生。他們不懂得操作年輕一代認為簡單、容易使用的智能手機和電腦。職員難以使用短訊作為溝通方式。

2. 年老長者識字率低

中心職員稱該地區年老長者的識字率偏低。這些長者無法閱讀印刷資訊，需要直接前往中心或打電話與中心職員聯絡。

3. 溝通工作加大職員的工作量

由於溝通渠道有限，很多聯絡長者的的工作仍需要由人手逐個安排，導致職員的工作量經常超出負荷。

4. 資訊無法即時傳遞

長者經常遇到無法即時聯絡中心、或及時獲取所需資訊的問題。例如有長者指出，他們經常錯過申請不同服務的機會，因為他們往往在截止日期後才獲得相關服務的消息。

5. 難以接觸非會員

雖然中心位於屋苑地下，但它的位置十分隱蔽。職員指許多區內長者都不認識中心，未使用過中心提供的服務。加上中心經常緊閉窗戶，使它更不顯眼，難以讓非會員察覺。

設計目標 Design Objectives

是次設計東仔的目標是希望以機械人加強長者與中心之間的溝通。透過改善溝通，東仔亦間接為中心帶來了其他好處，例如提高中心的知名度，使中心在區內廣為人知，並藉此加強中心與社區之間的連繫。

With the above problems defined, the main design objective of Tung Zai is to enhance the communication between the elderly and the centre. By improving the communication, Tung Zai indirectly brings other benefits to the centre such as higher visibility, making it well known in the neighbourhood and ultimately, strengthening the community.

參考技術和研究 References and Studies

由於設計團隊以往沒有設計機械人的經驗，所以在著手設計之前，先研究市場上現有的社交機械人，再為東仔所需的規格和技術定位。這些研究有助長者和職員掌握東仔的概念，將來更容易決定東仔的功能。團隊參考了Paro和Jibo兩款標誌性的社交機械人。透過和它們作比較，團隊能更清晰地闡述在規格和技術方面對東仔的期望。

Since the design team had no experience in designing robots in the past, before embarking on the design journey, researches about the existing social robots in the market were first conducted to help position the specifications and technology required by Tung Zai. These studies could help the elderly and staff to understand the concept of Tung Zai and facilitate the decision-making process on the required functions in the future. Two big marks of social robots in the market, namely Paro and Jibo, were used as references. By comparing Tung Zai with them, the team were able to elaborate on their expectations in terms of specifications and technology level more clearly.

Paro

Paro於1998年「誕生」，是最早期專門為陪伴長者而發明的著名治療機械人之一。它柔軟可愛，能做出眨眼和搖頭等細微的動作。

Paro, created in 1998, is one of the first famous therapeutic robots created specifically to keep company with the elderly. It has a cute character, with soft materials and delicate movements that may include blinking and moving the head.

由於發明Paro的時候，互聯網和人工智能的發展並不及現時先進，所以跟現時市面上的其他機械人相比，Paro算是「低科技」的機械人。

Compared to what is available in the market today, Paro would be considered a “low tech” robot since it was created when internet and AI interactions were not as advanced and accessible as it is nowadays.

如果東仔是類似Paro的機械人，他就會像寵物一般，與長者有較間接的交流。除了能與長者有情感上的互動，他也能成為中心的吉祥物，能向外宣傳中心。

If chose to be closer to Paro, Tung Zai would have to rely on the characteristics of a “pet” and the improvement of communication with the elderly would be more indirect. It would be similar to a mascot, helping to promote the centre and interact with the elderly in a more emotional way.

Jibo

Contrastingly, Jibo is a smart companion with a sleek design created on a crowdfunding platform in 2014. Although it looks like a simple design in terms of shape and materials, its main interface includes talking and replying to questions, making calls and video calls, accessing images. These functions made Jibo a “high tech” robot, with a more complex artificial intelligence and more advanced features.

If chose to be closer to Jibo, Tung Zai would be more independent, closer to a “humanoid” with a stronger personality, thoughts, and more direct ways to talk to the elderly.

After setting those two parameters and with the inclusion of the comments from the elderly centre’s staff the wish was that Tung Zai could be responsive like Jibo but contain the touching and relatable character of Paro.

相對地，Jibo是一個在2014年於眾籌平台上發明的智能社交機械人，具有十分時尚的設計。它的外型和物料雖然簡單，但它可以與人對話、打電話、甚至視像通話。所以，它是一個擁有複雜和先進功能的「高科技」人工智能機械人。

如果東仔類似Jibo的機械人，它會有更獨立、更像人的思想和性格，可以與長者更直接地互動。

探討過Paro和Jibo的特性以及中心職員的意見後，團隊期望東仔能像Jibo一樣與人直接互動，同時與Paro一樣能與人有情感上的連繫。



[8] 設計團隊期望東仔在功能和外形設計上會介乎於Paro和Jibo之間。

Tung Zai is expected to fall between Paro and Jibo in terms of functions and appearance.

參考資料及圖片來源 References and Image from :

PARO Therapeutic Robot. Parorobots.com. <http://www.parorobots.com/>

jibo | Together for you. Jibo. <https://jibo.com/>

關鍵設計考慮因素 Key Design Considerations

考慮到中心長者使用東仔的實際情況，設計團隊為長者中心設計互動機器人時提出以下關鍵的設計考慮：

1. 簡單的使用介面

考慮到長者在操作科技產品的能力，東仔必須有一個易學的介面。它必須容易使用，並能聰明地接收和回覆簡單指令。

因此，設計團隊應用了語音系統，讓東仔能夠將語音解碼、進行詮釋，並作適當的回應。因為長者毋須閱讀文字，而且只用兩個按鈕使可以啟動東仔所有功能，這個簡單的介面可以避免長者與東仔互動時感到迷茫。

團隊設計東仔的使用介面時參考了蘋果、谷歌和亞馬遜的虛擬助理程式，並把這些程式的規模縮小至長者中心適用的程度。

2. 合適的尺寸

另一個關鍵考慮是東仔的尺寸。東仔的大小需要乎合中心的空間限制，而且不能有過高的流動性，否則可能容易釀成意外。

外型方面，由於東仔是一個以電腦程式與長者互動的宣傳角色，他的身體必須能收納所配置的電腦零件。因此，他的外形大約需要是400（寬）x 400（深）x 400（高）毫米。

Consider the actual usage of Tung Zai by the elderly in the Centre, the following key design considerations are suggested by the design team when designing a communicative robot for an elderly centre:

1. Easy-to-use interface

Bearing in mind the constraints of elderly using technology, Tung Zai would have to present an easy-learning interface. It has to be easy enough to have high usability and yet smart enough to decode and reply to the simple commands.

In this way, it was conceived that Tung Zai's best solution for interaction would be the inclusion of a responsive system that can decode voices, interpret and provide the appropriate answer. Since no reading is required and only two buttons could activate all the functions of Tung Zai, elderly are less likely to be confused when meeting Tung Zai.

This concept is based on the interfaces created by Apple, Google and Amazon for virtual assistants, but of course, scaled down to suit the centre's use within the time given to develop the programming.

2. Suitable size

Another key consideration was the size of Tung Zai. Since the centre has a limited space, Tung Zai should have a size that suits the space and cannot be very mobile, otherwise it could be a hazard to the elderly.

Since the concept of Tung Zai involves the creation of a mascot with functions that include responses and reactions generated by computer, its shape has to consider the incorporation of the hardware components. Hence, the general shape is constrained to a case of around 400(W) x 400(D) x 400(H) mm.

3. Monitor as component

To give more realism to Tung Zai, a monitor was added to give it facial expressions. The monitor not only can give it a personality but also can give more functions such as showing images. Taking the deteriorated vision of elderly into consideration, the monitor is suggested to have a minimum size of 7 inches with 16:9 ratio to ensure the high readability of display.

4. Welcoming appearance and personality

With the aim to attract elderly to initiate conversation with Tung Zai actively, Tung Zai would have a welcoming appearance and personality. The language Tung Zai uses would be more human-like and not rigid. It should not only be only reading information but also provide care and warm reminders for elderly.

3. 配備螢幕

為了讓東仔能有更多表情變化，他需要一個螢幕來顯示臉部表情。這個螢幕不僅可以幫助展現東仔的個性，還可以提供顯示圖像等額外功能。考慮到長者視力會逐漸下降，建議螢幕尺寸最小為7英寸，比例為16:9，確保長者能清楚閱讀螢幕顯示的內容。

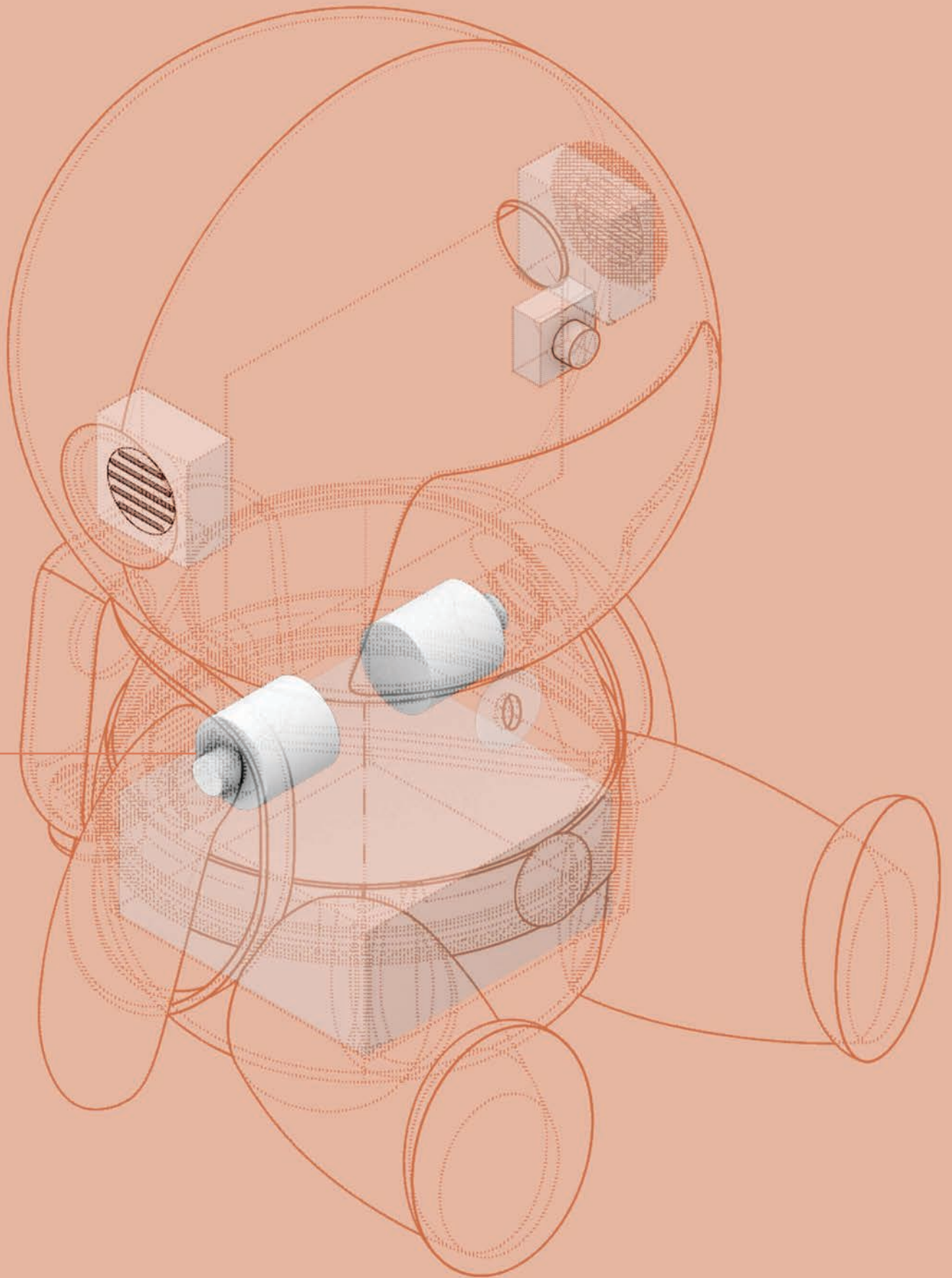
4. 受歡迎的外表和個性

為了吸引長者主動與東仔交談，東仔需要具備受歡迎的外表和個性。東仔需要有人性化的說話語調，而不是死板的聲音。除了提供實用資訊，團隊也期望東仔可以給予長者愛與關懷。

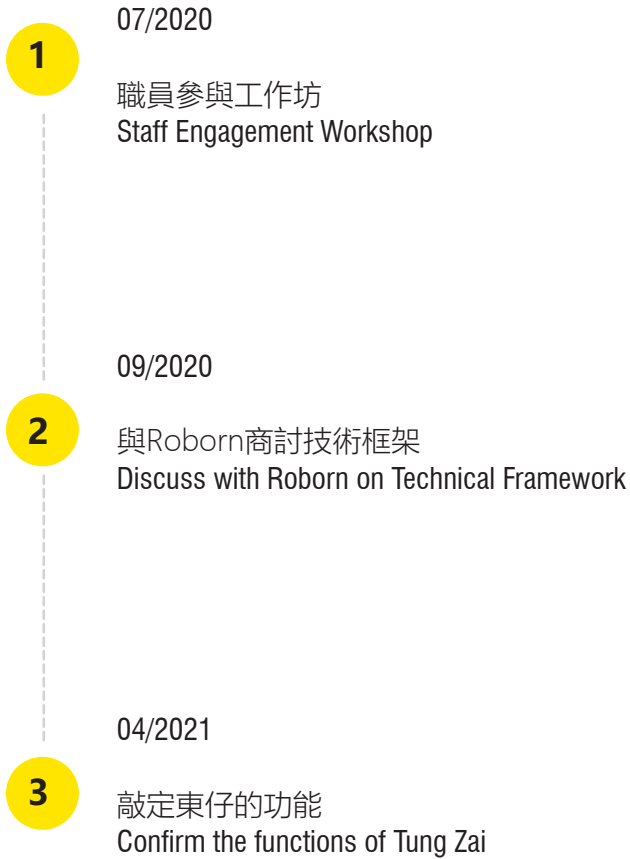
5 設計過程 - 功能

DESIGN PROCESS – FUNCTIONS

Move
活動



設計過程 - 功能 DESIGN PROCESS – FUNCTIONS



5.1 職員參與工作坊 Staff Engagement Workshop

Before talking to the elderly, a workshop was made with the centre staff and the design team. The design team presented the key design considerations to the staff based on the previous stage of research. These provided the staff with the basic concepts of what the purpose of Tung Zai is and allow them to imagine what they want Tung Zai to be able to do. The aim of the workshop was to understand the staff's expectations towards Tung Zai.

During the Staff Engagement Workshop, the staff of the centre talked about their wishes about Tung Zai's functions. These wishes were then categorised into three groups, namely programming functions, hardware specifications, and conversation content. After organising their wishes, it was clearer for the team to know how the programme should be developed.

在了解長者的想法之前，設計團隊先為中心職員舉辦了一個工作坊。團隊向職員展示了前期研究的關鍵設計考慮，讓職員對東仔的設計目標有基本的概念，再與他們討論東仔應該具備什麼功能，收集及組織他們對東仔的期望。

職員首先將各種期望列出，並分成程式功能、硬件規格、及對話內容三個類別。整理好這些期望後，設計團隊對如何設計東仔的程式有更清晰的概念。



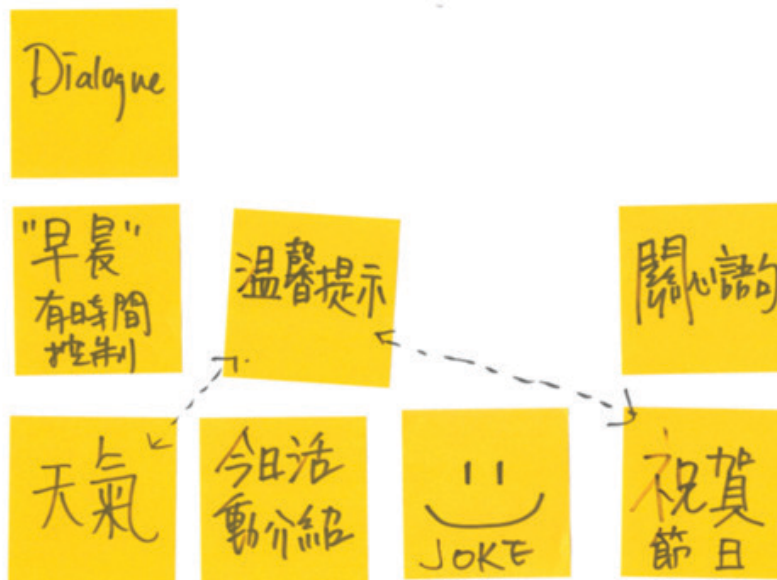
[9] 中心職員期望東仔可以做的事，例如可報告即時天氣資訊、看月曆等。

Things that the Centre staff wished Tung Zai could do, such as reporting real time weather information, reading the calendar, etc.



[10] 中心職員期望東仔有的規格及配置，包括有按鈕、可調教聲量等。

Specifications that the Centre staff wished Tung Zai would possess, including buttons, adjustable sound volume, etc.



[11] 中心職員期望東仔懂得對答的話題，如笑話、中心的活動介紹等。

Topics that the Centre staff wished Tung Zai could discuss about, such as jokes, centre's activities recommendations, etc.

After discussion with staff at the Staff Engagement Workshop, it is concluded that the staff wished that Tung Zai could assist them in answering questions elderly usually ask, and offering them useful information. Moreover, they also wished that Tung Zai could cheer elderly on the days they are feeling down. Summarising the opinions gathered in this workshop, it is expected that Tung Zai could talk about the following 5 topics:

1. Weather:

When asked about the weather, Tung Zai is expected to give the current temperature and some useful reminders.

2. Centre's activities:

When asked about the activities of the centre, Tung Zai is expected to answer with the centre's schedule according to the staff's input.

3. Directions:

When asked about the location of a certain place, Tung Zai is expected to reply with the directions to the requested place.

4. Jokes:

As a way to brighten the day and provide some emotional support, Tung Zai is expected to have a function of telling jokes.

5. Games:

With the use of the screen, some games and stories are expected to be installed, offering an extra activity or interaction between elderly and Tung Zai.

經過這次職員參與工作坊的討論，職員期望東仔能夠協助他們解答長者經常查詢的問題，並為長者提供有用資訊。此外，他們亦希望東仔能在長者失落時為他們打氣逗樂。工作坊結束後，設計團隊根據職員的意見初步整理出東仔五類對話內容：

1. 天氣:

當長者查詢天氣時，東仔能讀出溫度並提供有用的建議。

2. 中心活動:

當被問及中心的活動時，東仔能夠按職員預先輸入的活動時間表提供解答。

3. 交通:

當長者向東仔查詢某個地點的交通路線時，東仔能夠解答前往該地點的方法。

4. 笑話:

東仔會講笑話逗樂長者，給予長者情感上的支持。

5. 遊戲:

可以利用東仔的螢幕播放故事或進行遊戲，讓長者可以與東仔有另一種形式的互動。

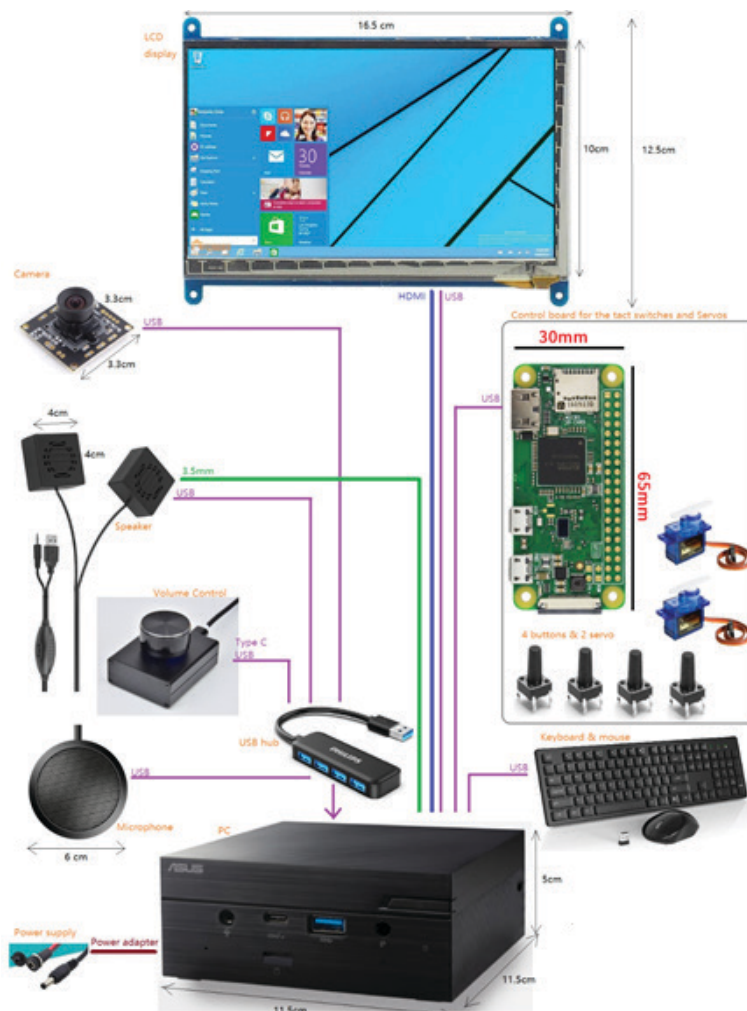
5.2 與Roborn商討技術框架 Discuss with Roborn on Technical Framework

職員參與工作坊結束後，設計團隊整理好職員的期望，便與技術顧問Roborn商討如何實現各個功能。

探索過不同做法的可行性後，Roborn為東仔搭建出一套基本的硬件設備，並向設計團隊介紹他們建議使用的技術框架。

After the Staff Engagement Workshop, the design team organised the ideas generated from the workshop and discuss with Roborn, the technical consultant, about how to realise those functions.

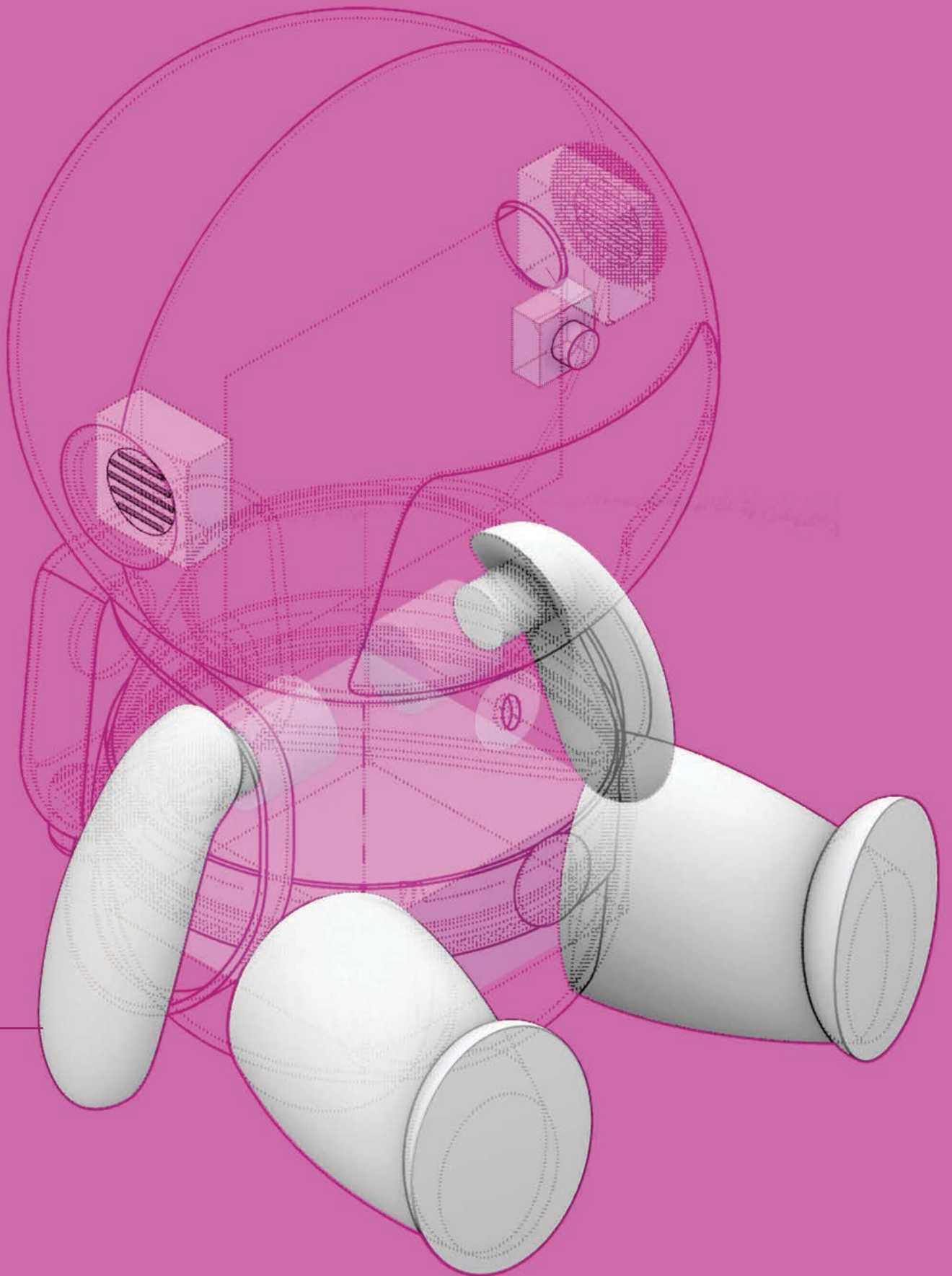
With different possibilities explored, Roborn suggested a set of hardware for Tung Zai and proposed a technical framework for the design team.



[12] Roborn建議東仔應配置的硬件設備包括中央處理器、螢幕、收音咪、喇叭、按鈕等。
The suggested set of hardware for Tung Zai include a CPU, a screen, a microphone, a pair of speakers, some buttons, etc.

6 設計過程 - 外形及性格

DESIGN PROCESS – CHARACTER



設計過程 - 外形及性格 DESIGN PROCESS – CHARACTER



6.1 前期研究 Preliminary Research

At the beginning of the project, the design team first studied how to develop and create characters. The team made some studies about Pokémon characters, on their diversity of styles and simplification of shapes. It is known that some of them were drawn with simple lines and shapes based on the characteristics of real animals. Hence, the team experimented creating characters starting from simple shapes.

在項目初期，設計團隊先著手研究如何創造一個角色，為東仔設計外形。團隊研究了一些寵物小精靈角色，參考它們多樣的風格和簡單的形狀。眾所周知，部分寵物小精靈角色是以動物為基礎，以簡單的線條和形狀呈現牠們的特徵。於是，團隊嘗試以寵物小精靈的角色為藍本，從簡單的形狀開始創造角色。



[13] 寵物小精靈角色巨翅飛魚是以非常簡單的形狀呈現出魔鬼魚的姿態。

Mantine, a Pokémon character that resembles a giant oceanic manta ray, simplified into a very simple shape.



[14] 寵物小精靈角色咕咕是由簡單形狀設計而成的貓頭鷹。眼部的細節充分展現其個性。

Hoothoot, a Pokémon character that looks like a brown owl but with an abstract drawing. Some details were added near the eyes to create the character's personality.

圖片來源 Image from :

The Official Pokémon Website. Pokemon.com. <https://www.pokemon.com/us/pokedex/>

Dive Magazine. Manta Cephalic Lobes Communicate - Dive Magazine.

<http://divemagazine.co.uk/eco/9281-manta-cephalic-lobes-communicate>

3dddpictures.com. <https://www.3dddpictures.com/products/a-54-brown-owl>

團隊在研究的過程中發現，不同的形狀都具有不同的象徵意義。例如：

- **長方形**象徵強壯、堅硬、規矩、穩定等；
- **圓形**象徵柔軟、無害、流動性、完美、純真等；
- **三角形**具階級意味、方向性，象徵前衛、強壯基礎、與眾不同等；
- **正方形**有穩定、無聊、平凡、固定等意味。

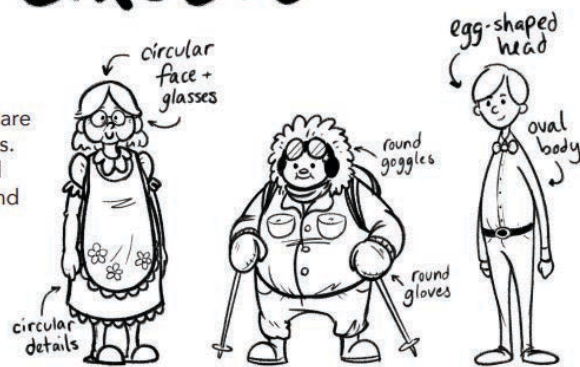
In the research stage, the design team found that different shapes embody different symbolic meanings. For example,

- **Rectangles** can be associated with the idea of strong core, duality, modularity, and stability.
- **Circles** can be associated with the idea of softness, harmless, fluidity, perfection, and innocence.
- **Triangles** can be associated with edgy, strong base, unusual, hierarchical, and directional.
- **Squares** can be associated with stability, boring, even, and less mobile.



CIRCLES

TECHNIQUE: Circles are organic and natural shapes. Round out edges and add curves to evoke a warm and welcoming feeling.



SQUARES

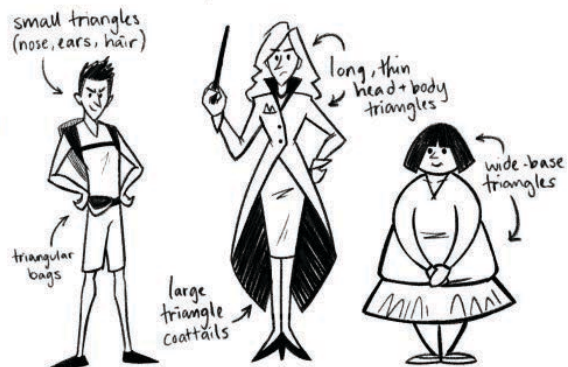


TIP: Square off things like jaws, shoulders, and even hands—they not only feel strong, but can feel difficult to move.



TRIANGLES

TIP: Triangles are sharp. Exaggerating the size and length of these shapes can heighten fear and transform how menacing the character is.



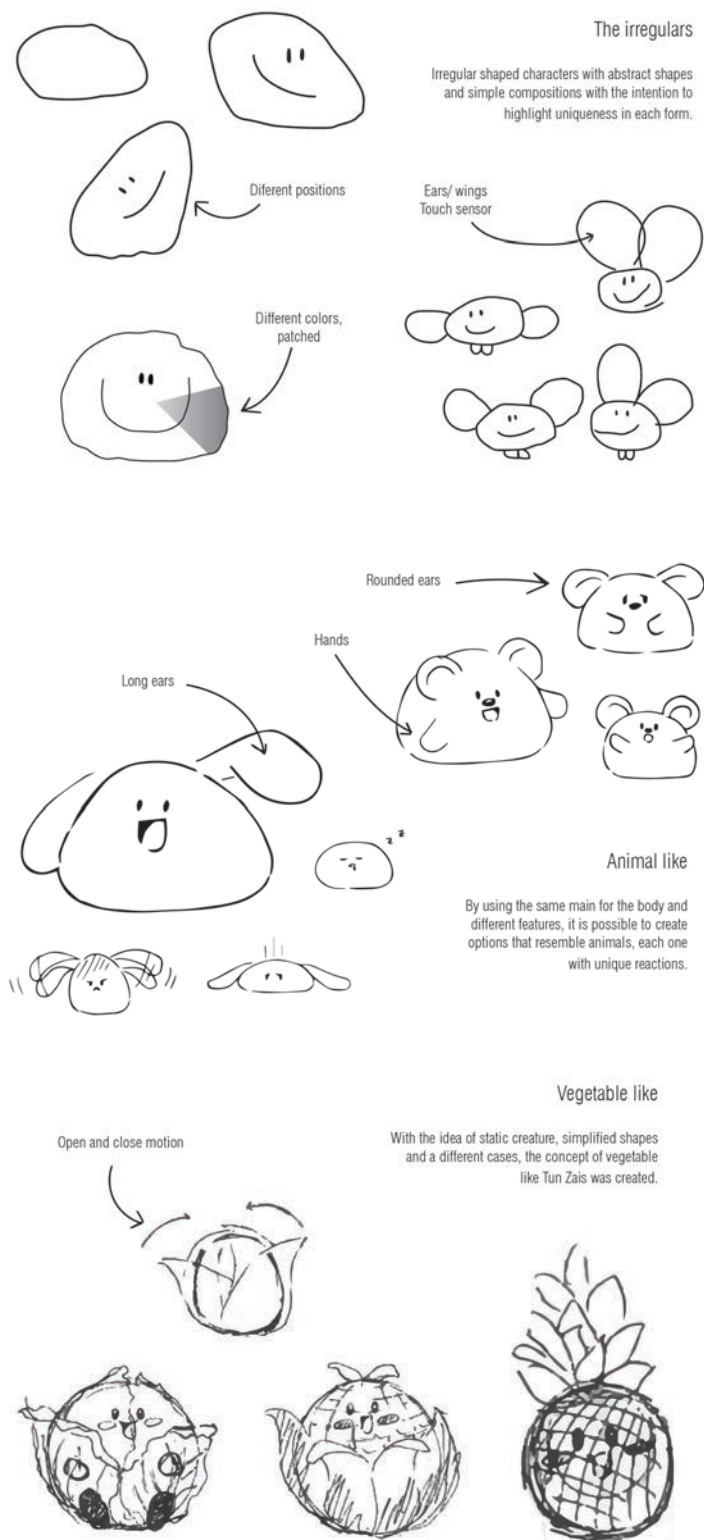
[15] 使用形狀來創造角色的技巧十分普遍，例如部分迪士尼的動畫角色也會用到這種設計方法。

It is usual to use shapes for the conception of characters. For example, animation characters like the ones created by Disney.

參考資料及圖片來源 References and Image from :

Arash Naghdi. Shape language character design [Complete Guide 2021] + Examples.

<https://dreamfarmstudios.com/blog/shape-language-in-character-design/>



[16] 設計團隊嘗試從不規則形狀（上）、動物（中）及蔬菜的概念（下）來設計東仔。
 The design team tried to make sketches of Tung Zai based on irregular shapes (top), concepts of animals (middle) and vegetables (bottom).



[17] 「小薯仔」的設計。
The design of “Small Potato” Tung Zai.

The first characters were mostly sketches, with random trials to visualise what type or character it could be - related to an abstract things, to animals or to vegetables.

The second trial was parting from the design team's idea of what an interesting shape and character could be. Something that could illustrate what Tung Zai could be and how it could react/ show emotions so a discussion could be opened with all parties - JCDISI, Roborn, the Centre and the elderly. From that trial, was born a plant like Tung Zai “Small Potato”.

Its shape is simplified into a single form with no differentiation between head and body and its movements are thought through the expansion of the body stretching in different patterns as well the movement of the petals.

最初的設計大多只是草圖，讓設計團隊通過隨機試驗來想像東仔可能是什麼類型或角色——抽象的事物、動物或蔬菜等都有可能。

第二輪的設計與團隊認為有趣的形狀和特徵有些不同。團隊加入了一些可以說明東仔可能是什麼，以及它會作出什麼反應/表現情緒的特徵，繼而與其他合作夥伴展開討論——JCDISI、Roborn、中心和長者。就這樣，「小薯仔」便誕生了。

「小薯仔」的形狀十分簡單，頭部和身體合成一體。它的動作和情緒能通過伸展身體和活動葉片表現出來。

「小薯仔」的設計概念

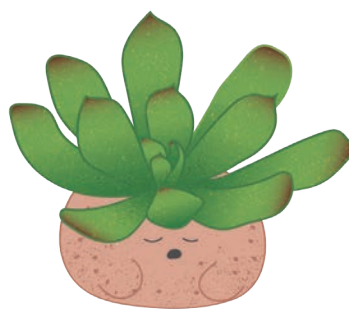
- 「小薯仔」在陽光下會打瞌睡，因為陽光能使可愛的「小薯仔」平靜下來。
- 「小薯仔」頭頂的葉子會根據它的情緒做出反應，例如高興時會更顯得更亮綠。
- 當「小薯仔」尋求關注時，它的葉子會豎起來，看起來會變得更高。
- 當「小薯仔」害羞時，會以樹葉遮臉，隱藏通紅的臉。
- 「小薯仔」在盆栽植物中生長，所以不能獨自走動，需要別人帶它散步。它非常友善，享受與別人一起的時光。

Design Concept of “Small Potato”

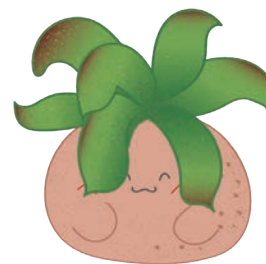
- “Small Potato” can be seen napping in the sunlight. Sunlight is something that calms down the lovable “Small Potato”.
- It has some leaves on the top of the head that react according to its emotions, which will be brighter and greener when it is happy.
- When it is seeking for attention, its leaves spike and “Small Potato” suddenly looks taller.
- When it is shy, the leaves will cover its face, hiding the blush and the smile of “Small Potato”.
- “Small Potato” lives in a pot plant and since it can’t walk alone, it needs to be taken for a walk sometimes. It is very friendly and enjoy people’s company.



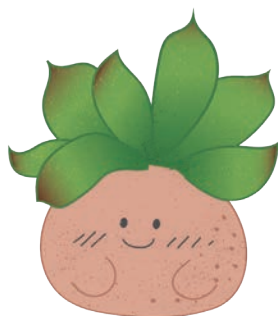
唱歌/說話
Singing/ Talking



困倦
Sleepy/ tired



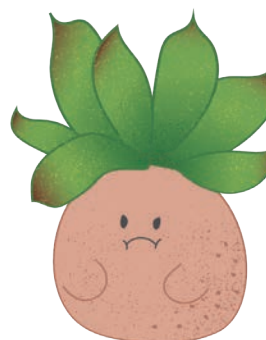
害羞
Shy



等待
Waiting



快樂
Happy



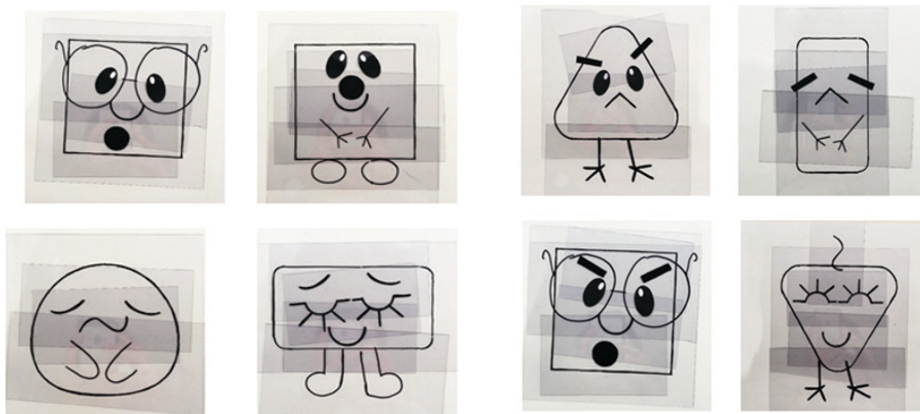
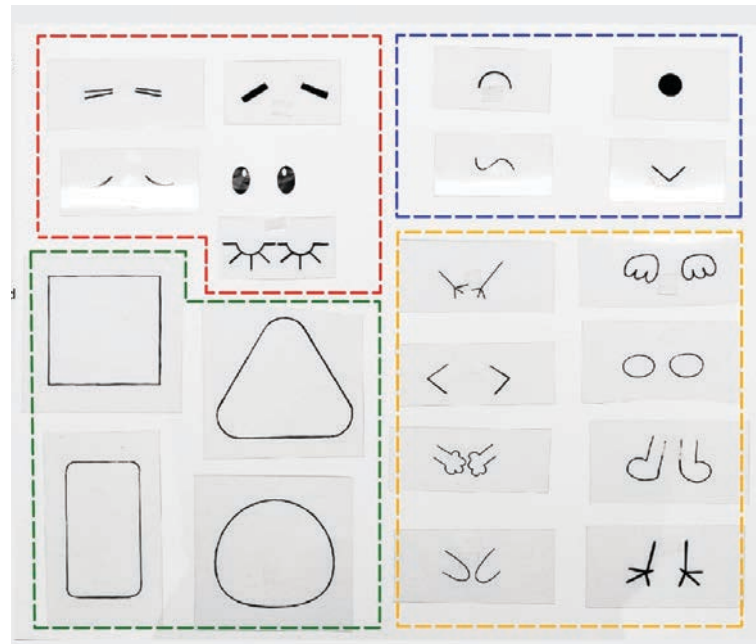
不耐煩
Impatient

[18] 其中一個東仔的可能設計 —— 「小薯仔」。
One of the possible design of Tung Zai - “Small Potato”.

工作坊材料包設計 Design of workshop material set

At the beginning of the user engagement stage, the design team preferred not to provide a couple of options right from the start but to let the users randomly throw their ideas. To encourage users to imagine and communicate their idea of Tung Zai, the team believed that it would be easier for the users to have something more developed in hand than drawing from scratch. Therefore, a set of simple shapes were prepared for elderly to assemble a character they like using their gut feeling.

相較一開始便讓長者從數個設計中選擇較喜愛的一個，設計團隊更希望可以讓長者先隨意拋出自己的想法。對於長者而言，要在空白的畫紙上繪畫出自己心目中的東仔並不簡單。為了幫助長者想像和更清晰地表達意見，團隊因此準備了一些簡單的形狀，讓長者靠直覺拼湊出自己喜歡的模樣。

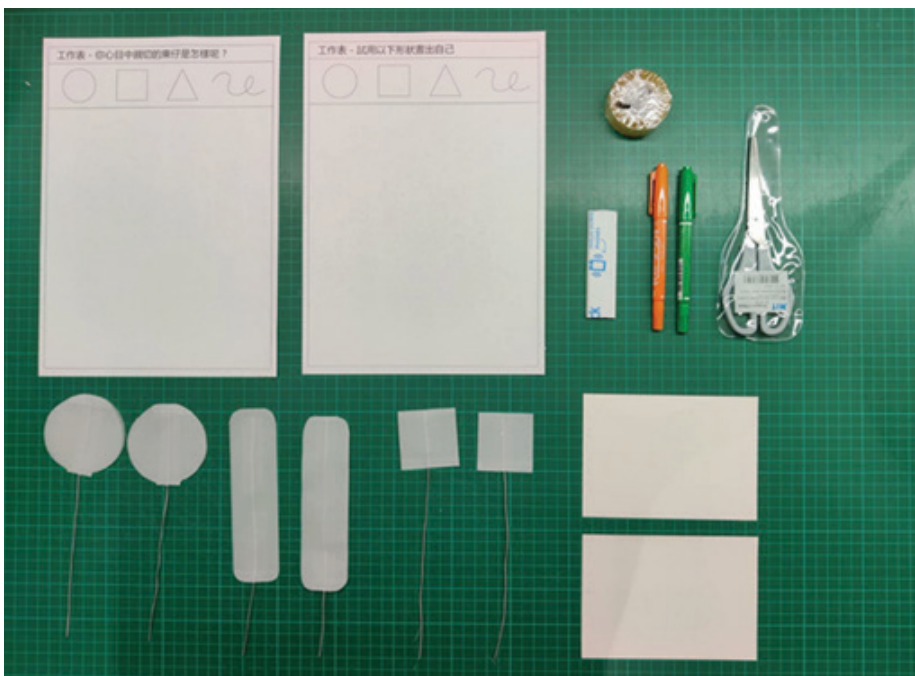
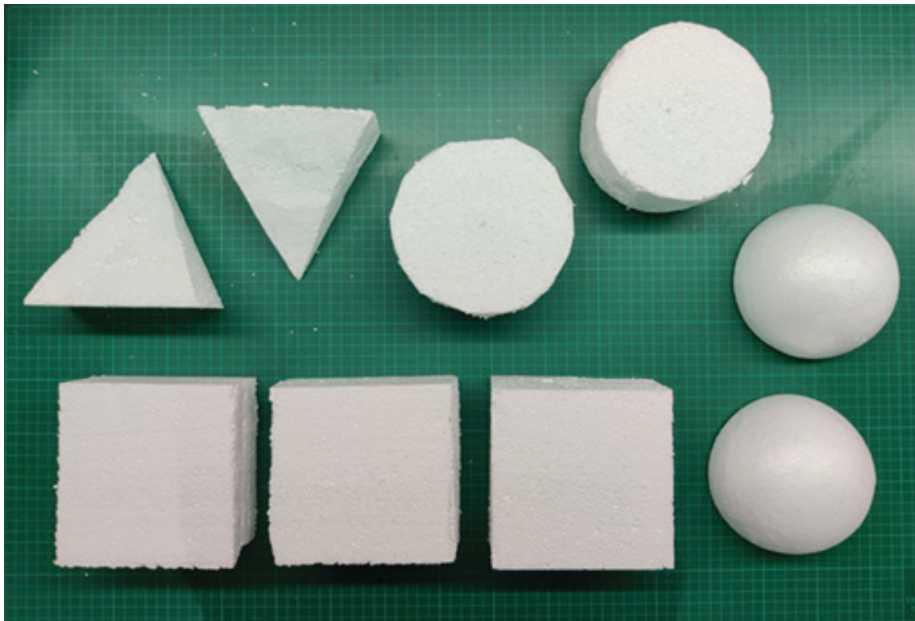


[19] 最初的工作坊工具設計是以平面的圖形拼湊出不同角色，不同的特徵可以為角色帶來不一樣的性格。

The initial workshop design was to combine some 2D shapes to make some characters. Different features could add a different personality to the character.

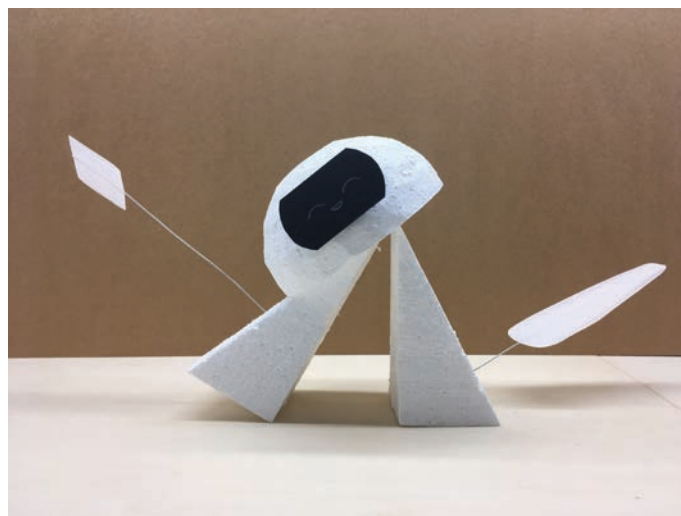
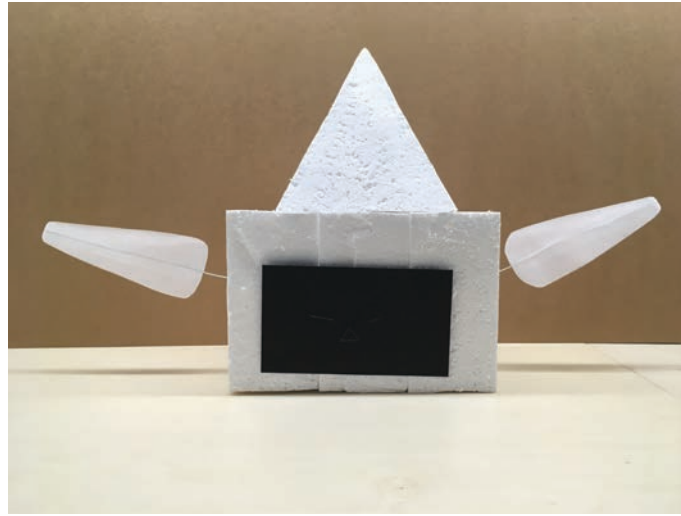
及後，設計團隊改用白色的立體模型，讓長者自由組合和塑造理想的東仔，給他們更大的發揮和想像空間。在用家參與工作坊 1 和 2 中，參加者都有使用到這組立體模型，讓團隊了解長者的想法。

The set was then further upgraded to some white 3D models to act as white canvas for the elderly to imagine and create on their own characters by assembling and sculpting the shapes. This set of shapes was used in both User Engagement Workshop 1 & 2 to collect insights on the appearance of Tung Zai from the elderly.



[20] 材料包最後包含活動工作紙、立體形狀模型、以及一些讓用家自由裝飾東仔的部件。

Final version of the toolkit includes some worksheets, basic 3D shapes and features that could be modified according to the users' wish.



[21] 這些立體模型可以拼湊出不同組合，而使用不同的形狀會讓角色有不一樣的個性。
Different combinations can be formed with the set of shapes, while the use of a different shape may present a different personality of the character.

6.1 用家參與工作坊 1 及 2 - 構思設計 User Engagement Workshop 1 & 2 - Brainstorming

用家參與工作坊1和2的主要目的是了解長者對東仔的期望和設計構思。透過向他們展示和說明東仔的基本功能，長者可以發表對東仔各方面的期望。

工作坊1順利地在中心舉行，而工作坊2則因受疫情影響移師至網上以視像會議應用程式進行。兩次工作坊分別有五位和八位長者參加。在工作坊2之前，團隊請中心職員幫忙將材料包郵寄到長者家中，提高長者在工作坊的參與度。

The objective of User Engagement Workshop 1 & 2 was to understand the elderly's expectations towards Tung Zai, on both appearance and functions. By showing and explaining to them the basic functions of Tung Zai, the team was able to get feedback and insights from the elderly.

Workshop 1 was held physically at the Centre, whereas Workshop 2 was held virtually on online conferencing app due to the epidemic situation. There were five and eight elderly participating in the two workshops respectively. The workshop material sets were mailed to the elderly before Workshop 2 with the aim to enhance their participation since face-to-face workshops were impossible at that time.



[22] 用家參與工作坊2受疫情影響，改在網絡上以網上視像會議應用程式進行。

User Engagement Workshop 2 was held online via online conferencing app due to COVID-19.

The rundown of Workshops 1 and 2 are almost the same. Firstly, the workshops start with two ice-breaker activities. In the first activity, elderly were invited to draw themselves or other participants using simple shapes. This exercise allowed the elderly to translate complex three dimensional visuals to simple two dimensional shapes, warming up their creativity. For the second ice-breaker activity, participants had the freedom to individually draw and conceive their idea of Tung Zai and explain their idea behind it.

工作坊1和2的流程大致相同。首先，工作坊有兩個熱身活動。在第一個熱身活動中，長者嘗試以不同形狀繪畫自己或其他參加者的樣子，將複雜的立體視覺效果轉化為簡單的平面圖像。這個活動有助激發他們的創意，以便進入下一個活動。第二個熱身活動讓長者自由地繪畫出心目中東仔的模樣，並解釋其背後的想法。

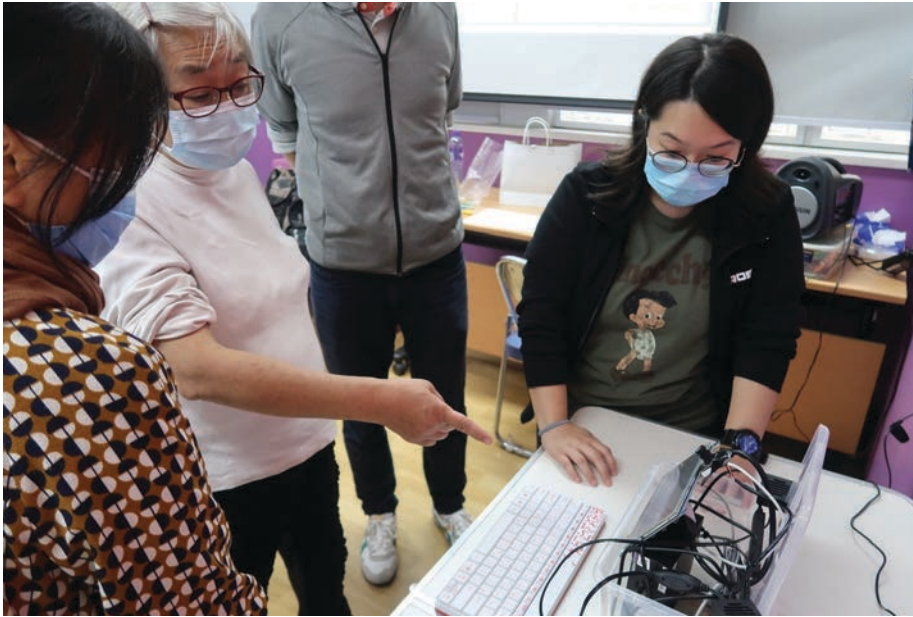


[23] 長者在熱身遊戲中介紹自己繪畫的角色。

Elderly introducing the characters they have drawn during the ice-breaker activity.

熱身活動結束後，設計團隊向參加者介紹一些東仔的功能，並用基本的零件示範操作東仔。了解過東仔能做到的事後，長者進一步分享他們對東仔的期望和想法。

After the ice breakers, participants were introduced to the functions of Tung Zai and tested the initial prototype of Tung Zai with the basic “organs”. Once learned about the functions, users discussed their expectations and thoughts on Tung Zai.



[24] 長者嘗試操作東仔的原型，並提出意見。

Elderly tried using the prototype of Tung Zai, then commented on it.

最後，長者用設計團隊預備好的材料包，組合出他們理想的東仔。完成後，長者各自解釋了自己的構思、期望東仔有的優點和特徵等。

The last part of the workshop consisted in building what their ideal Tung Zai is with the material set prepared by the design team. Once assembled, the elderly explained their intentions, strengths and characteristics given to and expected from Tung Zai.



[25] 長者在用家參與工作坊1製作心目中理想的東仔。
Elderly building their ideal Tung Zai at User Engagement Workshop 1.

工作坊結束後，設計團隊從以下兩方面進行分析：

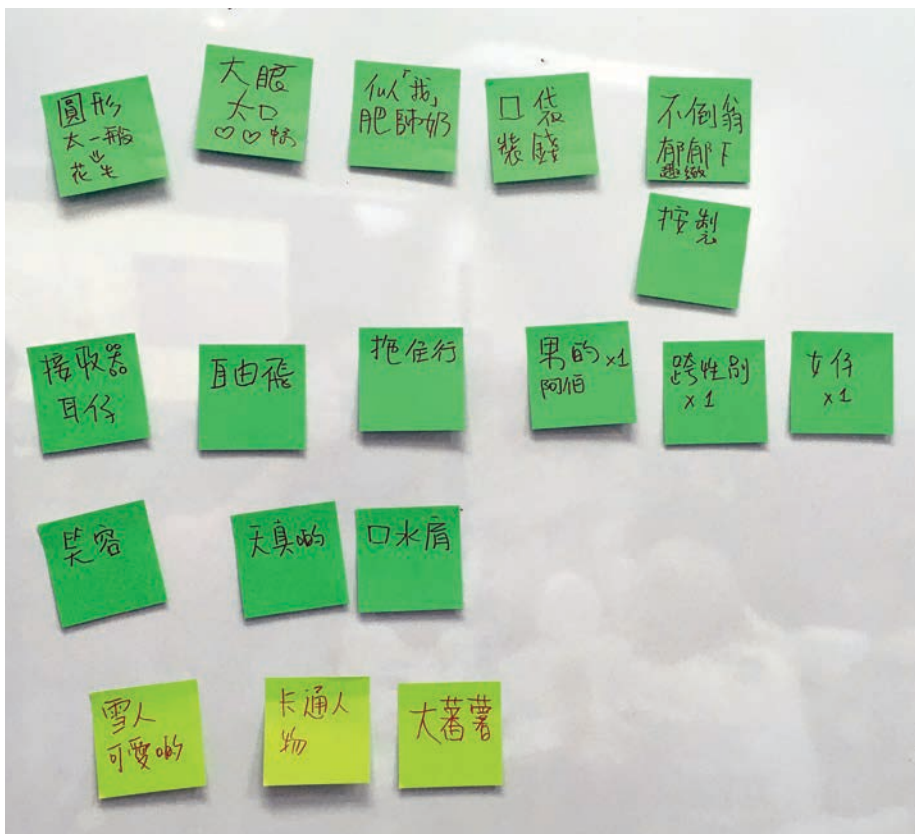
- 參加者製作的模型所呈現的特徵：長者選用的形狀、模型各個部分的意念（如頭、手腳、耳朵）等。
- 參加者對東仔的描述：長者描述他們對東仔的期望和意向時所使用的關鍵詞。

分析結果顯示，長者還期望東仔可以自由走動、有樂天的性格、喜歡與長者一起玩耍。大部分長者想像東仔是一個擁有小朋友或動物外觀的角色，通常有圓形的臉蛋及穩健和強壯的身體。

After the workshops, the design team analysed the outcomes according to:

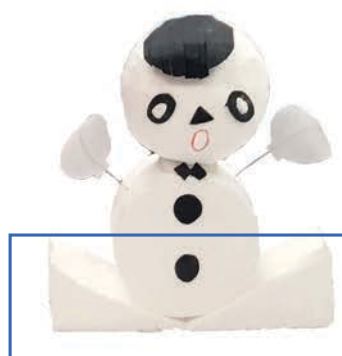
- Features presented on the models made by participants, i.e. which ones had legs and round heads, ears, hands, which shape was more present, etc.
- Description of Tung Zai, i.e. which were the keywords used by the elderly to describe their wishes and intentions to the little robot's personality.

Most of the results included the expression of mobility and freedom of the character, optimism, always smiling and welcoming the elderly to play with it. The elderly also expect Tung Zai to be a character that had a humanoid or animal appearance, usually with a round face and a very steady and strong body.



[26] 從長者介紹自己創造的東仔時摘錄到的關鍵字，包括大眼睛和大嘴巴、接收器耳朵、可以自由飛翔等。

Keywords abstracted from the explanations that the elderly gave to their Tung Zais, including having big eyes and big mouth, having ears as receptors, being able to fly freely, etc.



[27] 雖然長者製作的每個東仔都各有特色，但他們的設計概念上也有一些共通點。例如，他們會有不同形態的手腳、有一個可活動（紅色）或不可活動（藍色）的基礎。
All Tung Zais were different and yet they had some characteristics in common. For example, they had some sort of arms and legs, some with the idea of mobility (in red) and some more static (in blue).

6.2 初步外形設計 Initial Character Design

用家參與工作坊 1 及 2 結束後，設計團隊根據所得的意見繪畫出四個初步設計。四個設計由不同的藍本發展而成：

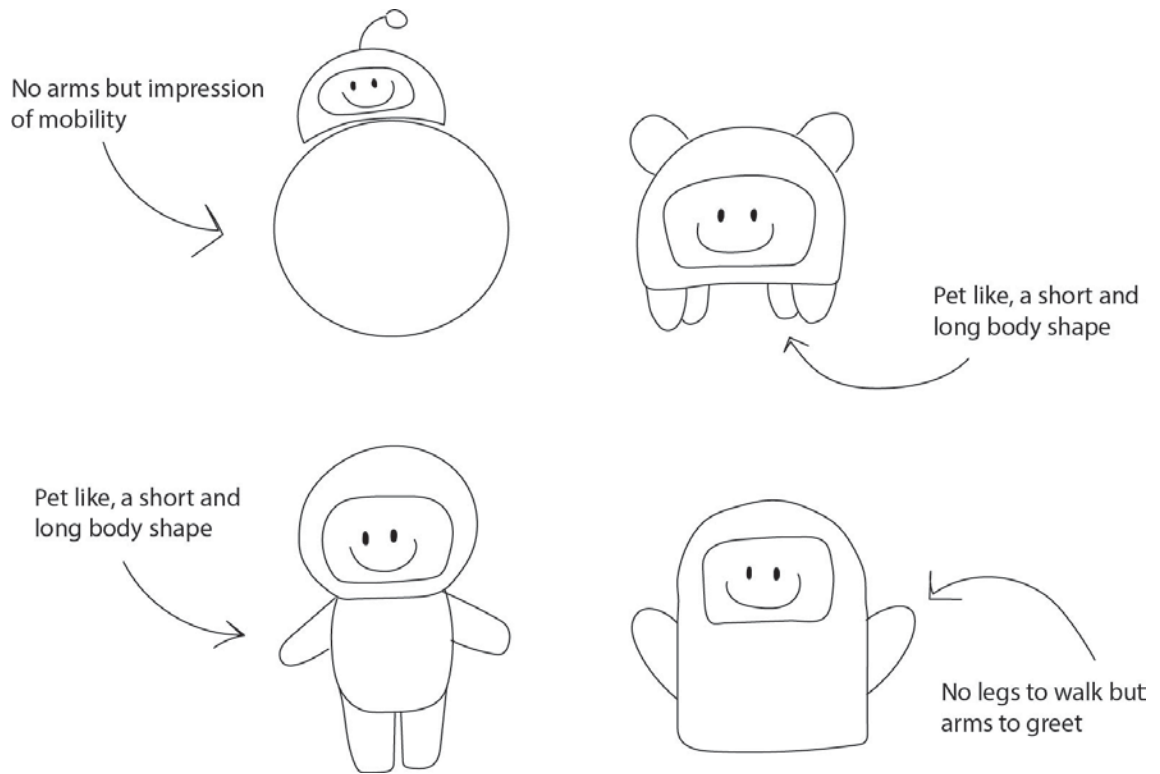
1. 小孩模樣「太東人」
2. 植物模樣「苦瓜東」
3. 動物模樣「擺尾東」
4. 雪人模樣「不倒東」

在這個階段，設計團隊為每個角色設計獨有的個性和表情。四個設計經過整理和命名後，具有不同的特徵和顏色，成為獨特而完整的角色。

After User Engagement Workshop 1 & 2, the design team sketched four initial character designs based on the comments collected. The four designs are developed from different blueprints:

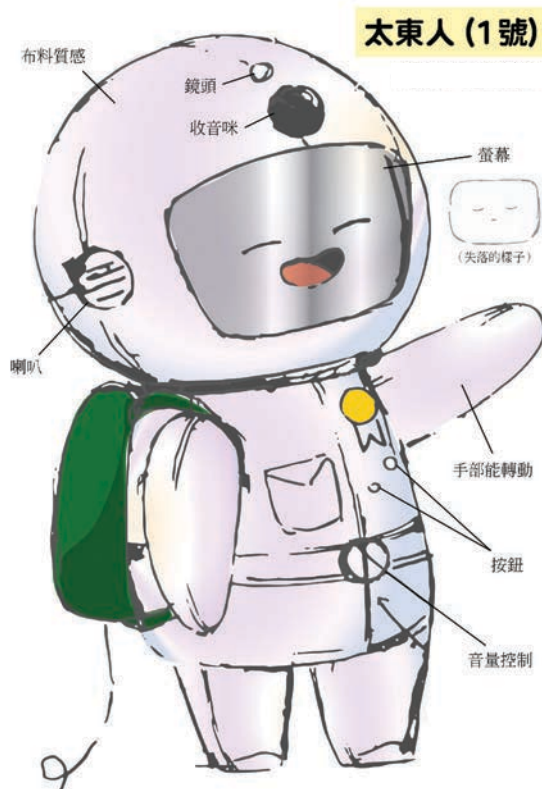
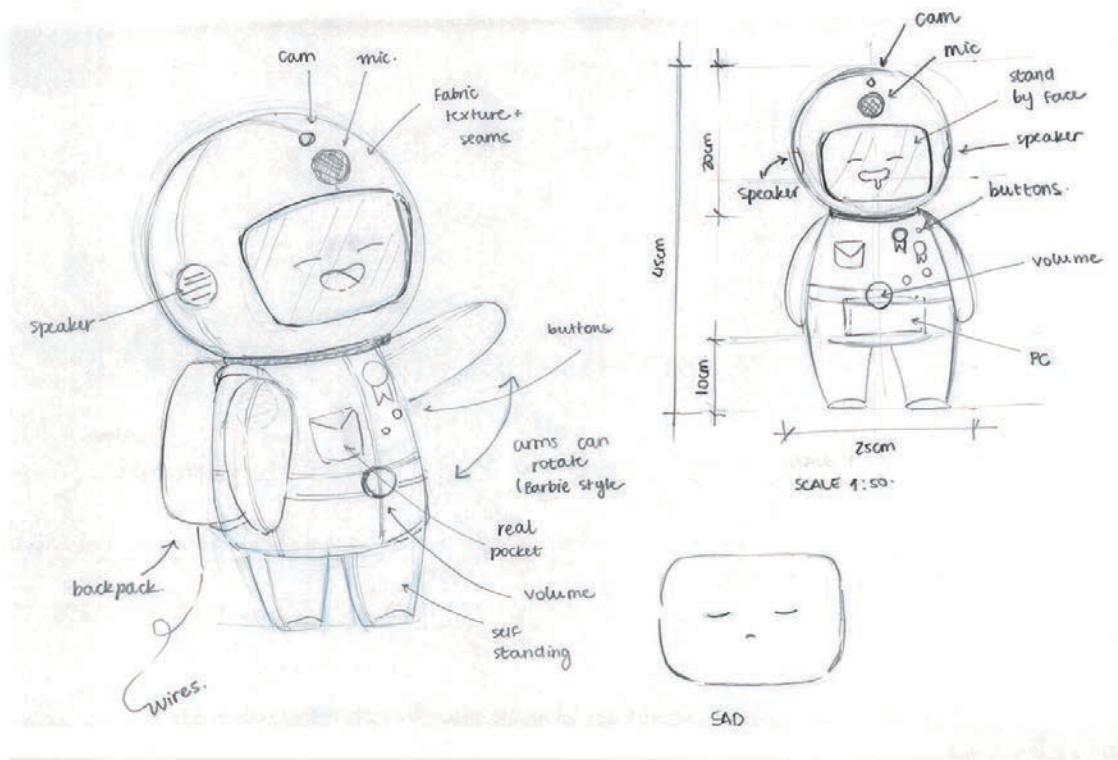
- Child-like shape “Astronaut”
- Plant-like shape “Cactus”
- Animal-like shape “Doggie”
- Snowman-like shape “Wobbly Man”

In this stage of development, each character started to have its own personality and facial expressions. Finally, each of the options was rearranged, named and became a unique and complete character, with distinct features and colours.



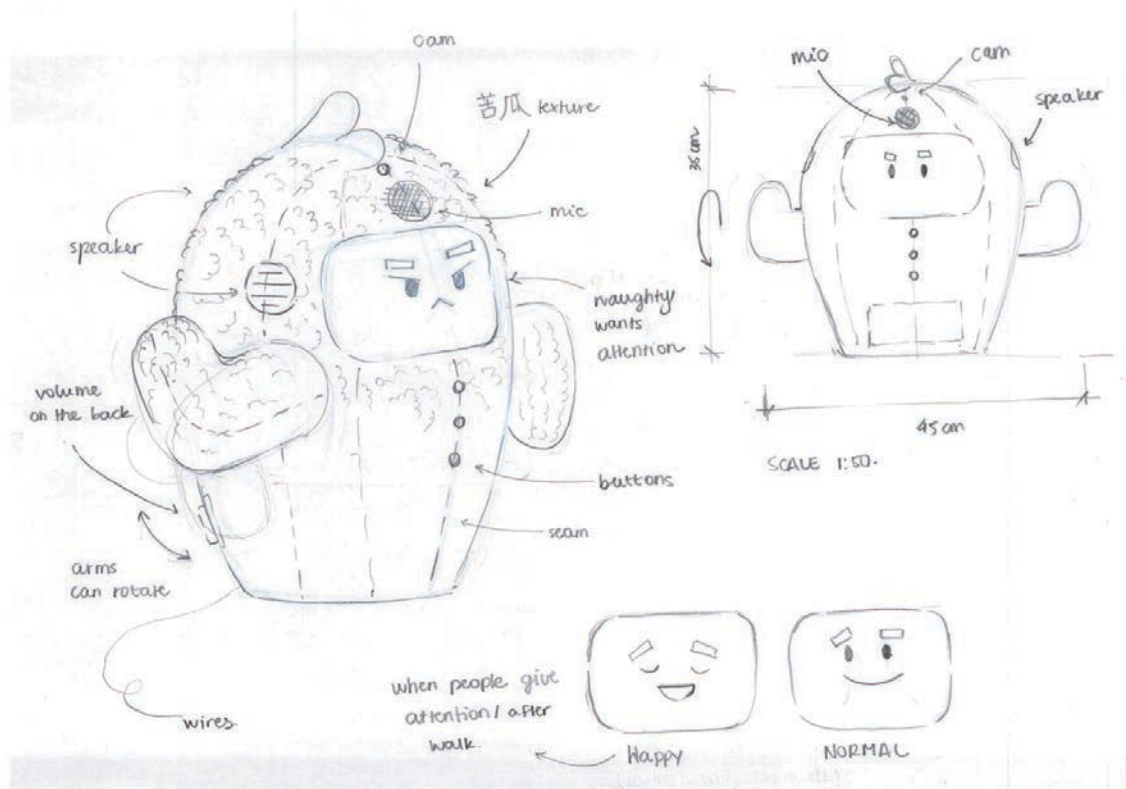
[28] 四個東仔最初的草圖雖然有不同的型態，但他們有一樣的個性。

Some of the very initial sketches for Tung Zai, with variations of body shape but same personality.

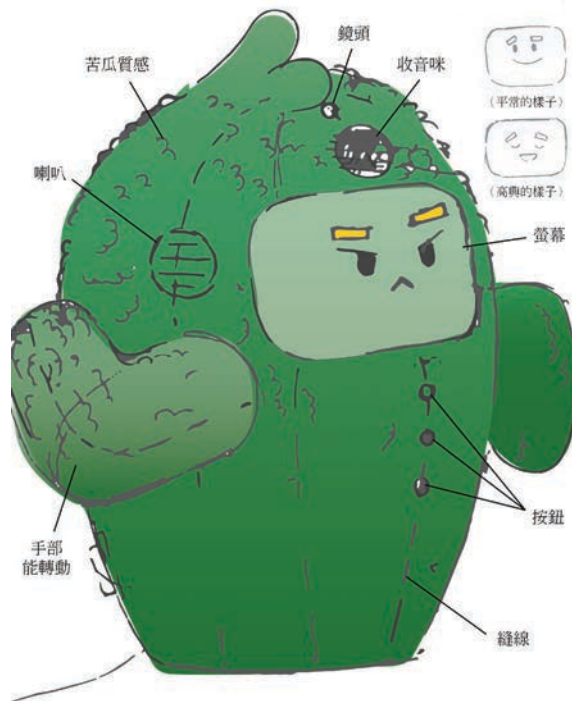


[29] 「太東人」的手繪草圖（上）及彩色設計圖（下）。

Hand sketch and details (top) and coloured design (bottom) of the "Astronaut".

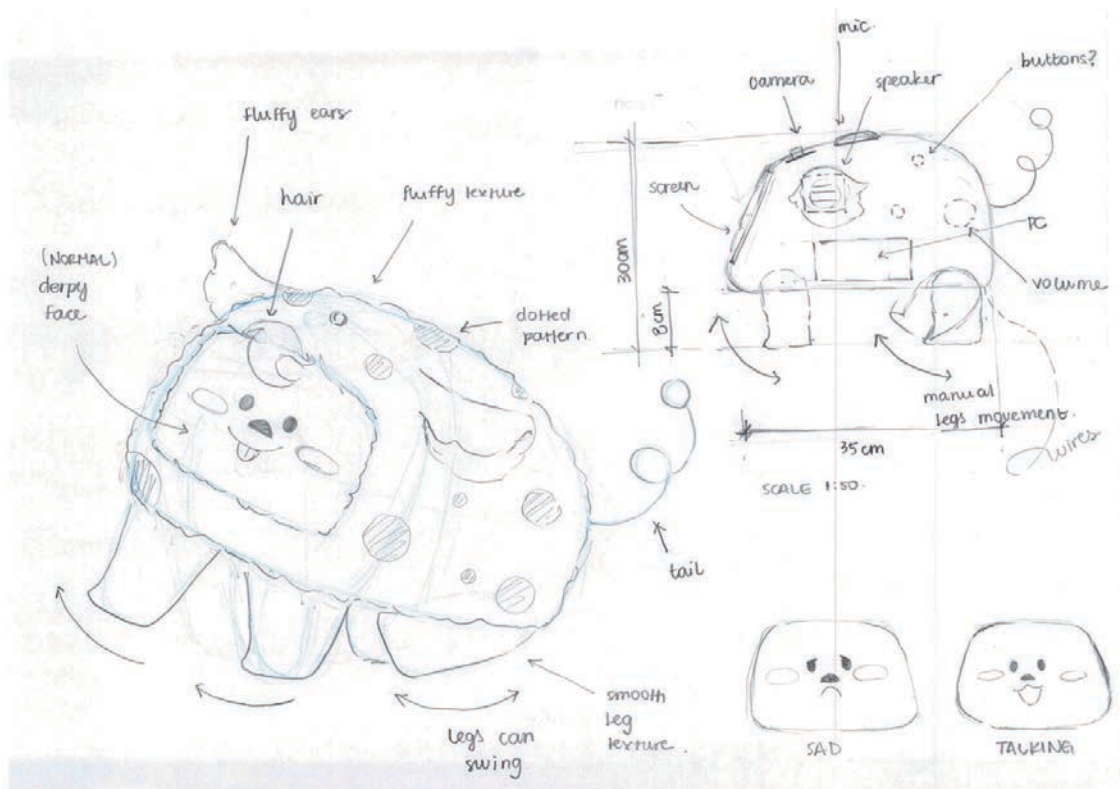


苦瓜東 (2號)

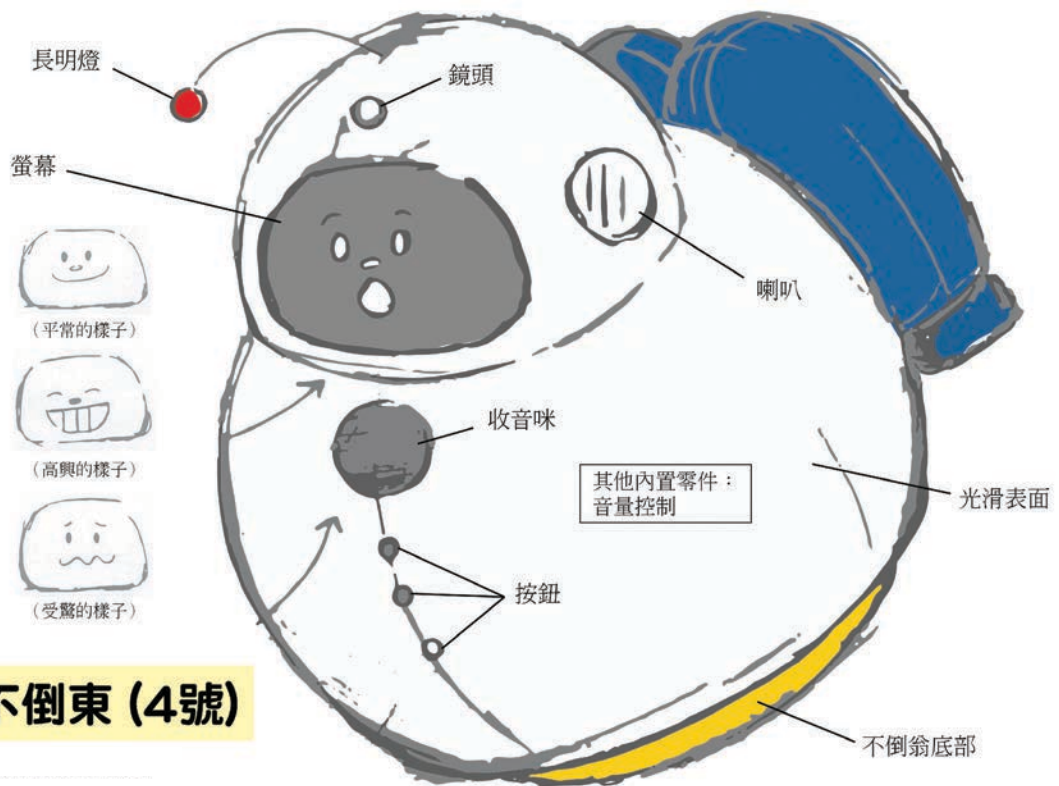
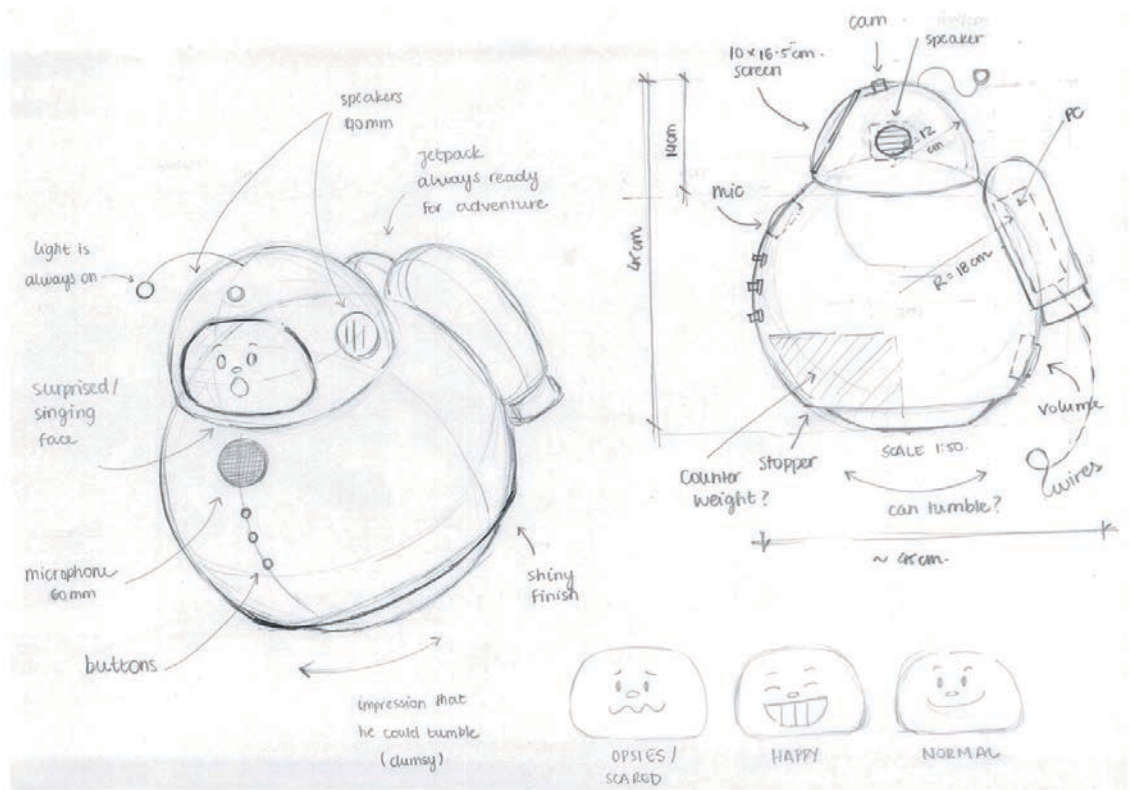


[30] 「苦瓜東」的手繪草圖 (上) 及彩色設計圖 (下)。

Hand sketch and details (top) and coloured design (bottom) of the "Cactus".



[31] 「擺尾東」的手繪草圖 (上) 及彩色設計圖 (下)。
Hand sketch and details (top) and coloured design (bottom) of the "Doggie".



不倒東 (4號)

[32] 「不倒東」的手繪草圖 (上) 及彩色設計圖 (下)。

Hand sketch and details (top) and coloured design (bottom) of the “Wobbly Man”.

6.3

用家參與工作坊 3 及 問卷調查 - 收集意見 User Engagement Workshop 3 & Questionnaire - Feedback Collection

用家參與工作坊3旨在收集長者對四個初步外形設計的理解和意見，以便進一步就他們的偏好修改東仔的設計。

這次工作坊，長者不再需要設計東仔，而是由設計團隊向長者和職員介紹四個初步設計。長者只需要完成設計團隊發放的問卷，讓團隊分析這些設計是否能向長者傳達正確的意念。團隊更邀請長者和職員從四個設計中挑選出他們最喜歡的一個，並說明其中的原因。

受疫情影響，工作坊3透過視像會議應用程式於網上進行。透過與長者交談，設計團隊能更有效地收集意見，了解長者的想法。然而，由於能使用視像會議應用程式進行交流的長者人數非常有限，工作坊3只有11位長者參與。因此，設計團隊再透過向中心會員發放問卷來收集更多意見，讓更多長者能發表自己的意見。

設計團隊準備了50套意見收集問卷，當中包括（1）按1:1比例打印的四個初步設計、（2）每個初步設計的說明、以及（3）調查問卷，再由中心發放給長者會員。（請參閱附錄I）

Workshop 3 aimed to collect feedback and interpretation on the four developed models from the elderly and to have the last input on their preferences regarding the appearance of Tung Zai.

This time, instead of making their own Tung Zai, the four designs were presented to the elderly and staff. All they had to do was reply to a questionnaire for the design team to analyze whether the designs were sending the right message to the elderly. The elderly and staff were also invited to pick their favourite design among the four, along with their reasons.

Due to the epidemic, Workshop 3 was conducted virtually on online video conferencing app. It allowed the design team to have fast and dynamic feedback in hands, with the possibility to explain the designs when the elders were confused. However, since the number of elderly members who were comfortable using online video conferencing app to communicate is very limited, only 11 elders participated in Workshop 3. The design team therefore considered using questionnaires to collect more opinions from the members, aiming to maximise the number of participants possible.

The design team prepared 50 sets of the feedback questionnaire containing (1) the four designs printed on scale 1:1, (2) the explanation of each design, and (3) a questionnaire for the Centre to distribute to the elderly. (Please refer to Appendix I)

投票結果 Voting Results

During User Engagement Workshop 3, among the 11 participants, 8 of them voted for the Astronaut as their favourite design. Among their comments were the lovely shapes that resemble a kid, the ability to dream, fly freely, and can inspire people during tough times.

The remaining 3 participants voted for the Doggie. Among their comments were the happiness brought by the pet-looking as well as the possibility of dressing it up, instigating the elderly to take care of it.

Regarding the 50 sets of questionnaires distributed to the elderly members, the design team were able to collect back 34 sets for analysis. Among the 34 respondents, 27 chose the Astronaut, 6 chose the Doggie, 1 chose the Cactus and none chose the Wobbly Man as their favourite design.

The big majority chose the Astronaut due to its look that is similar to a child. Many of them commented feeling happy to see the adventurous little astronaut that would be able to dream and encourage the elderly on grey days.

在用家參與工作坊3的11名參加者中，有8人挑選了「太東人」為最喜歡的設計。他們認為「太東人」像孩子一樣可愛，而且他可以看起來有夢想、可以自由地飛翔，在艱難時期能給人鼓勵。

其餘3名參加者挑選了「擺尾東」為最喜歡的設計。他們認為這個寵物模樣的東仔能為他們帶來快樂，同時也讓入想照顧牠、給牠打扮。

至於50套發放給長者的問卷中，設計團隊能收回34套問卷，並分析問卷結果。在34位受訪者中，27人挑選了「太東人」為最喜歡的設計，6人投票給「擺尾東」，只有1人選擇了「苦瓜東」，而沒有人選擇「不倒東」作為他們最喜歡的設計。

大多受訪者之所以選擇「太東人」，是因為他的外觀像小孩子。多位受訪者表示，很高興看到這個富有冒險精神的小太空人能夠在黑暗的日子裡擁有夢想，並為長者打氣。

			
① 「太東人」 Astronaut	② 「苦瓜東」	③ 「擺尾東」 Pet	④ 「不倒東」 Snowman Bot
27	1	6	-

[33] 問卷調查的投票結果顯示，「太東人」贏得大部分長者的青睞。

The voting results from the questionnaire show that the "Astronaut" is welcomed by most of the elderly.

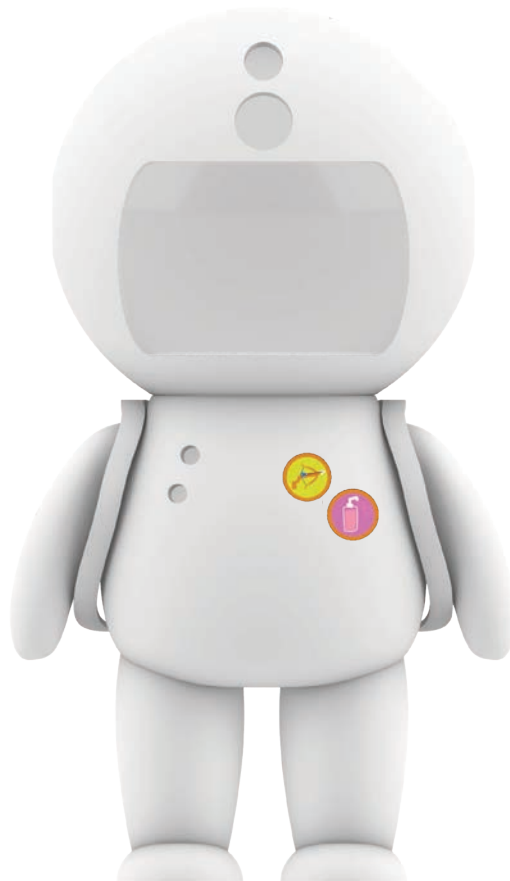
其他意見 Additional Comments

除了對四個初步設計的意見，工作坊的參加者還提出為東仔添加配飾和「高科技」外觀的建議。

根據這些建議，東仔可以有一套彩虹色的太空人服裝，還可以在他身上貼上徽章或其他應節飾物。徽章可以由長者每天更換，而職員則可以為東仔配戴應節飾物。這些配件可以讓東仔更有個性，亦能讓長者與他有更多互動。

Among the comments from the workshop participants, there was the addition of accessories to the character and a “high-tech” look.

Based on these comments, a rainbow colour suit was suggested and the possibility of adding badges and other festive accessories were considered. The badges would be something that could be changed on a daily basis, being put on by the elderly. The festive accessories would be put on Tung Zai by the staff. This would allow an even bigger personalisation and interaction between users and the robot.



[34] 為東仔加上配飾的概念圖。

Concept illustration of adding accessories to Tung Zai.



[35] 配飾設計的靈感來自電影《冲天救兵》。
The design of accessories is inspired by the movie *Up*.

6.4 修改設計 Revise Design

除了參考長者的意見，考慮到實際的生產及操作，設計團隊根據產品設計及製造公司Tints HK成員的建議，讓東仔再作調整，使長者能在更安全的情況下與東仔互動。

1. 姿勢

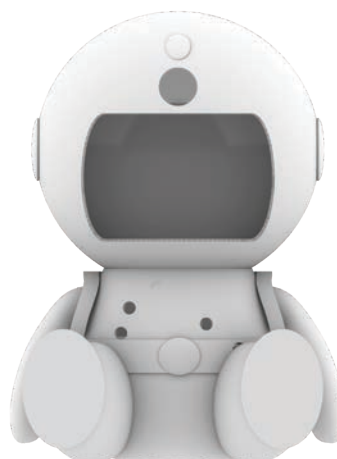
為確保東仔更穩固、不易翻倒，團隊把東仔從站立的姿勢調整為坐下的姿勢。



In addition to taking the comments from the elderly, in response to the manufacturing and operational considerations, the design team made adjustments to the design of Tung Zai based on the suggestions from Tints HK, the product design and manufacture expert, so that the elderly could interact with Tung Tsai safely.

1. Posture

For more stability and optimal height and size, the seated pose was chosen instead of the standing one.



2. 改動開關按鈕位置

因應東仔內部電腦開關按鈕的位置，將東仔的開關按鈕設置在腰帶上。

2. Relocation of on/off the buttons

The on/off button was relocated to the belt of Tung Zai to accommodate the switch position of the computer stationed inside Tung Zai.



3. Flat face

Due to concerns with the reflection that a curved acrylic could cause, the rounded front of the helmet was changed to a flat screen.



3. 面部改為平面

考慮到弧形的壓克力膠板可能會造成反射，團隊把東仔頭盔的前半部改成平面。



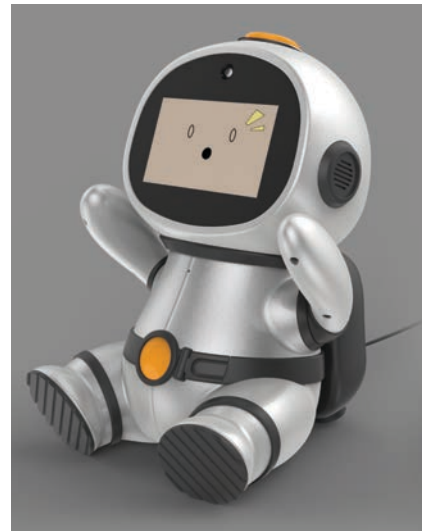
4. Colour

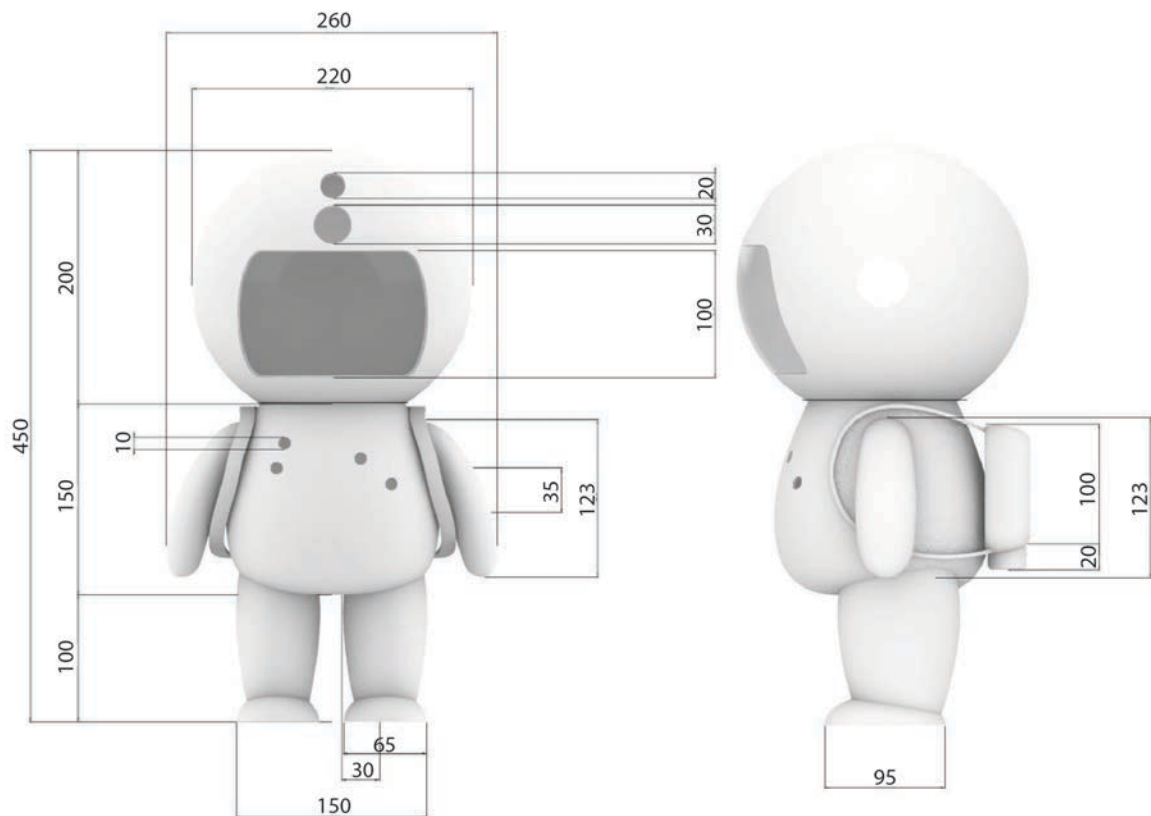
Originally, a soft fabric with iridescent color was proposed for Tung Zai to look more high tech. Yet, after the comments from the staff, it was requested a colour change into silver to prevent elderly feeling dazzled when looking at Tung Zai.



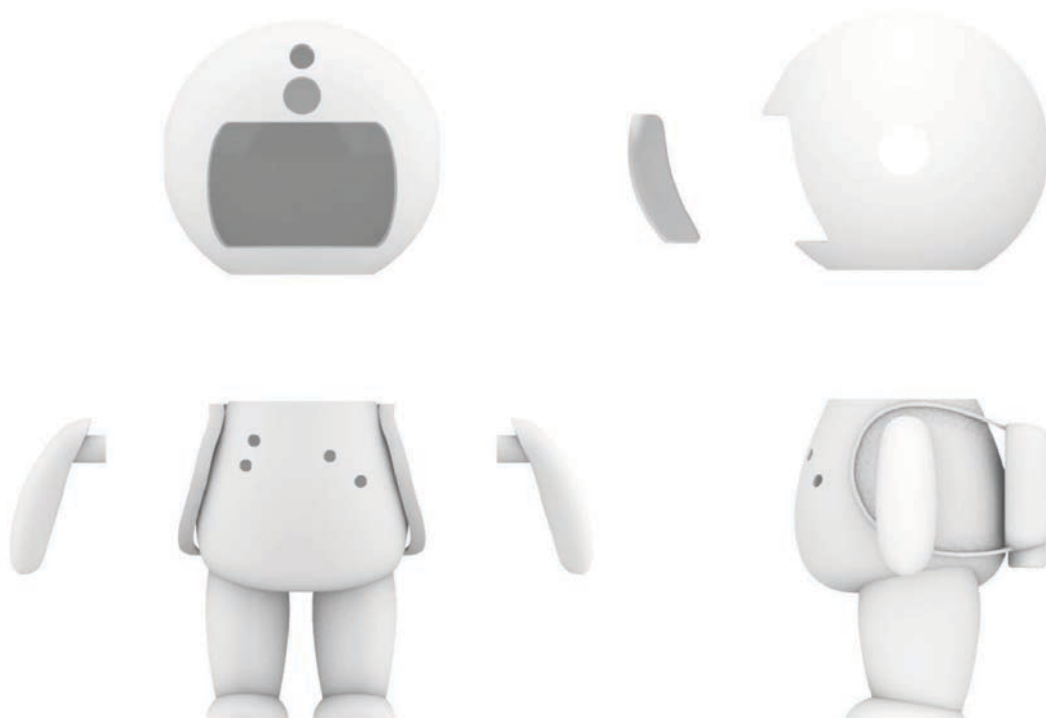
4. 顏色

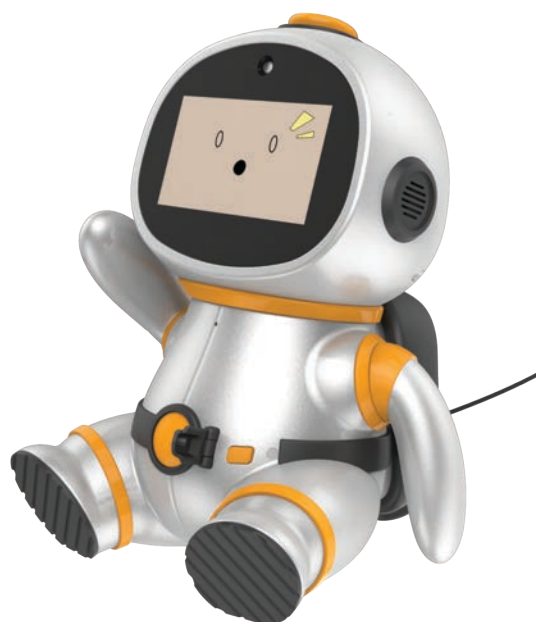
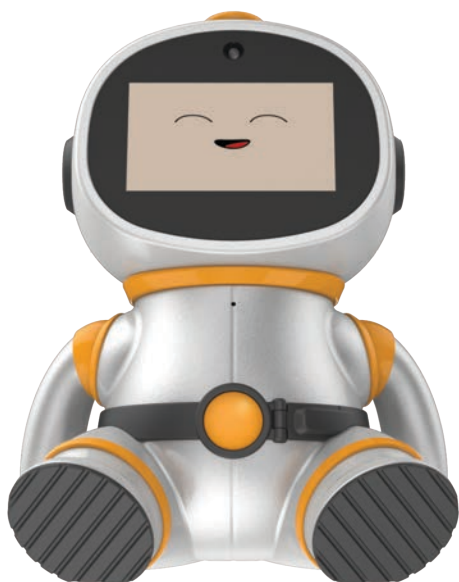
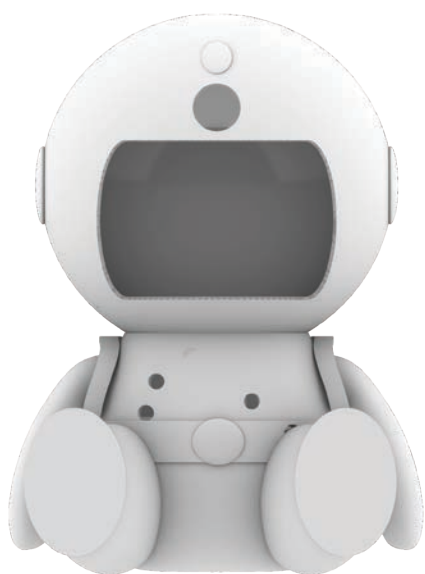
東仔的太空衣原本是看起來很高科技的幻彩色，但職員反映過於炫目的色彩可能會使長者感到刺眼和頭暈，所以團隊將其改成銀色。





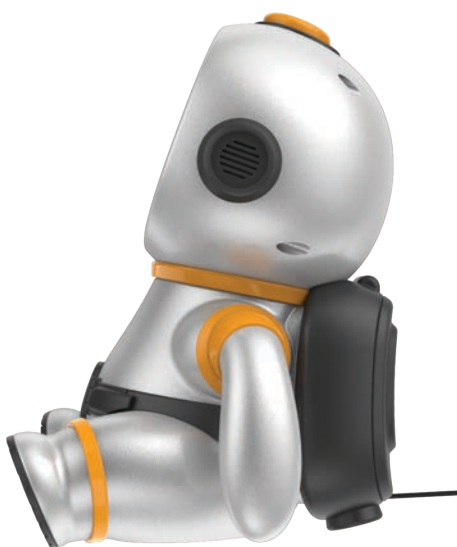
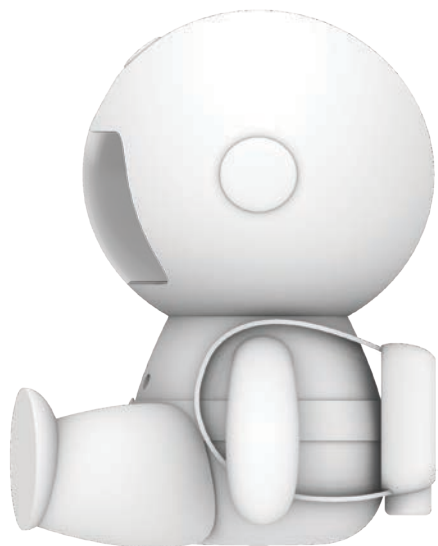
[36] 東仔的第一個立體設計圖。
First 3D design drawing of Tung Zai.





[37] 東仔改成坐下的姿勢後的立體設計圖（上）及最終設計圖（下）。

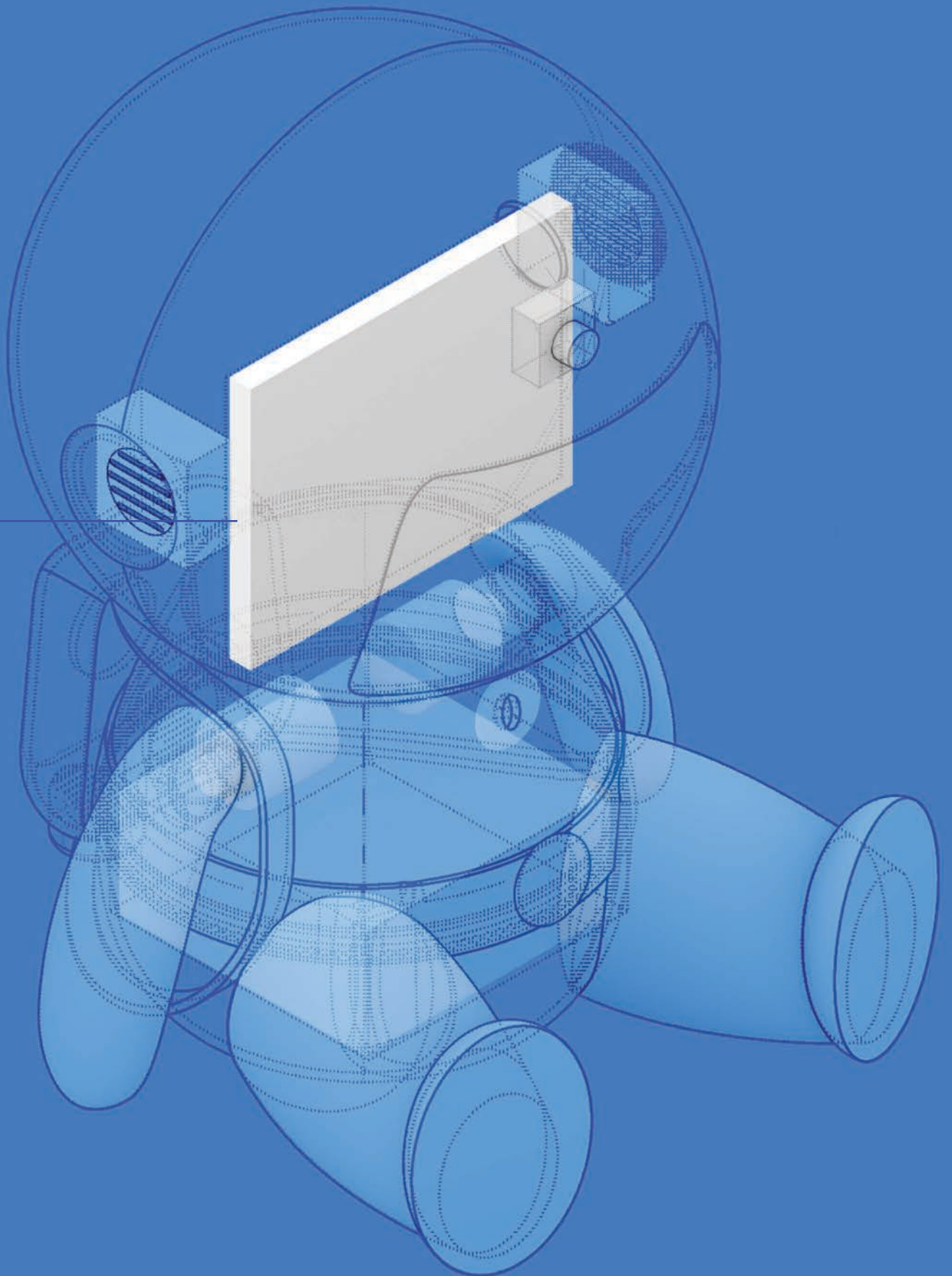
3D design drawing changed to the sitting posture (top) and the final 3D design drawing (bottom) of Tung Zai.



7 設計成果

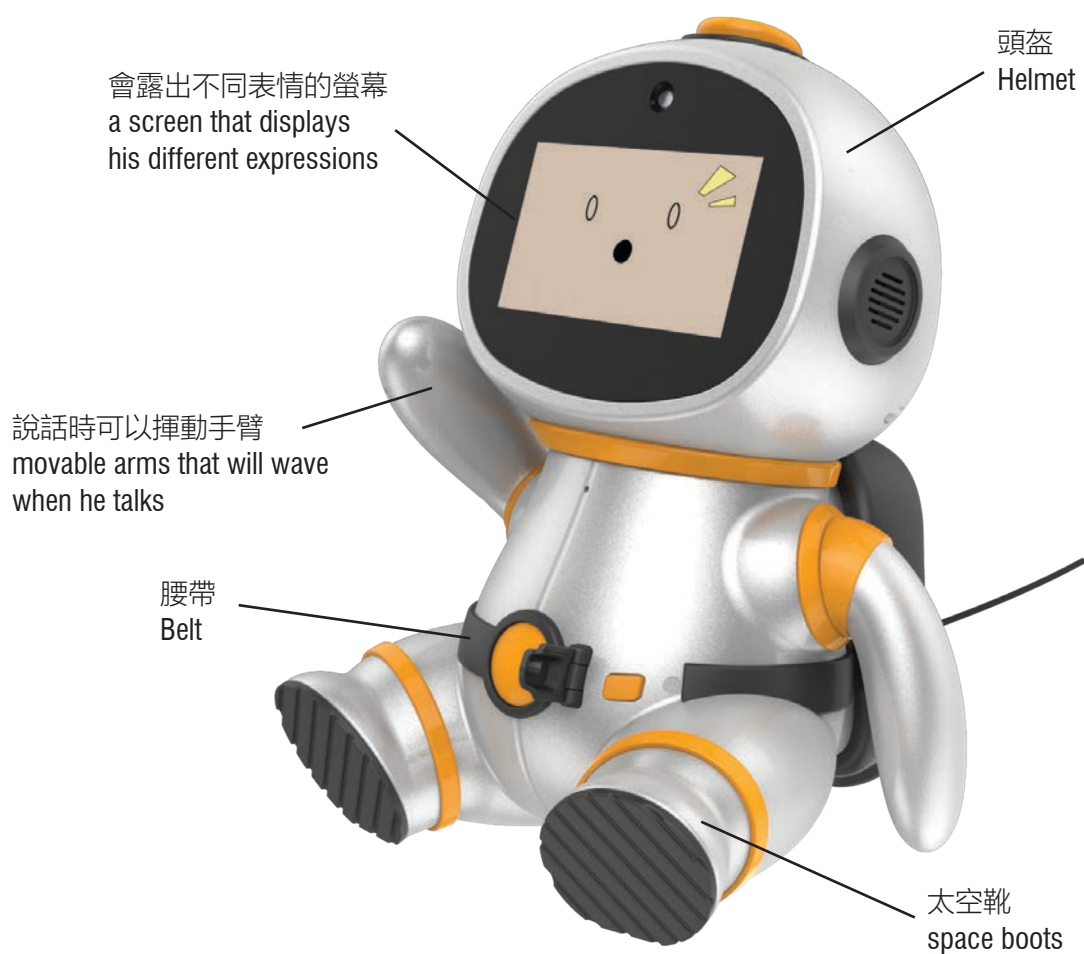
DESIGN OUTCOME

Show
展示

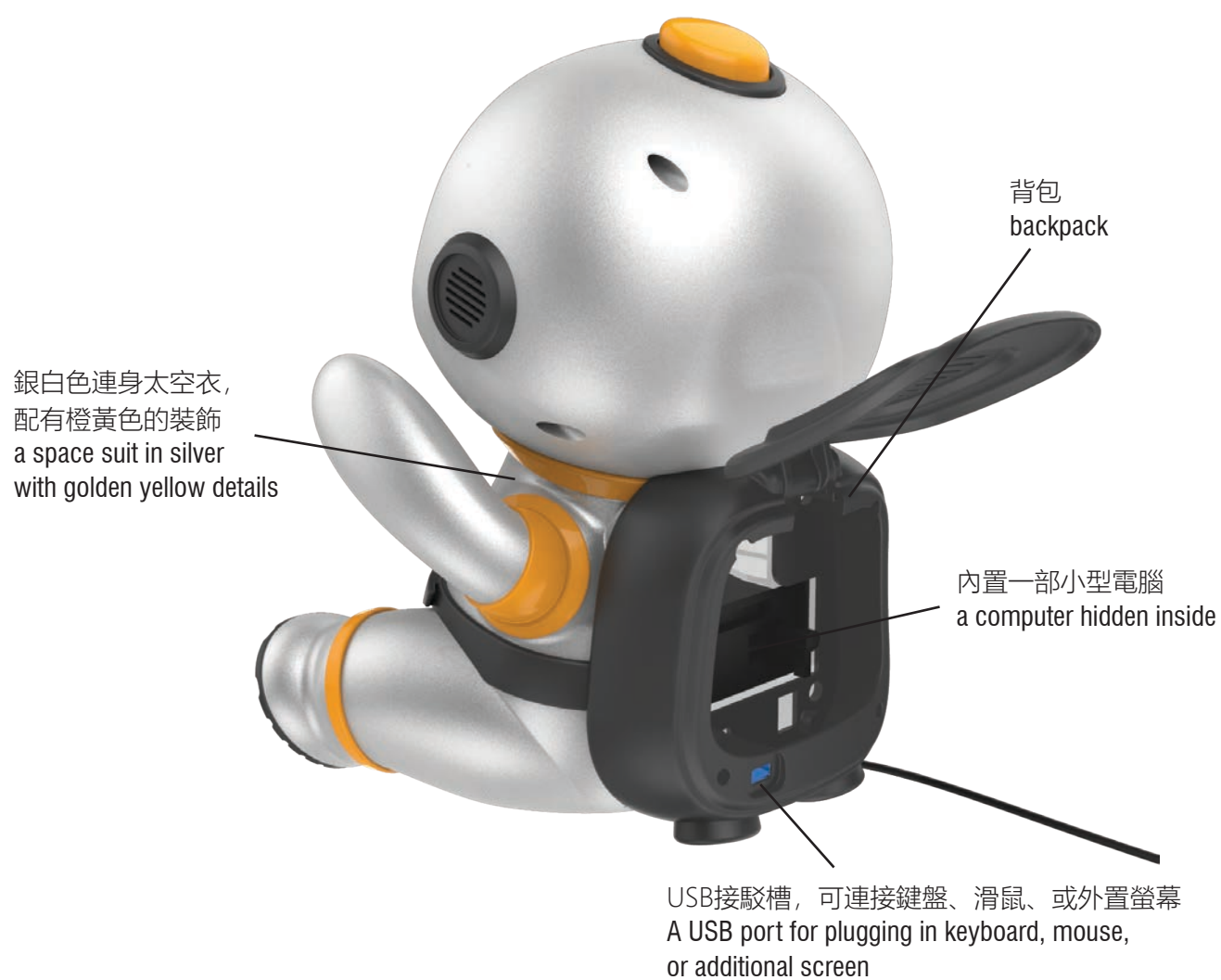


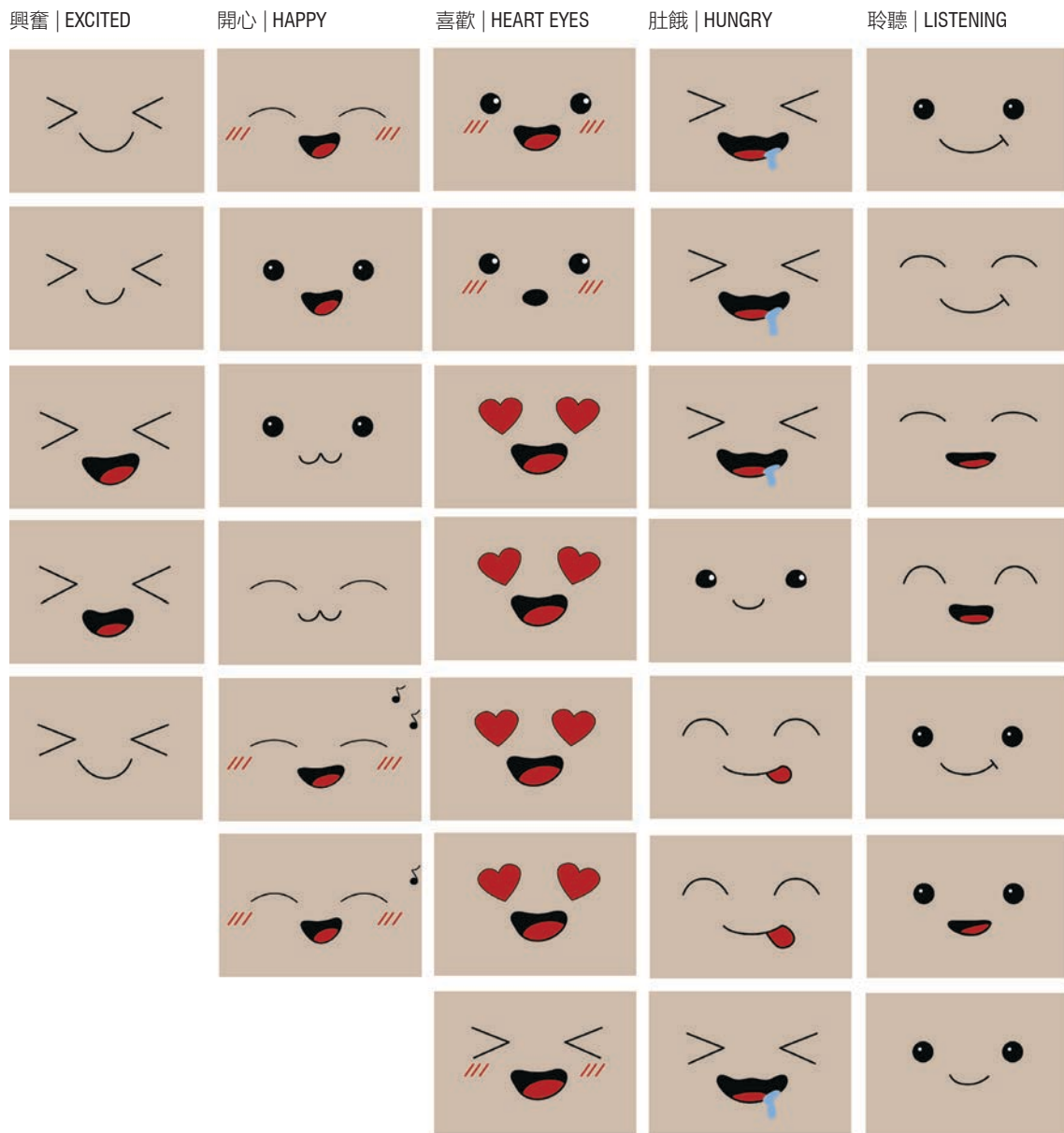
設計成果 DESIGN OUTCOME

外形及性格 Character



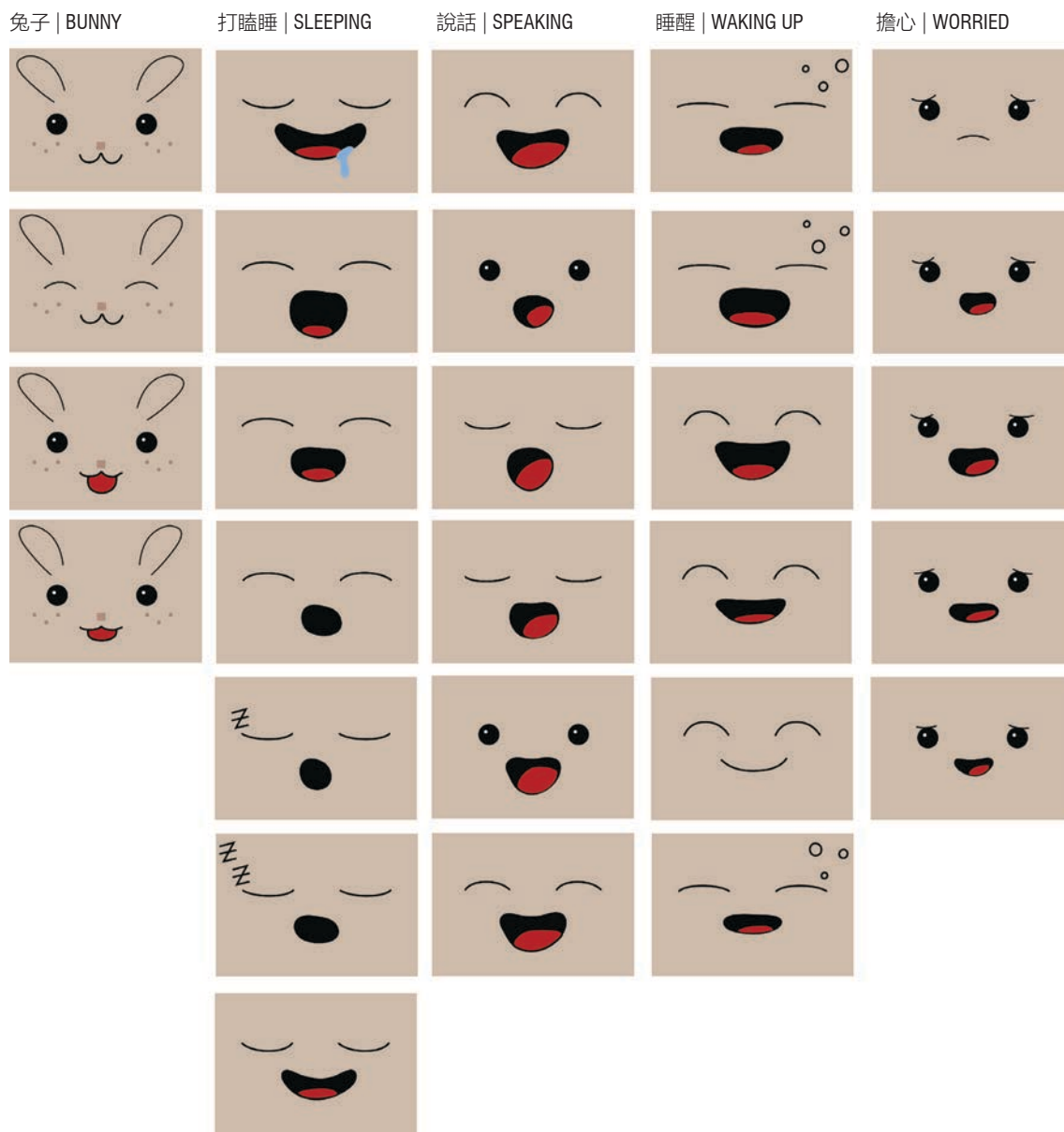
[38] 東仔是一個充滿活力、性格熱情的小孩。
Tung Zai is an energetic and enthusiastic kid.





[39] 東仔的表情十分豐富。這些表情會在螢幕上以動畫顯示出來。

Tung Zai has expressive and diverse faces, displayed on the screen with animations.



功能 Functions

東仔的設計目標是改善長者與中心之間的溝通。為了達到這個目標，並讓東仔透過說話向長者提供資訊，中心職員和設計團隊為東仔設定以下六個範圍的基本對答：

1. 打招呼：

基本問候，如「你好」和「早晨」

2. 天氣資訊和提示：

如「今日可能會落雨，出門口記得帶遮呀！」

3. 日期和時間：

包括當天的日期及時間、節日提示和問候

4. 活動資訊：

關於中心活動的資訊，包括活動日期和時間

5. 服務資訊：

關於中心服務的資訊，例如中心的地址

6. 其他有趣的資訊：

隨機發放的資訊和建議，例如健康飲食提示、笑話等

如前所述，東仔有兩個功能按鈕。兩個按鈕分別有以下功能：

• 對話按鈕（頭頂）：

按對話按鈕後，東仔會開始「聆聽」。長者可以開始向東仔說話。東仔會細心聆聽、處理和回覆。

• 驚喜按鈕（腰帶）：

假如長者比較害羞，或者未想到可以跟東仔說什麼，可以按這個驚喜按鈕。東仔會分享一個有趣的資訊，甚至說起笑話來。

The design objective of Tung Zai is to improve the communication between the elderly and the Centre. To achieve this design objective and allow Tung Zai provide information to elderly, the centre's staff and the design team decided that Tung Zai should be able to talk about topics of the following six categories:

1. Greetings:

Basic greetings like "Hello" and "Good morning"

2. Weather information and reminders:

For example, "There is a good chance that it will rain today. Remember to bring an umbrella!"

3. General date and time information:

Including holiday reminders and greetings.

4. Events information:

Information related to the centre's events, including the date and time of the events.

5. Information related to the centre's services:

For example, the location of the centre.

6. Other interesting information:

Random information and advice, such as tips for a healthier diet, small jokes, etc.

As mentioned previously, Tung Zai has two buttons, which serve below functions:

• Conversation Button (Head):

It activates Tung Zai's function of "listening". By pressing this button, the elderly can easily initiate the conversation. After the elderly speaks, Tung Zai will carefully listen, process and reply.

• Surprise Button (Belt):

If the elderly are shy or if they have no idea what to say to Tung Zai, they can press the surprise button. Tung Zai will then share an interesting piece of information, or even tell a joke.

Along with the interactive voice response part, other functions were added to allow Tung Zai give a more human-like reaction:

- **Movements:**

Although Tung Zai is not as flexible and movable as a real child, some movements were added on the arms. They can wave in different patterns according to the different reactions. For example: Tung Zai will wave one arm when greeting and it can wave both arms when telling something funny.

- **Facial expression:**

Through the screen, Tung Zai can demonstrate different faces such as listening, speaking, excited, sleeping. Those faces change along with the conversation.

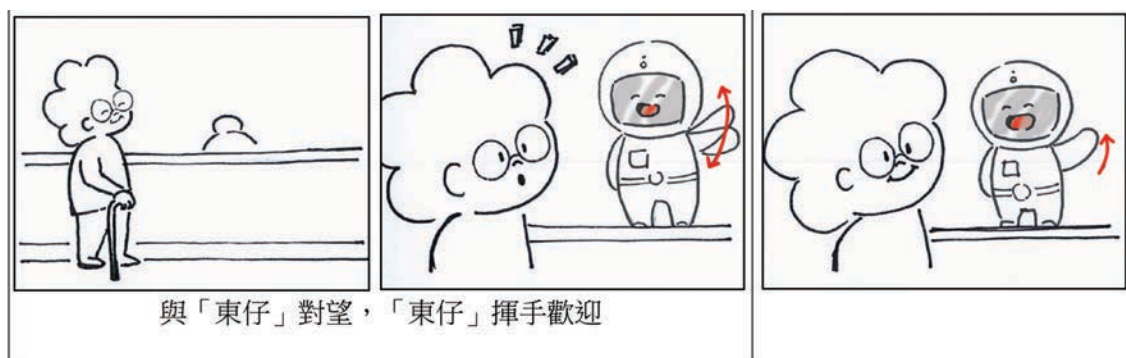
除了語音互動的部分，設計團隊還為東仔加入不同的元素，讓東仔做出更人性化的反應：

- **動作：**

雖然東仔不像真實的小孩般可以靈活走動，但設計團隊讓他可以揮動手臂。東仔可以根據不同的回應而以不同的模式揮動手臂。例如：東仔打招呼時會揮動一隻手，說有趣的事時會揮動兩隻手。

- **面部表情：**

通過螢幕，東仔可以表現出聆聽、說話、興奮、打瞌睡等不同的表情。這些表情會於不同的對答中轉換。



[40] 當長者走近東仔時，東仔會揮手歡迎。

Storyboard showing Tung Zai's movements when an elderly approaches.

All the above functions together help shape Tung Zai's personality - a lovely and kind kid, who helps to promote the centre, as well as bring more joy and a more welcoming atmosphere to the elderly centre.

以上這些功能為東仔塑造出一個可愛而善良的個性，有助推廣長者中心之餘，也能為中心帶來更多歡樂和更溫馨的氛圍。

應用程式的運作 Behind the Scenes

東仔的程式啟動後，會像電腦般有兩種基本模式：

- **待機：**
無人與東仔互動時，螢幕會顯示東仔打瞌睡的畫面。
- **運作中：**
當長者靠近時，東仔的鏡頭會感應到長者走近，並將東仔切換成運作中的模式。東仔會顯示醒來的樣子，然後向長者打招呼。當長者開始與東仔對話，東仔的回覆和反應會根據長者的行動而有所不同。

東仔的程式非常特別。設計團隊將他設計成能與人溝通的先進機械人，但他同時具有簡單易用的界面。中心職員和長者即使對科技沒有專業的知識，也能「教」東仔學習新的詞彙。

對話模式的運作原理 Rationale of the Conversation Mode

啟動東仔的對話模式時，用家需要先按東仔頭部的對話按鈕。接著，東仔會聆聽用家說話、處理接收到的話語、並從話語中尋找關鍵字。當東仔找到與程式中匹配的關鍵字，他便會根據程式，回覆用家相應的句子。

在東仔的程式中，東仔的回應分別有**會變化的**，和**固定的**。例如關於日期時間、天氣和中心活動的問題，東仔的回應會根據情況不同而變化；一些關於中心或東仔的資訊，除非職員手動修改程式，否則東仔會回覆一個固定不變的答案。

When the programme of Tung Zai is running, he has two basic modes like a normal computer:

- **Stand by:**
when there is no one nearby, Tung Zai will show a sleeping face on the screen.
- **Active:**
when the elderly approach, Tung Zai's camera can detect the elderly coming and activate Tung Zai. He's first reaction is to change the screen display to waking up and he will start to greet the elderly. When the elderly start a conversation with Tung Zai, Tung Zai's reply and reaction will vary according to the action taken by the elderly.

Tung Zai has an interesting programme system. It was designed to be as advanced as it can intelligently communicate with users, and yet has a simple and easy to use interface. The staff from the Centre and elderly members can learn to "teach" Tung Zai new vocabulary even without foreknowledge in technology.

To activate the conversation mode of Tung Zai, users need to first press on the button on the head before they start speaking. After that, Tung Zai will listen, process the question, and look for certain keywords. If they match the ones inserted on the system, it will follow with a pre-programmed answer to that match.

In the programme of Tung Zai, some pre-programmed answers will **vary according to the situation**, while others are **fixed**. For example, regarding questions related to date and time, weather, and centre events, Tung Zai will reply with an answer that varies from day to day. Yet, for questions that are related to the centre or Tung Zai himself, unless the staff has made changes to the programme manually, Tung Zai will return the same answer every time.

會變化的回應

Answers that vary according to the situation

For example, if the elderly ask

“Tung Zai, what day is today?” or
“What day is today?”,

the words "day" and "today" will lead to the answer linked to the current date, month and year and Tung Zai would reply

“Today is [Date] of [Month] of [Year]. I
am glad to see you.”

例如，如果長者說：

「東仔，今日係幾號？」或
「今日係幾月幾號？」，

東仔可以辨認出單詞「今日」和「幾號/幾月幾號」，並知道要回答關於當天日期的答案。所以，東仔會作出隨著日期不同而轉變的回應：

「老友記，今日係_年_月_號，星期_，好開心見到你。」

固定的回應

Answers that are fixed

For example, if the elderly come with a question that leads to an answer of facts or information such as

“Tung Zai, who are you?”

Tung Zai will give a pre-programmed answer which is fixed

“Hello! I am a communicative robot developed by a group of elderly and professionals. My name is Tung Zai. Don't hesitate to ask me questions!”

例如，如果長者問：

「東仔，你係邊個呀？」

這類需陳述資訊的問題，東仔會回覆預設固定的答案：

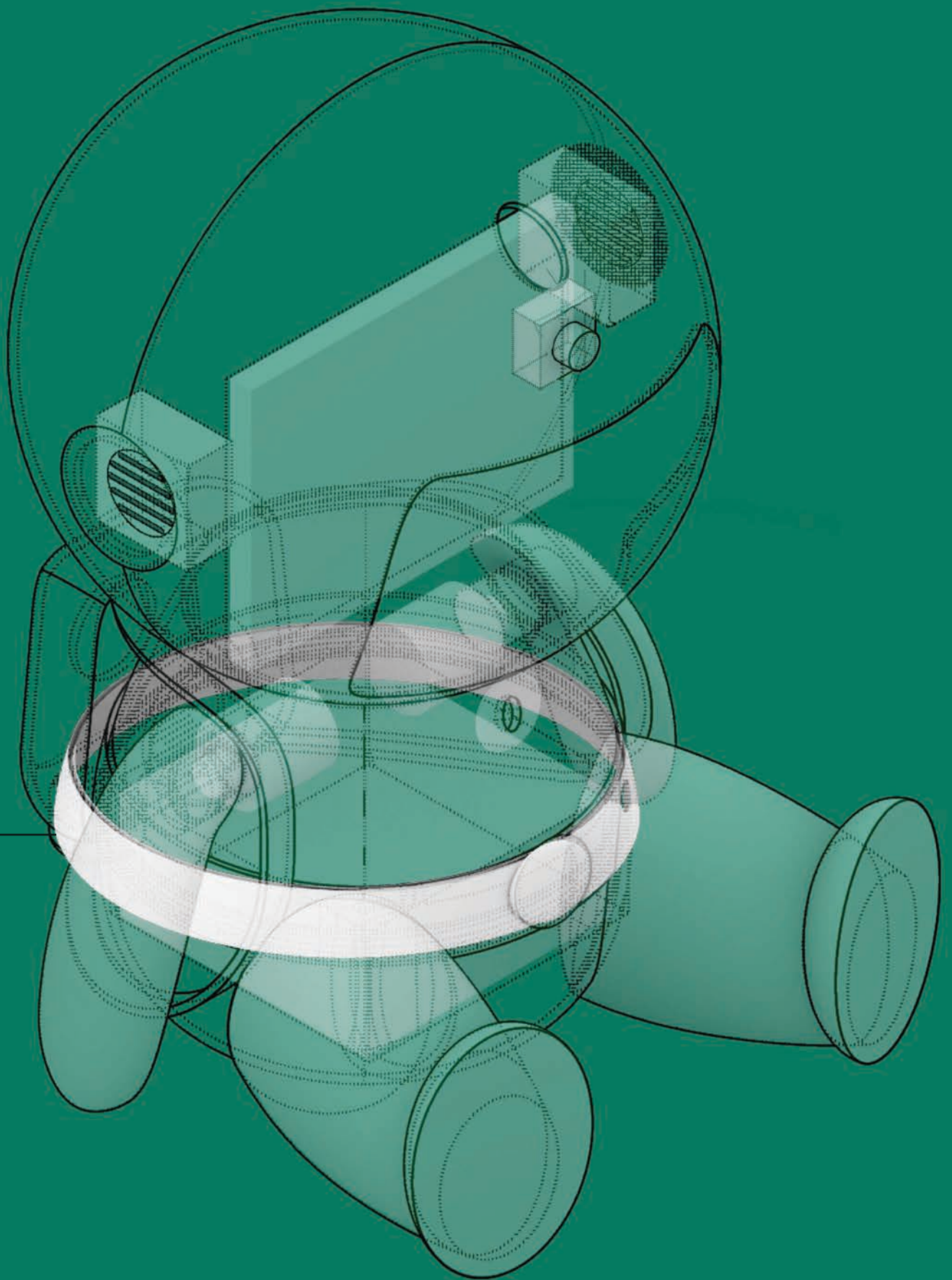
「你好，我係由一班老友記同專業人士發明嘅智能太空人，我叫東仔呀！有咩問題都可以問我，我識嘅話都會答你架！」

Having the programme with the basic vocabulary, the body build and the movements coordinated, it was time to test Tung Zai to see if what was planned would work with minimal intervention.

完成初步的對話內容、外型特徵和動作設計後，我們進行了實地測試和觀察，驗證東仔是否能如預期運作。

8 實地測試及收集意見 ON-SITE TESTING & FEEDBACK

Adjust
調整



實地測試及收集意見 ON-SITE TESTING & FEEDBACK

在原型測試的階段，我們舉辦了一個用家測試工作坊並進行兩天的實地觀察。以下介紹工作坊及現場測試的細節及觀察結果。

In order to understand whether Tung Zai is functioning as it is designed, a user testing workshop and 2 days of on-site observation were established. Below introduced the details of on-site testing as well as the observed results.

8.1 用家測試工作坊 User Testing Workshop

用家測試工作坊於 2021 年 8 月 12 日舉行，為長者中心的職員及會員介紹中心的新助手東仔，讓他們第一次正式與東仔接觸。

The user testing workshop was set on 12 August 2021 to welcome the centre's new helper Tung Zai and to present the outcome to the elderly, putting them in touch with the final product for the first time.

工作坊的主要目的是向長者介紹東仔，並進行一些可用性測試，以驗證設計是否符合預期，以及了解可以進一步調整和改進的地方。

The main intention of the workshop was to introduce Tung Zai to the elderly and to run some usability tests to check if the intended design worked the way it was thought and designed and where it could be further adjusted and improved.



[41] 長者在工作坊中構思與東仔對話的內容。

Elderly brainstorming topics to talk to Tung Zai during the workshop.

Through simple exercises and questions, the elderly were guided to brainstorm possible topics on their expectations for Tung Zai.

In a worksheet with 6 grids, each elderly could write down 6 possible topics for a conversation with the friendly character that would now live in the centre.

After writing down the topics, one by one the elderly were led to another room to finally meet Tung Zai. Although it was developed with a simple interface, a general introduction was still required.

透過一些簡單的問題和活動，長者在工作坊中提出了一些他們期望東仔懂得對答的話題。

在一張有六個方格的工作紙中，每位長者寫下了六個可以與這個將會成為中心小幫手的東仔聊天的話題。

寫下話題後，長者逐一被帶到另一個房間，初次與東仔會面。雖然東仔的界面非常簡單，但團隊仍需為長者作簡短的使用介紹。



[42] 長者第一次與東仔互動。
Elderly interacting with Tung Zai for the first time.

在設計團隊成員的協助下，每位長者都向東仔詢問了自己寫下的話題。之後，團隊正式為長者介紹東仔以及其功能，包括向長者說明已預先輸入在東仔程式裡的問題。

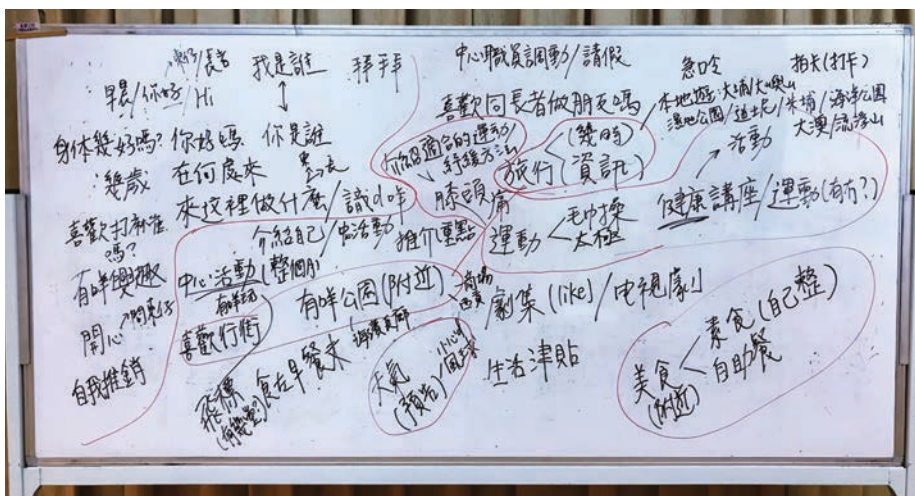
With the help of the staff, each participant's topics were reviewed, and the team then formally introduced Tung Zai and his functions to the elderly, including the questions that have been programmed in Tung Zai's "brain".



[43] 長者嘗試問東仔已輸入在程式裡的問題。
Elderly trying to ask questions that have been programmed in Tung Zai.

用家測試工作坊結束後，我們收集到長者對於東仔的意見和第一印象，以及長者可能會問東仔的其他問題。

After the test, we were able to gather comments and first impressions as well as other possible questions that the elderly could ask.



[44] 在用家測試工作坊中長者提出的一些其他可能會問東仔的問題。
Other questions that may be asked by elderly which are documented during the User Testing Workshop.

8.2 實地觀察 On-site Observation

On-site observation was carried on 19 and 26 August 2021. Due to the epidemic, the drop-in service was suspended. Therefore, the design team can only do the observation during those days with pre-arranged activities and interact with the pre-registered elderly members.

Two observers were stationed at the Centre to observe and record the elderly's interaction with Tung Zai before and after they participated in the activities they registered for.

兩天的實地觀察分別於2021年8月19日及26日進行。因疫情關係，中心的偶到服務仍然暫停，設計團隊只能在中心舉辦兩至三個活動的日子，到中心與已報名活動的長者互動及進行觀察。

觀察當天，兩名觀察員在中心觀察和記錄了長者在參與活動之前和之後與東仔互動的行為和對話。

8.3 結果及發現 Outcome and Findings

整體而言，長者看到東仔時都頗為驚訝。有些長者會顯得興奮，希望與東仔互動。然而，經過幾次嘗試後，由於出現無法成功與東仔溝通的情況，他們開始對與東仔互動失去熱情。以下是經過測試後，設計團隊認為可以對東仔作出調整和改進的部分：

1. 東仔所掌握的知識範圍

由於東仔只能在識別出預設關鍵字時才能以預設的句子回應，目前東仔能回答的問題範圍非常有限。程式中的關鍵字和預設回應需要加以擴充，以便東仔可以更伶俐地與長者互動。

在工作坊和實地觀察期間，我們記錄了一些可以添加到東仔程式的新主題。這些主題包括：

(1) 關於東仔的資料

不少長者都對東仔表示好奇。他們想了解更多關於東仔的事情，例如，有長者想知道東仔的歲數和愛好。

(2) 關於健康與運動的資訊

許多長者都非常重視健康，希望認識和了解更多能幫助他們維持強健體魄的生活習慣和運動，例如學習能加強肌力或柔韌性的動作。此外，健康講座的資訊也非常受歡迎。

Overall, the elderly were quite surprised when they saw Tung Zai. Some got excited and eager to interact with Tung Zai. However, after the first few attempts, they started losing enthusiasm as they sometimes were not able to communicate with Tung Zai successfully. Below is a summary of possible areas of change and improvement:

1. Spectrum of knowledge that Tung Zai should acquire

Since Tung Zai can only return pre-programmed sentences when he recognises pre-programmed keywords, Tung Zai can only answer very limited questions at the moment. The keyword and answer database has to be expanded in the future in order for Tung Zai to interact with elderly more intelligently.

During the workshop and observation, we have recorded a number of new topics that can be added to Tung Zai's programme. These topics include:

(1) Information about Tung Zai

Many elderly showed their curiosity about Tung Zai. They would like to know more about Tung Zai in person. For example, questions on how old Tung Zai is and what is his hobby were raised.

(2) Health and exercise related information

Many elderly put first priority on their health. They would like to know more about what habits can best keep them healthy and what exercises are suitable for them that can enhance strength and flexibility in their muscles. Information on health seminars is also highly preferred.

(3) Notice from the centre

Some elderly suggested that more notice from the centre can be put in Tung Zai's programming. For example, they would be grateful if Tung Zai could tell them one of the staff has taken leave on that day. Moreover, it would be great if Tung Zai can recommend upcoming activities to the elderly.

(4) Touring information

Elderly generally have a lot of spare time. They would like to travel to beautiful places in Hong Kong but they have only a few ideas on where to visit. Tung Zai can recommend some local tour ideas for the elderly so that they can go on a one-day tour with other elderly.

Besides, during the workshop, an elderly suggested that Tung Zai should only focus on distributing information about the Centre's events and activities, rather than covering all aspects including weather, jokes and daily chit-chat. In this way, less knowledge will be required for a successful interaction between Tung Zai and the elderly. We believe that this feedback is very valuable. This approach would be more appropriate when Tung Zai has the only role as the Centre Event Assistant. However, since Tung Zai was designed to be a social robot that shows care to the elderly, and hence to experiment how a social robot can benefit the Centre in providing services, a broader range of topics for Tung Zai to chit-chat with the elderly may also be beneficial.

(3) 關於中心的最新消息

有長者建議，東仔可以告訴大家關於中心當天的消息，例如哪個職員當值或請假。此外，長者亦提議東仔為他們推薦中心即將舉辦活動。

(4) 關於本地旅遊的資訊

長者很多空餘時間，想到香港美麗的地方走走，卻不太認識香港的這一面。東仔可以為長者推薦一些本地的好去處，讓他們可以和其他長者去參與一日遊。

另一方面，在工作坊期間，有一位長者建議東仔應專注於發放關於中心活動和服務的資訊，而不需要懂得回應各方面的提問，例如天氣、笑話或日常對答。這樣，長者只需懂得幾個問題就可以成功與東仔互動。我們認為這個回饋非常具參考價值。如果東仔在中心擔任的角色只為活動助理，這種方法似乎可取。不過，由於設計團隊希望東仔是一個會關心長者的社交機器人，並藉此試驗社交機器人如何便利中心提供服務，我們認為如果東仔懂得對廣泛的話題作出回應，可以更有效達到以上目的。

2. 放置東仔的位置

根據觀察所得，大部分長者進入中心時並沒有走近東仔並與之互動。我們認為放置東仔的位置對長者的參與程度有很大的影響。

東仔現在置於正門的走廊旁，所有會員進入中心時都會經過。然而，根據觀察結果，由於長者進入中心時通常忙於填寫健康申報表，而且他們對於即將參加的活動感到興奮，很少長者會察覺到東仔的存在。再者，長者亦不常在這條走廊上徘徊。另一邊廂，如果長者在活動開始前提前到達中心，他們習慣於休憩區一邊看電視，一邊等待。休憩區的空間亦較為寬敞，適合放置東仔。在休憩區，由於長者需要消磨時間，他們有可能會多花時間與東仔互動。此外，當長者安坐在休憩區時，東仔會通過面部識別功能，主動打招呼的機會也會相對提高。這樣，他就可以主動邀請長者進行互動。

3. 互動流程

目前，長者和東仔說每一句話之前，都要先按一下東仔頭上的按鈕。這個互動流程使長者經常無法成功與東仔互動。由於長者經常自然而然地回應東仔的說話，忘記在說話前再次按下按鈕，東仔因此無法「聽見」他們。從用戶的角度而言，這顯示東仔的互動流程設計並不理想。

針對這個問題，我們提議社交機器人應該在開始對話後持續維持「聆聽」狀態，直到一段時間內都探測不到聲音。而將來或許需要進行更多測試和觀察去了解要維持怎樣的時間長度才最為合適。

2. Location of stationing Tung Zai

It is observed that most of the elderly that enter the Centre did not approach Tung Zai and interact with it. We believe that the location where Tung Zai stations may affect the degree of engagement among elderly.

Tung Zai is now placed at the corner of the corridor where all members will pass through when they enter the Centre. However, it is observed that elderly seldom notice its existence as they were usually busy filling out health declaration forms and excited about the activity they planned to join. Handful of elderly would wander or spend time along this corridor. On the other hand, if the elderly are early for the activity they planned to join, they are accustomed to wait and usually watch TV at the drop-in area. As the drop-in area is spacious enough for Tung Zai, it may be a suitable place for it to station. The elderly may spend more time with Tung Zai as they are killing time. The chance for Tung Zai to be activated through facial recognition is also higher when elderly are sitting statically at the drop-in area. In this way, he can initiate conversation with the elderly proactively.

3. Journey of interaction

Currently, when elderly want to have a conversation with Tung Zai, they have to press the button on Tung Zai's head every time before they speak. This caused numerous failures as elderly often naturally respond to Tung Zai's reply without remembering that they need to press the button again for Tung Zai to "listen" to them. This shows that the design of this user journey is not ideal from the users' perspective.

Regarding this problem, it is suggested that a social robot should be designed to continuously "listen" to users whenever a conversation is initiated, until there is a certain period of silence. The length of this silence period needs to be further examined in the future.

4. Technical problems

There were certain technical problems that appeared during the user testing workshop and the on-site observation.

One problem that appeared repeatedly was Tung Zai failed to recognise the keywords even though the elderly spoke correctly. This might be caused by the noisy environment or the low voice of elderly. It is observed that Tung Zai performs better in a quiet environment.

Another problem that emerged frequently was overheating of the device. This may lead to improper functioning of Tung Zai's programme. It is suggested by Roborn that the device should be turned off during lunchtime and after office hours every day to allow adequate resting of the device.

4. 技術問題

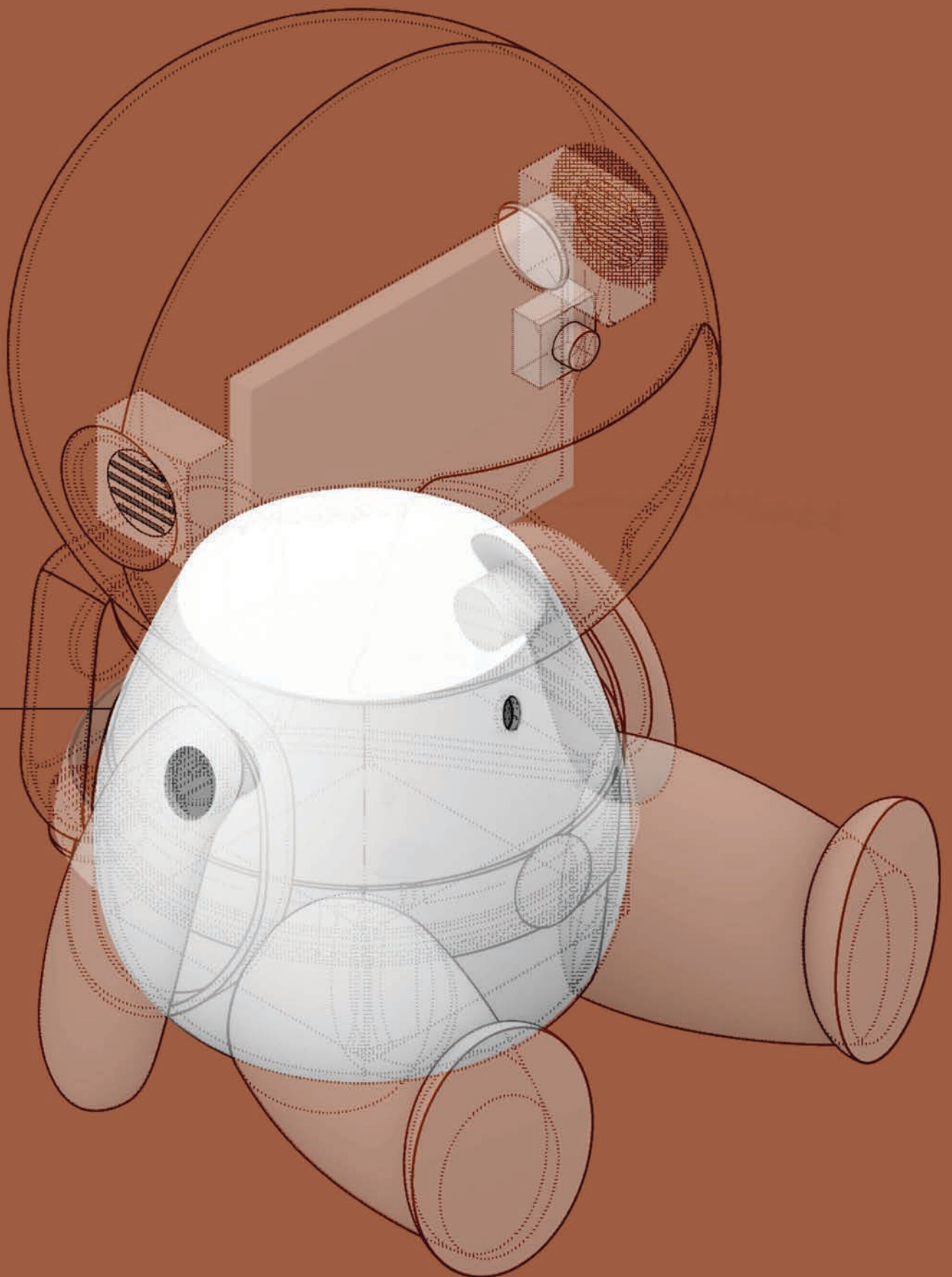
在用家測試工作坊和實地觀察的過程中，皆出現了一些技術問題。

一個反復出現的問題是，儘管長者在話語中有提及已預設關鍵字，東仔有時候卻無法作出相應的回覆。這可能是因為周遭的環境過於嘈吵，或者是長者說話的聲音太小。觀察結果顯示，東仔在安靜的環境中會有較好的表現。

另一個經常出現的問題是裝置過熱。裝置過熱可能會導致東仔的程式無法正常運作。因此，技術顧問Roborn團隊建議中心於午膳時間和中心休息時間關掉東仔，讓電腦有充份的時間休息和散熱。

9 挑戰及機遇 CHALLENGES & OPPORTUNITIES

Stablise
穩定



挑戰及機遇

CHALLENGES & OPPORTUNITIES

疫情帶來的挑戰

Challenges brought by COVID-19

整體而言，2019冠狀病毒病疫情為所有事情帶來前所未有的挑戰，是次「東仔」項目當然也不例外。

基於各項社交距離措施，設計團隊需要為工作坊的形式作出調整。團隊最初計劃的工作坊有討論環節和共創活動，不同人士會互相交流和互動。疫情關係，團隊必須將工作坊改於網上進行，團隊需要重新適應如何安排及主持工作坊。

此外，由於能夠以視像會議應用程式參加工作坊的的中心會員數量有限，影響到可以參加工作坊的人數亦隨之減少。關於工作坊安排的其他調整包括預先向參加者派發材料包、將工作坊二人一組的小組活動改為在視像會議應用程式個別發表意見、以及縮短活動時間以維持長者的注意力。

縱使項目中很多地方都需要作變動及調整，但有賴中心和設計團隊各方面的配合，我們仍能取得令人滿的成果。

In general, COVID-19 brought challenges to all works and the “Tung Zai” project could not be any different.

The design team had to adjust the workshop to a format that could be inclusive and effective during times that social distancing measures were enforced. The original workshops planned included crafting and interacting with different people, through discussion and co-creation activities. With the epidemic, the format had to be changed to online activities, which required some adaptations and would bring less control of the design team over the activities.

Furthermore, the number of elderly that could participate in the activities was reduced. Since only a handful of centre members were knowledgeable enough to use online video conferencing app to participate in the workshop, the number of participants was very restricted. Other adaptations were also required such as prior planning for delivery of materials to each participant, change of the activities from interacting in pairs in the Centre to working alone and exchanging ideas via online video conferencing app, and shortened period of activities to avoid the loss of focus or interest by the elderly.

Although changes had to be made and the project timeline had to be stretched, thanks to the cooperation from the Centre and all parties of the design team, we had obtained satisfactory results.

潛在發展空間 Future Possibilities

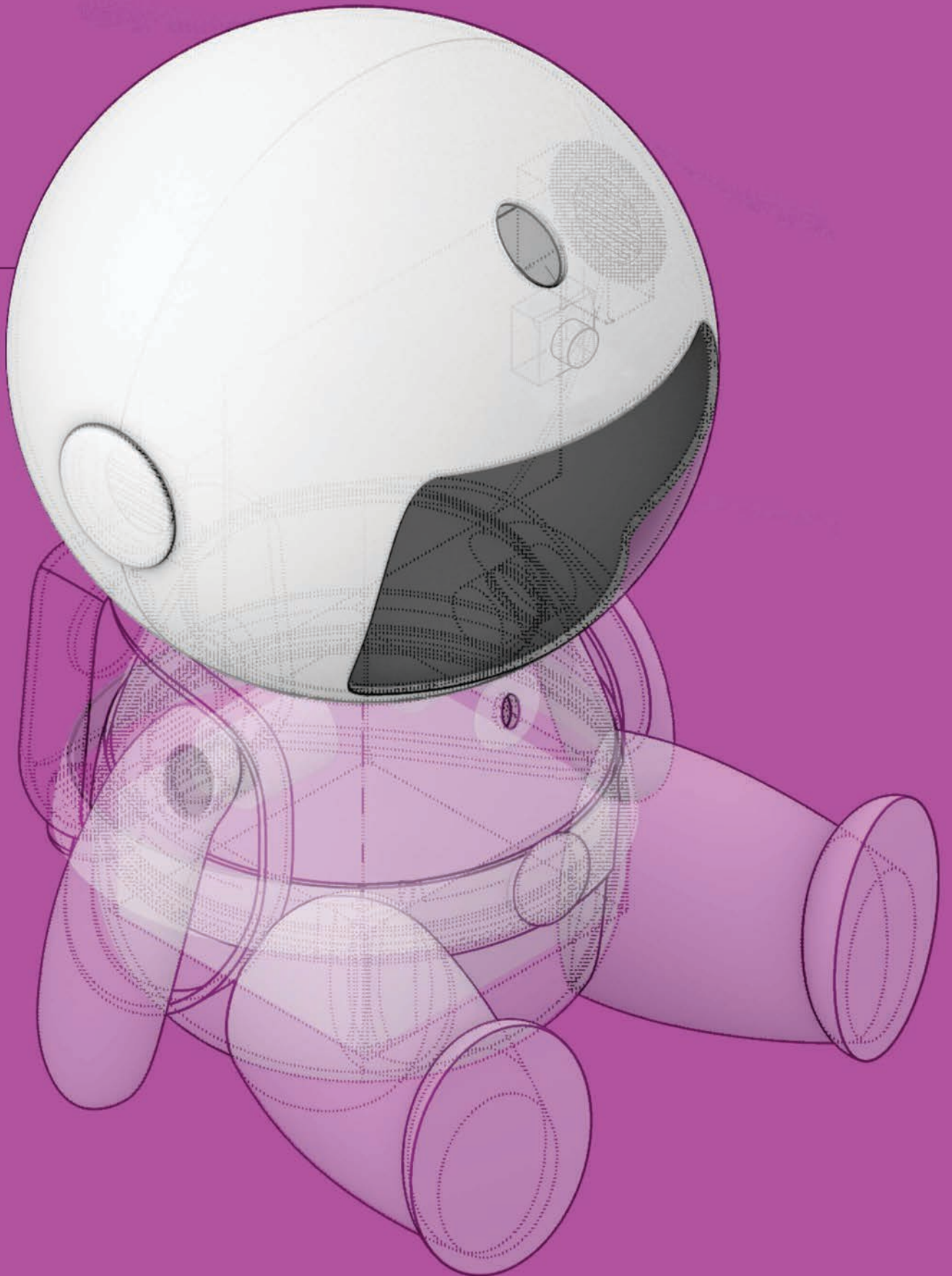
Considering there is more than one interactive robot used by not only one elderly centre in the future, the idea of connecting the robots was brought to the table during the design process. It was imagined that two or more robots could communicate from different locations. For example, by connecting the robot display to a larger TV screen, and with the aid of the camera and related application software (such as online video conferencing app) installed in the robot, elderly in one centre can have video calls with other elderly in another elderly centre. This would further enhance the engagement of elderly with the interactive robot and indirectly promote Active Ageing among elders.

考慮到未來不止一間長者中心會使用互動機器人，我們想像兩個在不同中心的機械人可以連線進行通訊。例如，透過將機械人的顯視器連接到更大的螢幕（如電視機），一間中心的長者可以利用東仔的鏡頭，並借助其他應用程式（如視像會議應用程式）與另一間中心的長者進行視像通話。這將進一步提高長者對溝通機械人的投入程度，間接促進長者積極老齡化。

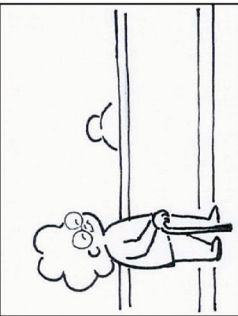
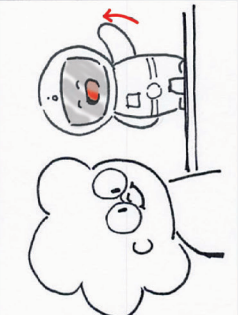
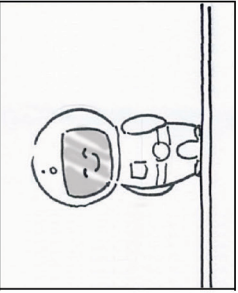
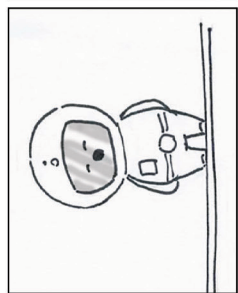
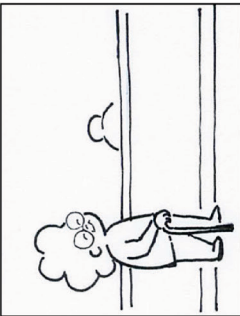
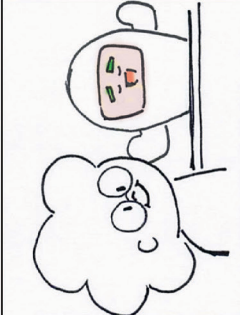
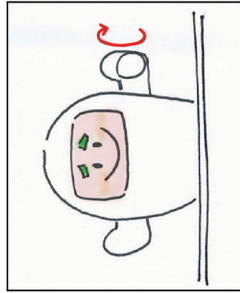
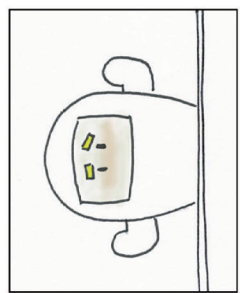
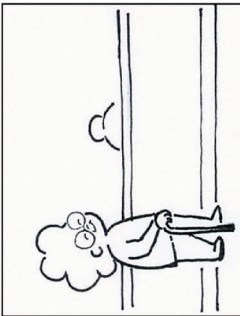
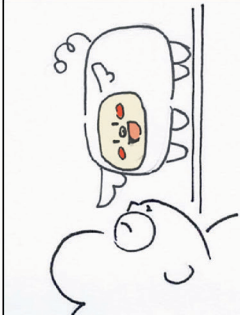
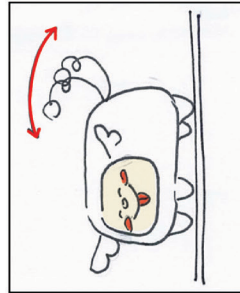
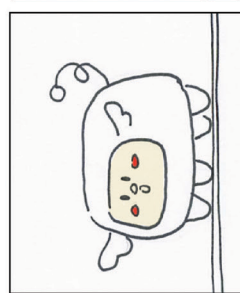
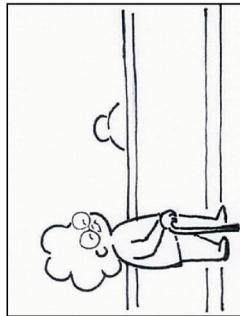
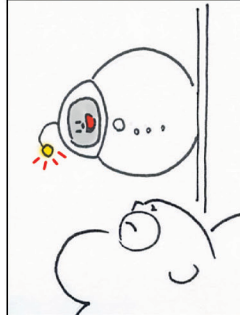
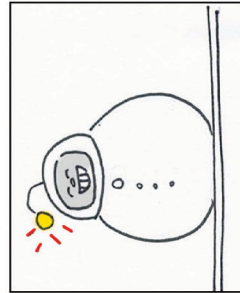
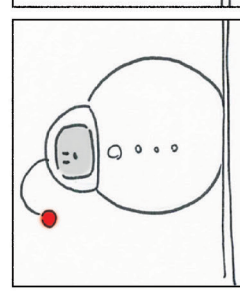
附錄 I: 意見收集問卷

APPENDIX I: FEEDBACK QUESTIONNAIRE

Learn
學習



「東仔」的四個不同狀態

	歡迎	對話	高興	閒置
① 太東人	 與「東仔」對望，「東仔」揮手歡迎			 「東仔」開始睡著、發個好夢
② 苦瓜東	 與「東仔」對望，「東仔」揮手歡迎		 揮手	 保持警剔，有時渴望與人聊天
③ 擺尾東	 與「東仔」對望，「東仔」擺尾歡迎		 擺尾	 有時很好奇，有時會不期然發笑
④ 不倒東	 與「東仔」對望，「東仔」的感應器發亮		 頭頂感應器發亮	 無所事事、會發呆

交流大使「東仔」設計 —— 意見收集問卷

你好！我們是香港理工大學賽馬會社會創新設計院，我們正為東華三院方肇彝長者鄰舍中心設計交流大使「東仔」(可互動的人工智能)，幫助中心發佈活動資訊。

我們的設計顧問 Eureka 為交流大使「東仔」，繪畫了四個設計造型。請填寫本問卷，告訴我們你的想法。感謝你願意為我們提供寶貴意見，你的意見將會被引用在進一步的設計當中。

第一部分：第一印象

請憑設計給你的感覺，填滿適當的圓圈。

範例

範例設計 —— 「東仔」



你認為這個設計的性格是：

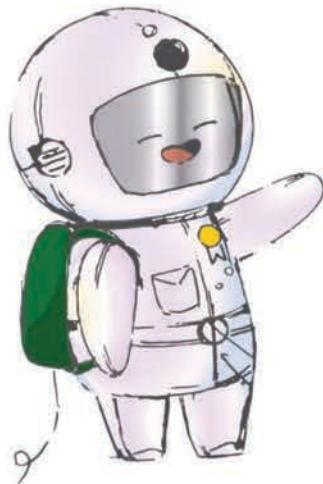
例如：1分代表非常不友善，5分代表非常友善)

	1	2	3	4	5	
	←————— —————→					
不友善	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	友善
不醒目	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	醒目
不熱情	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	熱情
不鬼馬	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	鬼馬
不粗魯	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	粗魯
不冒失	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	冒失
不膽小	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	膽小

翻開下頁開始填寫問卷！

請憑以下設計給你的感覺，填滿適當的圓圈。

1號設計——「太東人」



你認為「太東人」的性格是：

	1	2	3	4	5	
	←————— —————→					
不友善	○	○	○	○	○	友善
不醒目	○	○	○	○	○	醒目
不熱情	○	○	○	○	○	熱情
不鬼馬	○	○	○	○	○	鬼馬
不粗魯	○	○	○	○	○	粗魯
不冒失	○	○	○	○	○	冒失
不膽小	○	○	○	○	○	膽小

2號設計——「苦瓜東」



你認為「苦瓜東」的性格是：

	1	2	3	4	5	
	←————— —————→					
不友善	○	○	○	○	○	友善
不醒目	○	○	○	○	○	醒目
不熱情	○	○	○	○	○	熱情
不鬼馬	○	○	○	○	○	鬼馬
不粗魯	○	○	○	○	○	粗魯
不冒失	○	○	○	○	○	冒失
不膽小	○	○	○	○	○	膽小

(續下頁)

請憑以下設計給你的感覺，填滿適當的圓圈。

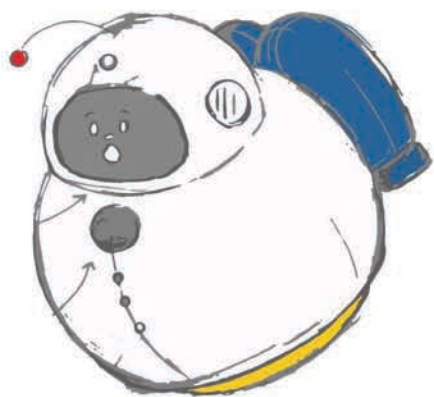
3 號設計 —— 「擺尾東」



你認為「擺尾東」的性格是：

	1	2	3	4	5	
	←—————+—————→					
不友善	○	○	○	○	○	友善
不醒目	○	○	○	○	○	醒目
不熱情	○	○	○	○	○	熱情
不鬼馬	○	○	○	○	○	鬼馬
不粗魯	○	○	○	○	○	粗魯
不冒失	○	○	○	○	○	冒失
不膽小	○	○	○	○	○	膽小

4 號設計 —— 「不倒東」



你認為「不倒東」的性格是：

	1	2	3	4	5	
	←—————+—————→					
不友善	○	○	○	○	○	友善
不醒目	○	○	○	○	○	醒目
不熱情	○	○	○	○	○	熱情
不鬼馬	○	○	○	○	○	鬼馬
不粗魯	○	○	○	○	○	粗魯
不冒失	○	○	○	○	○	冒失
不膽小	○	○	○	○	○	膽小

(續下頁)

第二部分：整體意見

你認為哪個「東仔」最適合在中心當值？請為四個「東仔」排序。

(1 代表最適合在中心當值，4 代表最不適合在中心當值。)

 ① 「太東人」	 ② 「苦瓜東」	 ③ 「擺尾東」	 ④ 「不倒東」

為什麼你認為這個「東仔」最適合在中心當值？

(續下頁)

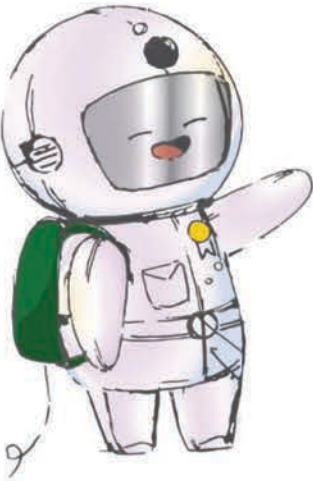
第三部分：改善建議

請回到你最喜歡的設計上，圈出你心目中「東仔」理想的個性。

範例

如果你最喜歡的設計是「太東人」(1號)，請在「太東人」的問卷部分畫上記號。

1號設計 —— 「太東人」



你認為「太東人」的性格是：

	1	2	3			
不友善	○	○	○	●	友善	
不醒目	○	●	○	○	醒目	
不熱情	○	○	○	○	●	熱情
不鬼馬	○	○	○	●	○	鬼馬
不粗魯	○	●	○	○	○	粗魯
不冒失	○	○	○	○	●	冒失
不膽小	○	○	●	○	○	膽小

即希望「太東人」更友善

即希望「太東人」更勇敢

如果你最喜歡的設計是「苦瓜東」(2號)，則請在「苦瓜東」的問卷部分畫上記號。

第四部分：其他意見

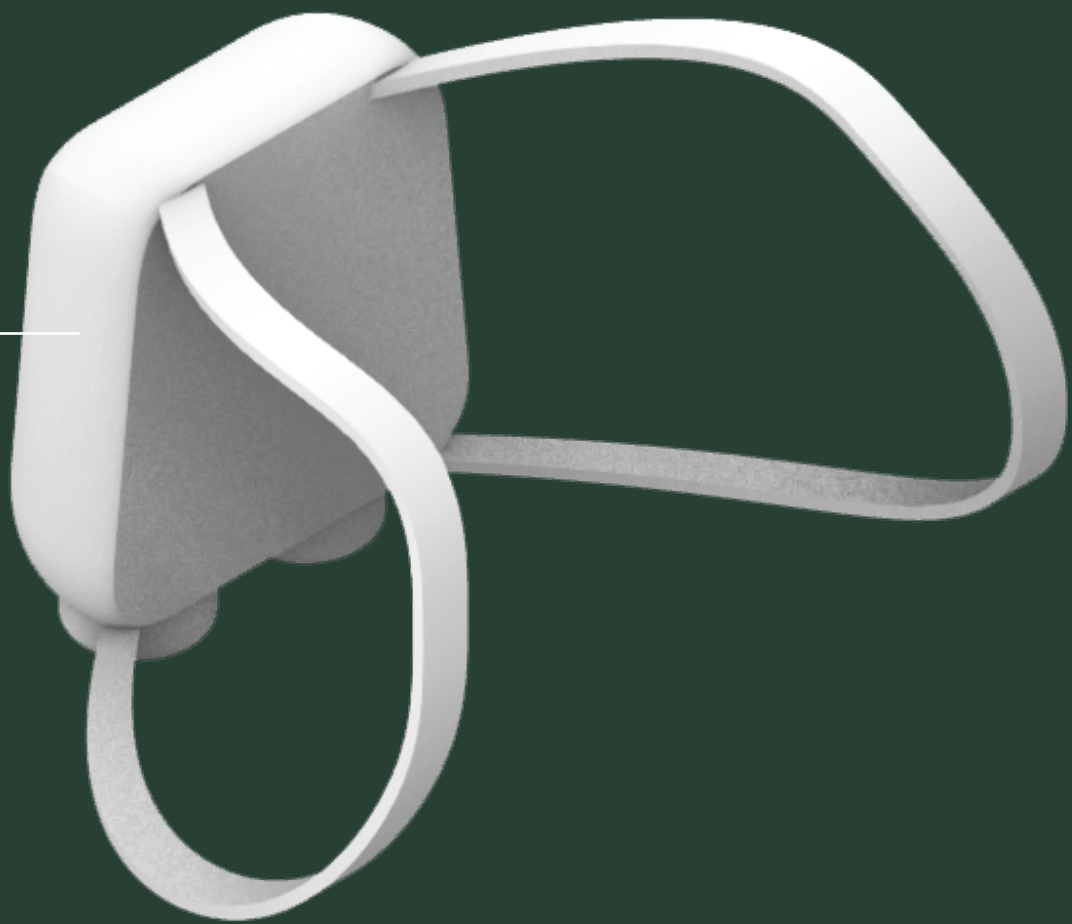
如果你有其他意見，歡迎留言告訴我們：

謝謝你完成問卷！請將問卷交回中心。

附錄 II：其他潛在方案 - 「嘉年華」

APPENDIX II: ANOTHER POTENTIAL SOLUTION – “CARNIVAL”

Soar
飛翔

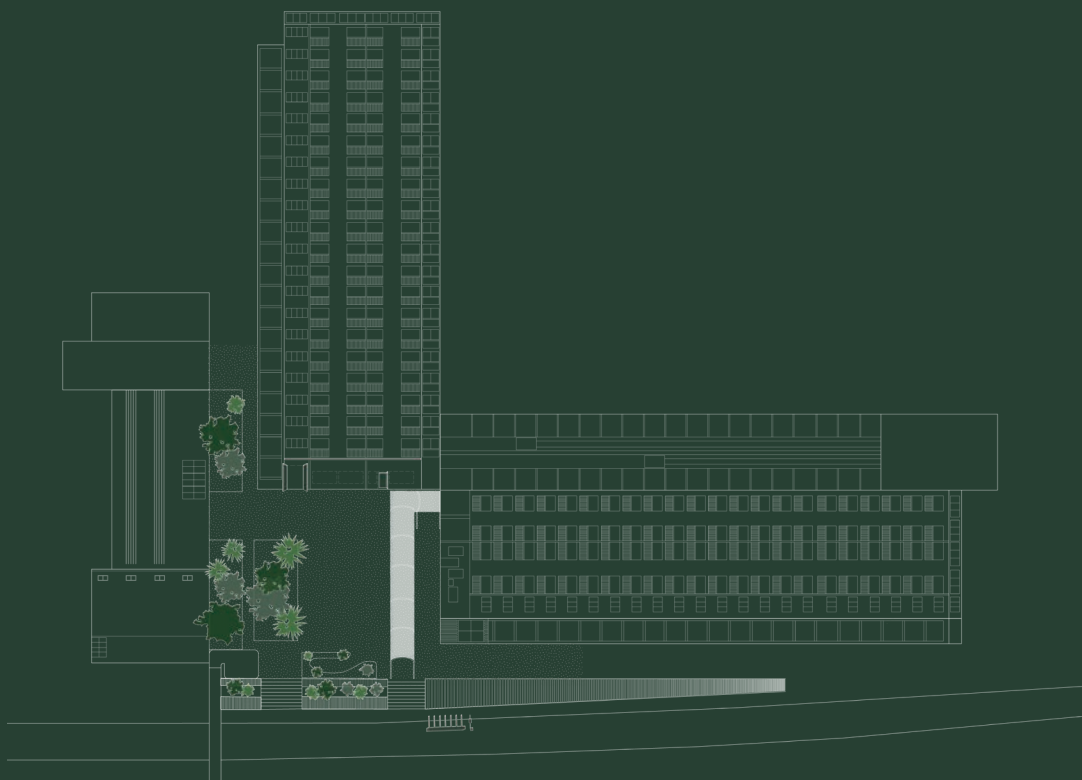


附錄 II：其他潛在方案 - 「嘉年華」 APPENDIX II: ANOTHER POTENTIAL SOLUTION – “CARNIVAL”

共創工作坊及社創研討會結束後，設計顧問Eureka參考共創團隊提出的方案B，從他們的專長出發，研究了另一個解決方案的可能性——環境及建築空間與不同長者的關係。

After the Co-creation Workshop and Social Innovation Symposium, with reference to Proposal B suggested by the co-creation team, Design Consultant Eureka took a step further and developed another solution within their specialty - environment and architectural spaces and its relation to different users.

「嘉年華」 - 建築設計方案 “Carnival” - Architectural Design Proposal



[A] 長者中心位於一個屋邨的地下，旁邊有巴士站，外面有一個開放的空間。

The Elderly Centre is located at the ground floor of a housing estate, next to a bus stop and facing an open area.

1. 發掘設計問題 Identifying Design Problems

While doing the research and visiting the centre, the team noticed how the space has an important role in the communication with the elderly and possible newcomers. One of the interesting points was how the windows were always closed, sometimes having more than one layer of grating.

If space is so important and yet so limited, the windows have an important role in the centre. Not only from the health aspect but the visibility aspect as well.

So in addition to the creation of Tung Zai, the team speculated how the centre could create temporary opportunities to be more visible, establishing a connection with the community and the neighborhood - opening the windows.

在到中心實地考察時，團隊注意到這個空間對於中心與長者和新會員溝通有著重要的角色。有趣的是，中心總是緊閉窗戶，有些窗戶的結構甚至有多於一層。

如果這個細小的空間有這麼大的重要性，這些窗戶可以直接影響人與人的接觸交流，對長者的健康和中心的可視度都十分關鍵。

因此，除了設計東仔，團隊思考過中心可以如何創造短暫的開放時段，讓中心提高知名度，從而聯繫社區和鄰舍——打開溝通的窗戶。



[B] 其中一個帶有三層圍欄的窗戶。
One of the windows with three layers of fencing.

2. 了解不同的持份者的痛點 Identifying painpoints of different stakeholders

• 中心會員

中心的會員可以享用的空間有限，活動室需要有足夠的彈性以應付不同的活動的需要。

• 中心職員

雖然該中心近年進行過翻修，但由於中心需要把地方分為儲物空間、工作空間、和活動空間，職員仍時常面對房間不足的難題。

除此之外，職員也反映很難接觸較年輕的非會員。

• 非會員

由於中心的位置不顯眼，非會員很難留意到中心的存在。

雖然中心職員會在屋苑內張貼海報和告示，但仍難以接觸到新會員。

• Centre members

The members in the centre can enjoy a limited space, with rooms that many times have to be flexible enough to accommodate different activities.

• Centre staff

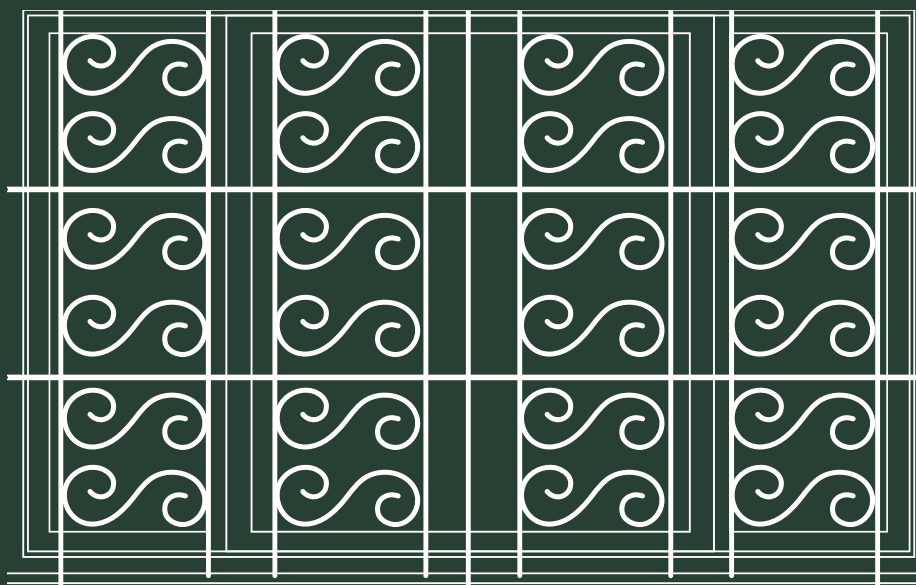
Although the centre had been renovated recently, the limited space is still an issue to the staff since it has to be divided for storage, workplace and activity space.

Besides, the staff reported also having trouble reaching new and younger regular members who could engage and come to the centre more often.

• Non members

Due to the discrete location of the elderly centre, it has low visibility to non-members.

Placing posters and announcements at the housing estate is one of the work the centre does but it is still not enough to reach new possible members.



[C] 長者中心的窗花圖案之一。

One of the patterns of windows bars at the Elderly Centre.

3. 設計目標 Design Objectives

To make the elderly centre more visible by creating "windows" that can expand through the limited centre space at limited times, and to enhance the sense of community and belonging among the neighbourhood by creating different activities that can stimulate the engagement of the families.

在部分時間透過創造「窗戶」來擴展中心有限的空間，讓長者中心更加顯眼。此外，中心可以舉辦並邀請區內家庭參與不同活動，加強鄰舍內的社區連結及歸屬感。

4. 關鍵設計考慮 Key Design Consideration

Having in mind one of the design challenges as bringing new and regular members to the centre, this alternative design is a way to promote and make the centre more visible by teaching and recruiting their own members to offer more services.

考慮到共創工作坊的其中一個設計挑戰，是要為中心帶來更多新成員，這個方案透過招募和培訓中心會員成為義工，在中心提供服務，從而達到宣傳中心和提高中心知名度的效果。

One thing the team noticed is that the centre is closed on itself. To make the centre more visible within the limited space, the centre can make use of the windows and the public space in front of it, allowing transparency as well as conversation to happen between the inside and the outdoor space.

團隊注意到中心本身是封閉的。為了讓中心更顯眼，團隊認為中心可以善用窗戶以及它前面的公共空間，提高中心的透明度，讓戶內和戶外的人可以互動和對話。

5. 建議方案 Proposed Solution

「嘉年華」是一系列的活動，它可以是季度性的，即每三個月舉辦一次活動。這個方案的靈感來自商場的季節性集市和表演。每次「嘉年華」活動可以有不同的主題，例如根據每個季節的不同特色，在活動當天為中心帶來一些特色菜、活動和表演等。

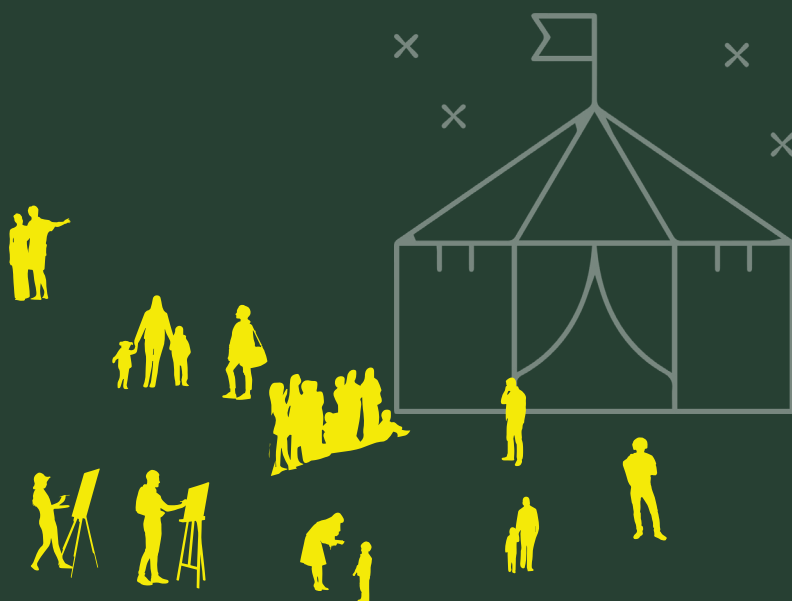
在活動當天，長者將成為主角，展示他們前幾個月在中心學到技能，例如：導賞、攝影、製作手工藝品等。中心亦可以邀請一些新晉作家、畫家、或樂隊等不同的嘉賓一起參與「嘉年華」，並開放予區內其他人士參觀。

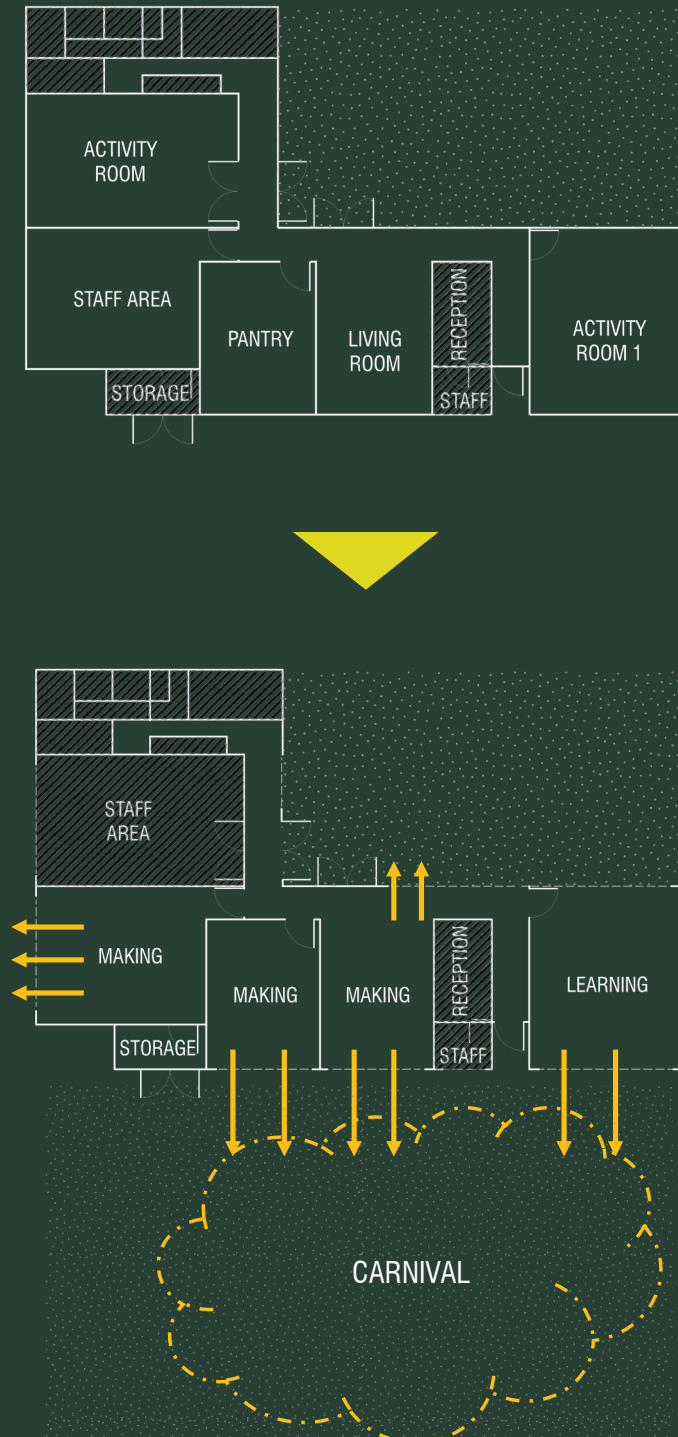
這系列的活動和表演不僅可以在中心內進行，還可以伸延到中心外的空地，甚至區內其他位置。這種做法有助促進長者與家人、以及長者中心和鄰舍的關係。除此之外，中心亦可藉此機會募集捐款，用以資助下一次「嘉年華」活動。

Inspired by the seasonal fairs and performances in shopping malls, the “Carnival” is a set of seasonal events that can happen every trimester. The events, which could have different themes, for example the 4 seasons of the year, would bring special dishes, activities and performances to the centre for a day.

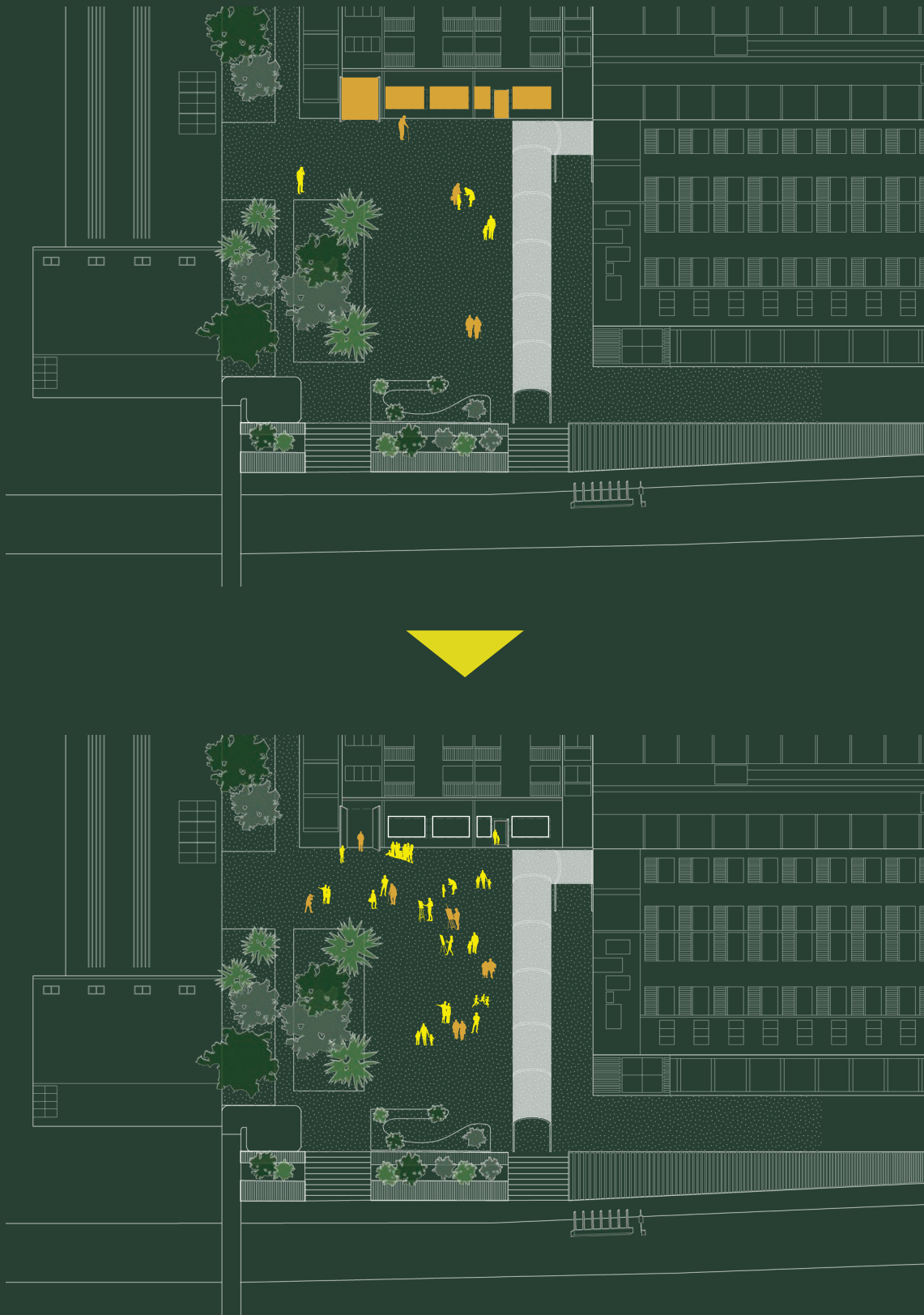
On this day, the elderly would be the main stars of the event, exercising some of the skills learned in the previous months at the centre. For example, tour guide grandma/pa, photographer grandma/pa, gifts crafted by grandma/pa, etc. Along with different guests such as popular writers, painters, or bands, an “open house” could be arranged, opening the doors of the centre to visitors and friends.

These activities and performances would not only happen in the interior of the centre, but also in the extension of it, including the garden and even some other parts in the neighborhood. This could help strengthen the relationship between elderly with their families and elderly centre with the neighborhood. Besides, the centre can also allow donations from the visitors through this opportunity for funding the next event of the series.



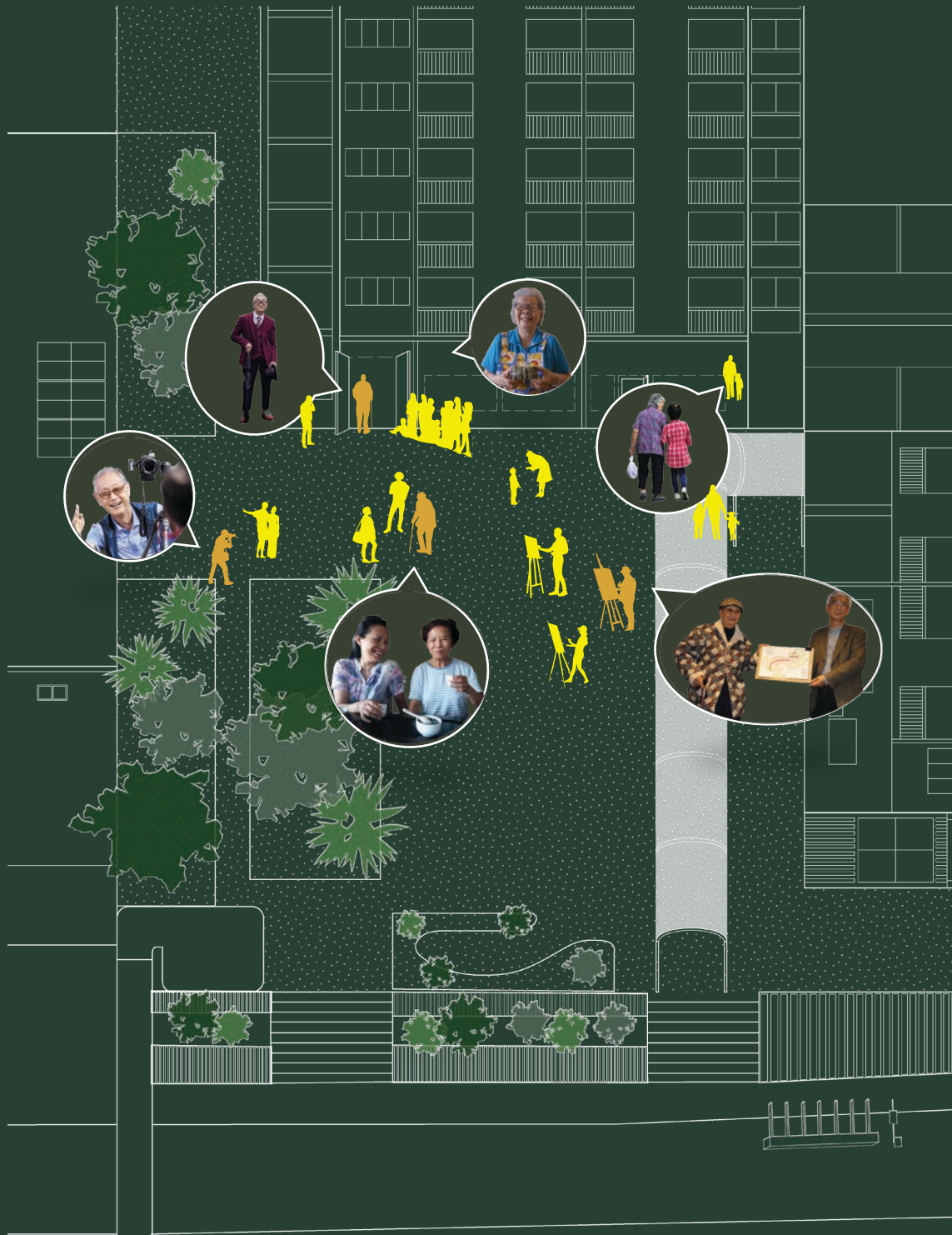


[D] 長者中心現有的平面圖（上）及建議方案提出的概念圖（下）。
Current floor plan of the Elderly Centre (top) and the concept of the proposed solution.



[E] 平日活動（上）及舉辦「嘉年華」活動時（下）中心與戶外空間分別會有的連繫。

The Centre's connectivity with the outdoor space brought by activities on a regular day (top) and that of the "Carnival" event day (bottom).



[F] 設計團隊對「嘉年華」活動情景的想像。
The design team's imagination of the "Carnival".

POLYU JOCKEY CLUB

OPERATION SOINNO

理大賽馬會社創「騷·In·廬」

關於理大賽馬會社創「騷·In·廬」 ABOUT POLYU JOCKEY CLUB “OPERATION SOINNO”

由香港理工大學（理大）賽馬會社會創新設計院主辦及香港賽馬會慈善信託基金捐助，於2018年8月1日正式啟動，計劃為期三年，以期匯集社會各方，以創新理念和務實可行的社會創新方案，應對多項社會挑戰，共同改善香港的生活。以應對香港「雙老化」（即人口老化及住屋老化）的複合效應為工作的策略焦點，聯合學術界、非政府組織、專業團體、熱心的社會人士、企業和政府，攜手構建創新方案，並按此制訂建議的實際行動。

Organised by the Jockey Club Design Institute for Social Innovation (JCDISI) at The Hong Kong Polytechnic University (PolyU) and funded by The Hong Kong Jockey Club Charities Trust, the 3-year social innovation project commenced in 2018 aims to innovate solutions, in collaboration with a wide spectrum of stakeholders, to respond to social challenges with a view to improving life in Hong Kong. JCDISI puts its strategic focus on tackling the combined impact of “Double Ageing” (ageing of people and building) in Hong Kong, the programme would engage the trans-disciplinary forces of academia, non-governmental organisations, professional bodies, members of the public, corporations and the Government to generate innovative ideas and practical actions.

項目四大範疇 The Four Pillars of the Project



ONE FROM HUNDRED THOUSAND
「十萬分之一」社創研討會

「十萬分之一」社創研討會 - JCDISI相信，假若每十萬人之中有一人，即香港七百多萬人口當中的七十多名市民，能貢獻時間、熱誠、知識與創意，攜手合作，定能為特定的社會議題帶來創新的解決方案。透過一系列的參與式研討會及工作坊，收集市民對社會議題的意見、促進討論，並共同設計務實和創新的方案。

“One from Hundred Thousand” — to organise a series of participatory symposia and workshops open to the public to collect views on social issues, facilitate discussion and co-create solutions. JCDISI names the platform based on the belief that if one person from every 100,000 people (i.e. 70+ persons from the 7 million+ population of Hong Kong) can sit together and contribute their time, passion, knowledge and creativity, they can innovate solutions for a specific problem.



ACTION PROJECTS
社創行動項目

社創行動項目 - 聯合非政府組織、專業團體和學術界，把「十萬分之一」社創研討會上衍生出來的創新理念，轉化成可以執行的設計及專案原型。

“Solnno Action Projects” — to collaborate with non-government organisations, professional bodies and academia for developing innovative ideas generated at “One from Hundred Thousand” into designs or prototypes.



DESIGN EDUCATION
啟迪創新習作

啟迪創新習作 - 將社會創新和設計思維引入中學課程，培育青年成為社會創新推動者，內容包括為中學師生開設社會創新工作坊、製作多媒體互動教材等等。

“Solnno Design Education” — to introduce social innovation and design thinking into the curriculum of secondary school education to nurture students as social innovators. Social innovation workshops will be organised for students and teachers and multi-media interactive teaching kits will be developed in this regard.



KNOWLEDGE PLATFORM
社創知識平台

社創知識平台 - 以不同形式（如學術論文、短片、設計與指引、個案報告、工作坊、地區及國際會議、展覽等），記錄是項計畫的各環節，包括社會創新過程、創造的方案與知識等等，並公開予公眾參考應用。

“Solnno Knowledge Platform” — to document and disseminate for public use the social innovation experience and knowledge generated from the programme through various formats, including academic papers, videos, design and practice guidelines, case study reports, workshops, regional and international conferences and exhibitions.

鳴謝

ACKNOWLEDGEMENTS

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出版資料 Publication Details

理大賽馬會社創「騷·In·廬」
POLYU JOCKEY CLUB "OPERATION SOINNO"

長者中心語音互動機械人共創報告
Report on Co-designing Interactive Voice Response Robot for Elderly Centre

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出版：香港理工大學
Publisher: The Hong Kong Polytechnic University

編輯：鄭依依、林淑莉、胡匡頤
Editors: Debby Cheng, Elie Lam, Heidi Buaton

設計顧問：意念加有限公司
Design Consultant: Eureka Limited

撰稿、排版及平面設計：意念加有限公司
Copywriting, Layout and Graphic Design: Eureka Limited

出版日期：2021年9月
Publication Date: September 2021

國際書碼：978-962-367-853-7
ISBN: 978-962-367-853-7

主辦機構 Organiser



捐助機構 Funded By



香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust

免責聲明 Disclaimer

本刊攝錄之相片，部分於2019年冠狀病毒病疫情爆發前拍攝。於疫情期間之活動及拍攝，在場人士均有嚴格遵從當時實行之防疫措施。

Some of the photos in this report were filmed before the outbreak of COVID-19 epidemic. For all activities and filming under the epidemic, all those present strictly followed the anti-epidemic measures enforced at that time.

理大賽馬會社創「騷·In·廬」計劃由香港賽馬會慈善信託基金於2018年捐助開展，並由理工大學營運。項目活動和報告（包括行動項目）均由JCDISI組織和實行，香港賽馬會並未參與其中。

PolyU Jockey Club “Operation Solnno” is a project funded in 2018 by The Hong Kong Jockey Club Charities Trust and operated under The Hong Kong Polytechnic University (PolyU). The events and reports under this project, including the Action Projects, are solely organised and implemented by JCDISI. The Hong Kong Jockey Club is not involved in the process.

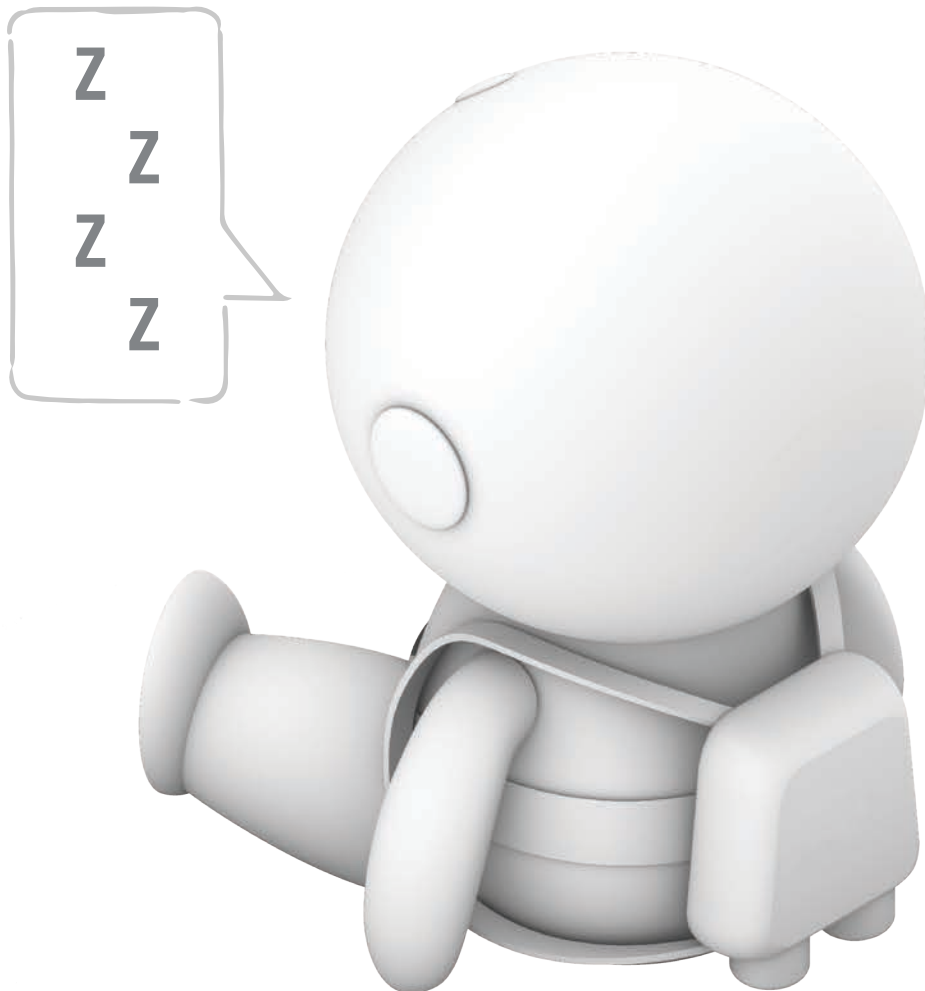
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香港賽馬會慈善信託基金
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