



2022



2023

The year '2023' is rendered in a large, bold, dark blue font. The '2's and '3' are significantly larger than the '0's. The number '2022' is positioned above the first '2' of '2023'. The '2's and '3' of '2022' are stylized to resemble a robot's head and body, respectively. The background features faint, light blue line-art illustrations of various tools and mechanical parts.

Annual Report

A New Chapter of Innovation in the Community

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Foreword

As we reflect on the past year and look ahead to the future, I am thrilled to share with you the highlights of our journey. First and foremost, I am excited to announce that we have successfully moved to our new office in September 2022. This new space will serve as a vibrant hub for our community, enabling us to continue our mission of fostering maker education, driving impact innovation, and incubating social innovators.

In the face of ever-increasing social and environmental challenges, our focus remains steadfast on empowering the youth to contribute. We firmly believe that their energy, creativity, and passion hold the key to addressing these wicked issues. Through our programmes and initiatives, we aim to cultivate a generation of changemakers who are equipped to make a lasting difference in their communities.

I extend my heartfelt gratitude to our dedicated team members, funders, partners, and community members for their unwavering support and commitment. It is through your collective efforts that we have been able to overcome the obstacles posed by the pandemic and continue to thrive. Together, we have created a space where ideas flourish, innovations thrive, and resilience is cultivated.

As we embark on the new year, let us embrace the challenges and opportunities that lie ahead. I am confident that with our shared vision and collaborative spirit, we can create a future that is brighter, more inclusive, and filled with positive change.

Thank you for being a part of this incredible journey.

Cyron Chan Executive Director

“In the face of ever-increasing social and environmental challenges, our focus remains steadfast on empowering the youth to contribute.”



What is MakerBay Foundation?

MakerBay Foundation is a creative space and educational platform dedicated to helping youth make an impact through developing their maker skills and mindset. We believe in the potential of youth to make a difference in the world, and we are committed to empowering and enabling them to do so.

We operate makerspaces in Hong Kong to provide people with the space, tools, and training they need to be innovators and serve the community through projects of maker education, impact innovation, and entrepreneurship. We operate on the belief that everyone can make something. With the tools, knowledge, and support from the MakerBay community, everyone can transform their idea into real impact. We are committed to fostering a global movement built by local innovation that will create a long-lasting impact.

MAKER EDUCATION



Design Thinking Training

Interactive training to experience the human-centered approach while learning to create prototype and test ideas quickly, making modifications based on users' feedback

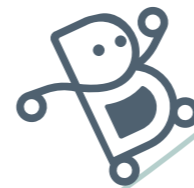
Community Projects

Working with different partners and stores in the community, we engage the public for idea exchange and project implementation to promote the maker culture and sustainability

Maker Workshops

Hands-on experience immerses participants in the world of making across different domains, fostering creativity, collaboration, and problem-solving

IMPACT INNOVATION



Prototyping Support

Support and advise entrepreneurs to create and test ideas before investing in full-scale development

Innovation Projects

Create innovative products to solve community problems with the application of maker skills across different domains

Startup Incubation

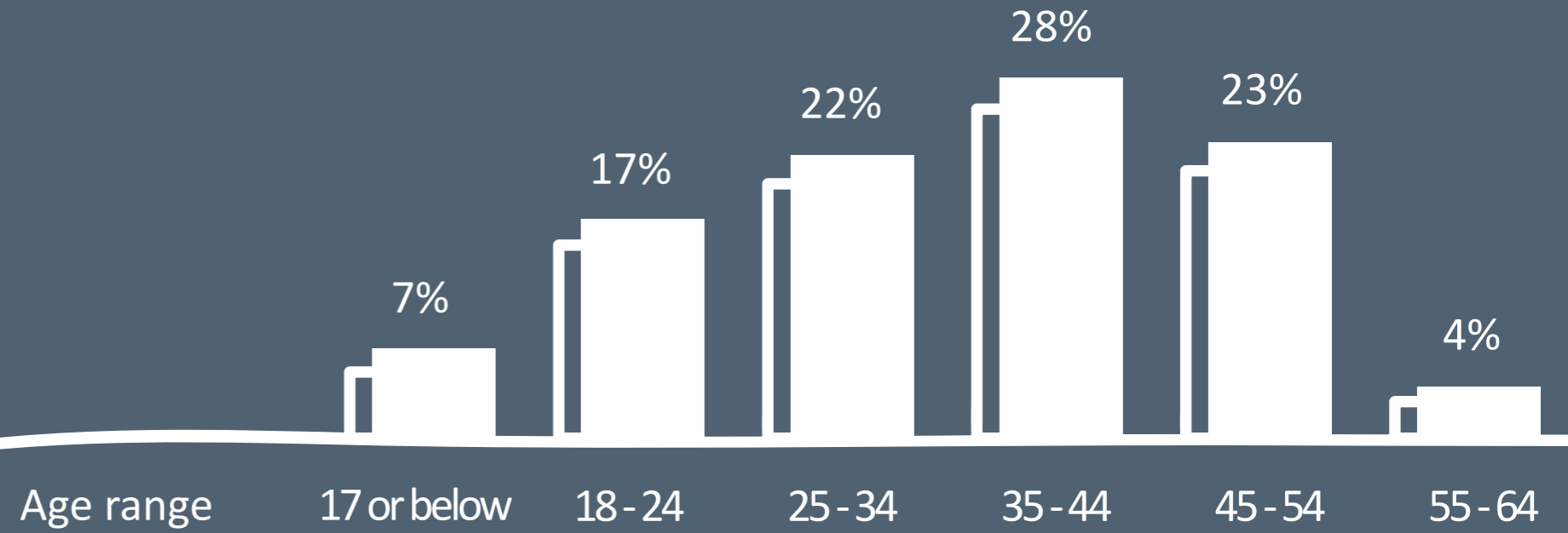
Assist in funding application, training, mentoring, and networking to help entrepreneurs launch and grow the venture

ENTREPRENEURSHIP

Key Figures

*As of 31 March, 2023

297 Members



Training & Workshops

4,066



Attendance

320



Sessions

13,002



Training Hours

Defining Maker Education

Maker Education is an authentic learning approach, which allows students to explore real-world problems and projects, engage in meaningful discussions, and construct concepts and relationships meaningfully. It offers teaching and learning that attends to the real and relevant needs of learners and humans. It positions students' interest at the center, asking students to become more aware of the design of the world around them, and begin to see themselves as people who can tinker, hack, and improve that design.



In MakerBay Foundation, we believe maker education is fundamentally about people, projects, and space. We know that people need support, tools, resources, and community to fully participate in the opportunities offered. We know that learning is contextual and social, and that for students to get what they need, educators must have what they need.

We teach maker education through 10 hard skills and 8 soft skills.

Maker Skillset:



Woodworking



CNC



Artificial
Intelligence



Electronics &
Coding



No Code Web &
App Development



3D Printing



Laser Cutting



Sewing



Metalworking



Design Thinking

Maker Mindset:



Experiment Spirit



Empathy



Problem Solving



Collaboration



Creative Confidence



Resilience



Critical Thinking



Initiative

People

Meet Our Team



Cesar Jung-Harada
Founder



Cyron Chan
Executive Director



Carina Wong
Human Resources &
Finance Manager



Winnie Wong
Marketing & Public
Relations Manager



Jessica Chan
Program Officer



Hillman Cheung
Accounts Clerk



Stella Law
Community Program
Assistant



Harry Cheung
Community Program
Assistant

Meet Our Board of Directors



Sandy Yip
Marketing &
Community Manager



Kelvin Lee
Program Manager



Marco Chung
Program Manager



Kalyn Ng
Workshop Manager



Abbie Jung-Harada



Sharon Mullan



Chicky Bhavnani



Maria Li



Thomas Williams
Workshop Manager



Kelly Law
Senior Program Officer



Rain Lau
Senior Program Officer



Hera Ho
Program Officer
(Community Engagement)



Sylvia Chan May-kuen

Flagship Programmes

Jockey Club AI Community Innovation Programme

Funded by the Hong Kong Jockey Club Charities Trust, the Jockey Club AI Community Innovation Programme is a 2.5-year hands-on education programme, bringing together participants from schools, communities, and the industry to learn, play and, solve real-world problems with artificial intelligence (AI). It consists of various workshops targeting students to enhance their AI literacy as well as professionals and educators to build the ecosystem.



Key Figures



993
Youth



289
Parents



96
Community Workshops



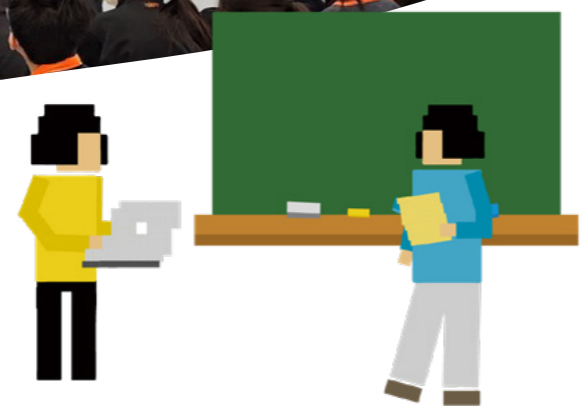
23
Capacity Building Workshops



4
Challenge Days



1
Showcase Day



Community Workshops

With the focus on both AI concepts and applications, the Programme brings different levels of workshops to youth aged 8 - 18. Cultivating empathy and problem-solving skills are incorporated into the curriculum design to train participants to be competent digital creators.

In collaboration with HKFYG Lee Shau Kee Primary School, we introduced students to the transformative power of Artificial Intelligence (AI) while fostering empathy and a user-centric mindset through a series of engaging workshops.

By donning blindfolds, earplugs, or even sitting in a wheelchair themselves, students gained invaluable insights into the challenges faced by individuals with disabilities. Students then turned these discoveries into insights and applied them to build AI solutions using Teachable Machine and Pictoblox. Among these creations were a sign language translator, fostering seamless communication with those who use sign language, and intelligent glasses, equipped to measure distances and recognise a variety of objects.



Diverse Content

Workshops covered topics ranging from hardware, mobile app development, game design, generative AI, problem-solving and design-thinking skills, equipping youth to get ready for the challenges in the ever-changing world.



Manageable for Everyone

Learn about AI technologies and tools with a step-by-step approach through activities to ensure youth of different backgrounds can grasp AI's potential.



AI for Impact

Apply knowledge to the next level by designing projects based on real-world problems and create genuine impact on society and the environment.



Challenge Day

The “Challenge Day” is a unique and dynamic event aimed at fostering innovation by applying AI among young minds.

In this exciting two-day event, students from primary and secondary schools came together to tackle real-world issues. They worked together with dedicated mentors to brainstorm, design, and construct AI solutions for different users. The experience encouraged students to empathise, identify problems, build prototypes, and present their ideas within a tight timeframe.

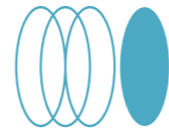
With the support and guidance provided, these young innovators were able to turn their groundbreaking ideas into tangible products. 4 Challenge Days were held this year with different themes.



Better Care and Support for the Elderly with AI Solutions

On the first Challenge Day, students competed and exchanged ideas on the theme of “Better Care and Support for the Elderly with AI Solutions” virtually. To facilitate the process of building empathy, 4 senior citizens were invited to share the difficulties they encountered in daily lives and give opinions on the solutions that the participants came up with.

Students from Delia English Primary School and Chiu Sheung School Hong Kong received the championship of the Primary School Division with their mobile app “Eldervice”. It allows the elderly to input and record their blood pressure and blood sugar level which will be using AI to compare with the normal range and provide recommendations accordingly. As for the Secondary School Division, the champion was a team from Hong Kong University Graduate Association College, who designed a workout app for the elderly. The app recommends exercises of different levels and detects fitness poses with AI motion detection by using the camera of the mobile phone.



Tackled Accessibility for the Visually Impaired

The second Challenge Day was held at Olympian City where students brainstormed and built prototypes of AI solutions with their mentors to improve accessibility for the visually impaired.

The champion of the Primary division went to a team from C.C.C. Heep Woh Primary School (Cheung Sha Wan) who designed a Smart Hanger. Users simply need to input the style and size of the clothing they wish to buy in a boutique and the mobile app will guide them to the appropriate wardrobe. As they pick up the hanger, they will be informed about the information such as the design, color, and price of the clothing.

As for the Secondary division, the champion was a team from Maryknoll Fathers' School with their smart traffic app. The app will link with an external camera that uses an AI model to recognise objects including obstacles and bus stop signs, and remind users instantly.



Green Campus

In partnership with the Centre for Innovative Service-Learning of Hong Kong Baptist University, the third Challenge Day explored how to apply AI for building the Green Campus.

Participants built empathy through having a campus tour and interviewing students and staff under the guidance of mentors and student helpers. They then designed the AI solutions using tools such as Teachable Machine and Pictoblox where some addressing energy saving and recycling. The champion team created a prototype of a rubbish bin with an AI camera to identify recyclable waste with sound to notify users.



Community Sports

On the fourth Challenge Day, students applied Artificial Intelligence to add new elements to existing sports which encouraged community connections. Starting with trying the newly emerged sports such as dodgebee, flyball, and spike ball to gain hands-on experience, participants then brainstormed ideas with their mentors and teammates.

Their creations were tested by the public and received instant feedback on a Community Sports Day, for example, a team of students from SKH St Thomas Primary School further enhanced frisbee by incorporating new elements. In the new game, a player will wear a wristband with a camera affixed and then throw a flying disc to the target in front of them with both eyes blindfolded. The special point is that as the player sweeps around the target, the wristband will emit sound. The closer the direction is, the louder the prompt will be. This experience was not just a technology training session for them, but also offered a confidence boost.





Training Topics and Our Targets



General Public

- What is AI & Machine Learning?
- Different types of AI and Learning Approaches
- Examples of AI for Good
- Ethics of AI



Capacity Building Workshops

Designed to empower professionals from diverse backgrounds with a comprehensive understanding of AI and its applications, the Capacity Building Workshops were conducted for social workers, educators, and the general public.

In collaboration with NGOs including The Boys' & Girls' Clubs Association, Caritas Hong Kong, Baptist Oi Kwan Social Service, and Hong Kong Young Women's Christian Association, we organised workshops and equipped participants with the knowledge, skills, and resources to integrate AI into their work, thereby enhancing productivity and efficiency.

Structured as well-rounded sessions, participants actively engaged in hands-on learning experiences, which spanned from introductory AI projects to more advanced topics like generative AI. It was glad to note that many participants found the process of learning AI to be more accessible than they initially anticipated and expressed their intentions to apply these newfound skills within their respective workplaces.

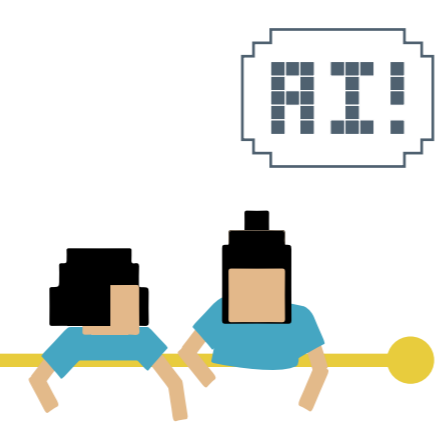


Teachers



Social Workers

- Understanding Generative AI and Prompt Engineering
- Applying Generative AI to create images, articles, and presentations
- Comparing and analyzing different AI tools
- Collaborating with other participants to design a teaching plan/promotional materials



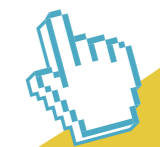
Showcase Day

The Programme presented its Showcase Day, where the brilliant ideas and prototypes of participants took center stage. From mechanical guide dogs to recycling robots and motion-detection sports apps, the event was a testament to how AI can be harnessed for the greater good.

The event also provided a platform for participants to get inspired from 3 esteemed speakers, including Mr. San Wong from R2C2, Ms. Nicole Ng from Saint Francis Xavier's School Tsuen Wan, and Mr. Michael Yung from Google, on how to implement ideas. It is never too late to start learning - keep exploring different resources, even if it is slow going. You will quickly exceed those who do not take the first step in their journey.

Symposium

Another exciting activity of the Programme, Global Symposium was held in March that featured 14 leading minds of diverse fields from 10 locations sharing powerful ideas, unfolding the potential of AI to bring about positive change across the world. We met virtually to discover the transformative impact of ChatGPT on education, explore intelligent decarbonisation strategies, delve into AI's role in healthcare and learn how to unlock the power of leveraging AI and robotics to augment human capabilities.



The replay can be viewed on our [YouTube channel](#).

Technovation Girls 2023 and Technovation HK

Technovation is a global technology education non-profit, empowering underserved groups to tackle problems in their communities using cutting-edge technologies, such as AI and coding. As a chapter ambassador, we organised the Technovation HK and coordinated with participants on joining the global Technovation Girls 2023 competition by hosting preparatory workshops and consultations.

The final pitching was held where Mr. Franky Poon from Hong Kong Red Swastika Society Tai Po Secondary School, Ms. Jeanne Lim from beingAI, and Ms. Yau from Amazon Web Services joined us as judges to give feedback to the participants.

The Champion went to Green Cycle which allowed the APP users to easily identify the material and recyclability of an item and find the nearest recycling centers. The 1st Runner Up developed an AI system that detects cracks on building surfaces, helping to prevent serious accidents caused by structural issues. And the 2nd Runner Up harnessed the power of AI to detect pests, providing valuable assistance to farmers in safeguarding their crops. All participants showcased their incredible talent and dedication throughout this competition, demonstrating the power of innovation and how it can positively transform our society.



Flagship Programmes

DBS Foundation InnoFuture Youth Programme

Supported by DBS Foundation, the DBS Foundation InnoFuture Youth Programme is a 1.5 years programme that aims at providing comprehensive upskill training on AI and No-code to improve digital literacy and competitiveness for the underserved youth of 15 – 24 years old. Through nurturing youth talents in building their no-code projects, it is expected to empower the digital transformation of the social sector.



Key Figures



203
Youth



33
Training Sessions



304
Training Hours
(Including Online Course & Tutorial)

Training Curriculum

01

Introduction

AI & No Code

1. Foundation
2. Future and Implementation

02

Intermediate

Make with No code

3. Create a web page using Carrd and Webflow
4. Develop a mobile app using Glide and Adalo
5. Design a web app with powerful database using Softr

03

Advanced

Make with No code

6. Create an advanced web app using Bubble
7. Implementing AI Model

User Experience

8. Basic of UX in No-code Application

Expected Learning Output

- Membership System
- Case Management Platform
- Promotion Website
- Event Registration and Attendance Platform
- Interactive Service Map



From the fundamental principles of AI to building digital solutions using no-code platforms, participants will learn how to navigate Carrd, Webflow, Glide, Adalo, and Bubble, to design and develop their own web apps and mobile applications without coding.

Participants can also take part in a Capstone Project that allows them to ideate and design digital solutions for NGOs/ social enterprises while gaining valuable hands-on working experience. By the end of the programme, it is expected that participants will be well-equipped to turn their innovative ideas into functional tech solutions, making strides in their tech careers and contributing to the ever-evolving digital landscape.

Empowering Underserved Youth

In our commitment to empowering underserved youth, we have formed strategic partnerships with organisations dedicated to making a meaningful impact. Our focus on no-code training has given these young individuals the skills and opportunities to become creators of digital solutions.

Pioneering No-Code Technology for All at Ebenezer Schools of the Visually Impaired

A site visit to the Ebenezer Schools of the Visually Impaired brought an opportunity to bring technology for the visually impaired. We tested the compatibility of no-code tools, particularly Glide, with accessibility equipment, including Braille keyboards and Voiceover. It was found that students can use Glide to develop mobile apps.



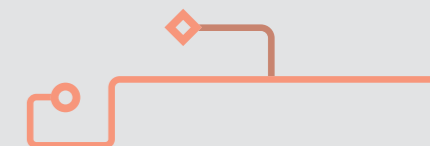
Collaboration with Baptist Oi Kwan Social Service Wanchai Centre to Train SEN Youth

This partnership aimed at providing specialised training to youth with special educational needs (SEN). Following the training, students applied the knowledge and skills learned to develop the center's new website.

Despite having no prior experience with no-code platforms, they quickly grasped the fundamentals and played pivotal roles in constructing the website. Their tasks ranged from designing the main layout to understanding the content management system (CMS) and ensuring an aesthetically pleasing colour scheme. The [new website](#) was launched that clearly outlined the center's services and programmes.

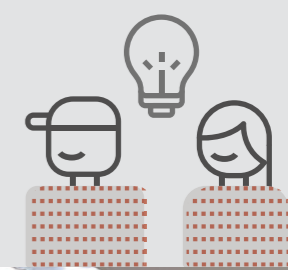
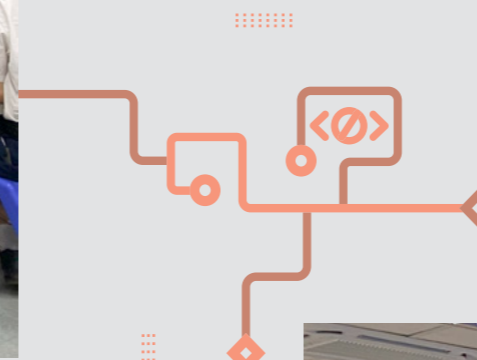
We initiated a series of no-code workshops designed specifically for visually impaired students. These sessions empowered students to create mobile apps, including an attendance app, using Glide and screen readers. While it took time to identify the location of buttons on the screen, their success brought a sense of satisfaction and a newfound desire to explore the vast potential of no-code development. We believe that these newfound skills will open doors to diverse career opportunities for these remarkable students.





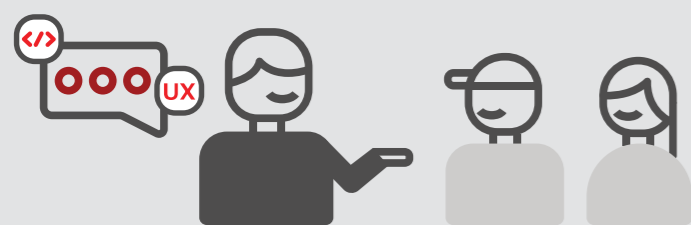
Inspiring Ethnic Minority Students with the New Home Association

Through a partnership with the New Home Association, we extended our reach to ethnic minority students, providing them with comprehensive no-code training. The programme empowered these young minds with the knowledge and skills to create websites and apps using platforms such as Carrd, Webflow, Glide, and Adalo. The students not only acquired new skills but also boosted their confidence that they can be builders and creators in the digital landscape.



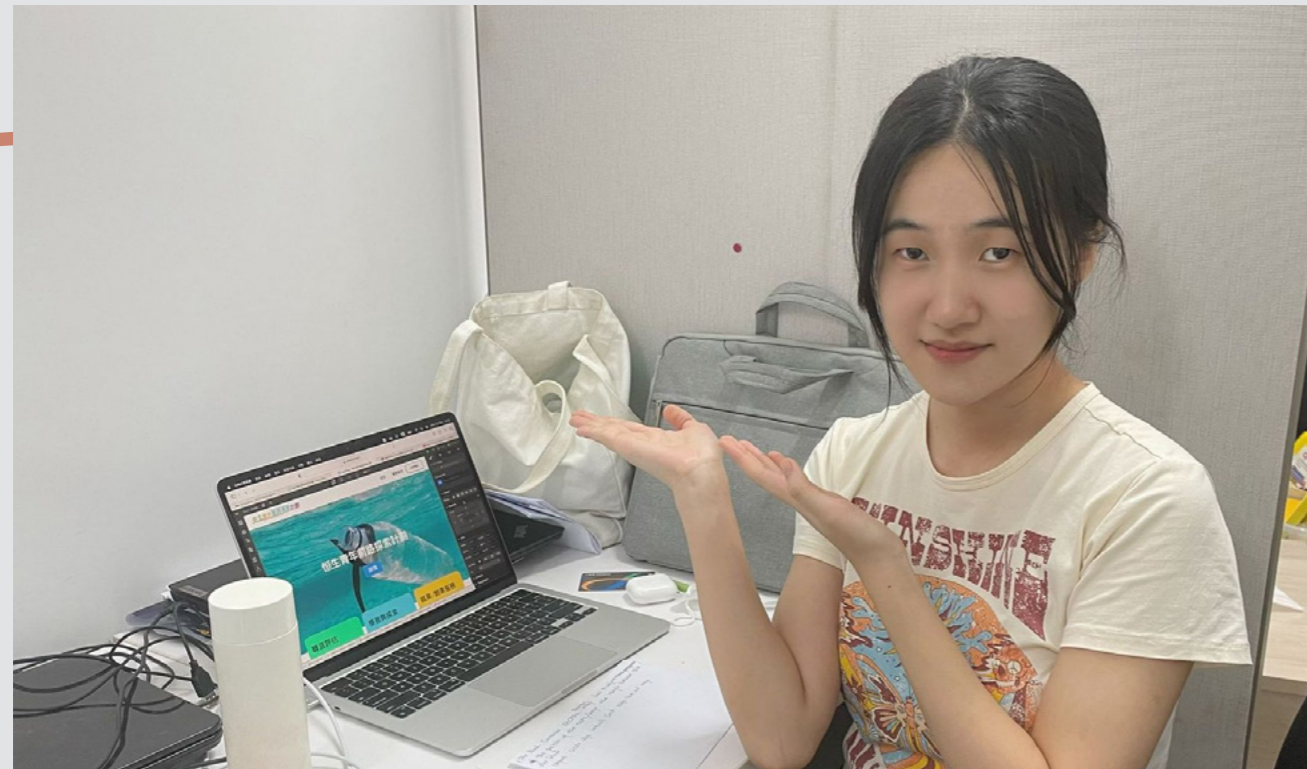
Enhancing Skillset for Students at Cotton Spinners Association Secondary School

Our work extended to Cotton Spinners Association Secondary School, where F.6 students delved into the world of no-code skills. Their learning was further strengthened as every student created a membership to be used as school-based assessments for Information and Communication Technology (ICT) in the Hong Kong Diploma of Secondary Education Examination. This collaboration exemplified the integration of our curriculum with school syllabi, enhancing students' practical skills and preparing them for a digital future.



Nurturing Youth Talents Through

To develop youth talents by providing hands-on experiences, we worked with different partners on internship programmes to offer skills training, allowing young people to experience the workplace, discover their interests and showcase their talents.



Interns from Education University of Hong Kong

Four no-code training, tailored for non-local students and those under financial assistance at the Education University of Hong Kong, were hosted. These students then joined MakerBay as interns to create digital solutions for NGOs.

An intern, Kelly recalled that at the beginning, she found setting up web layouts and functions using Webflow a bit challenging. However, with learning from different tutorial videos and continuous practice, she gradually mastered the skills, making significant progress. Witnessing her own improvement, she felt a sense of accomplishment.

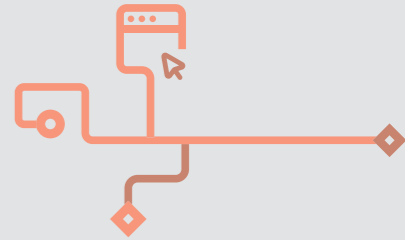
Interns from St. James' Settlement



5 secondary school students joined us through St. James' Settlement. They engaged in various tasks, including web and APP development, design, and maker projects. Michael utilised Glide, a no-code platform to create a simple HR system that allowed users to record overtime work and applied compensation leave. It also supported different levels of access so that supervisors or the HR department can directly approve requests in the system to streamline the process. After completing the basic functionalities of the HR system, Michael continued to explore different features of Glide.



On the last day of the internship, we were honoured to have Michael present his projects and the responsible from St. James' Settlement, admired the app was well-developed and suited their needs. We were delighted to see Michael's achievements. Over the internship, he proactively searched for various learning resources online. Under the guidance of the supervisor, he experimented and refined the app's functionalities.



Alumni Day

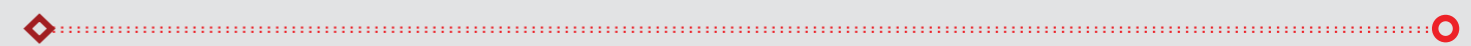
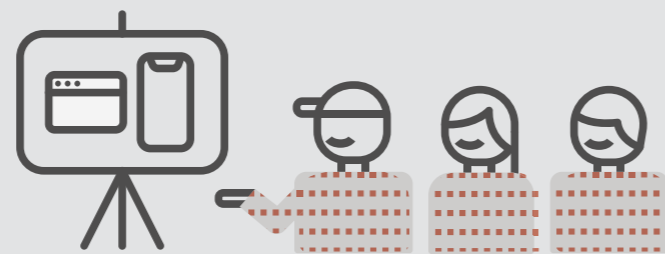
Alumni Day brought past participants together to showcase their capstone projects and share the invaluable lessons they have learned. It was a day of inspiration, fostering connections between students, as they mingled, exchanged ideas, and built lasting relationships.



Showcase day

A showcase day of the Programme was held at Man Kwan Pak Kau College where F.4 students exhibited their websites and apps, dedicated to streamlining workflows and sparking new initiatives for NGOs. It was encouraging to witness their learning and development.

One of the highlights of the day was the voting session, where other students had the chance to explore various booths and show their appreciation for the exceptional teams. The team which created a second-hand musical instrument app for Add-Oil Music emerged as the winner of the “Most Popular Design” award. We were honoured to have volunteers from DBS Bank to share their career experiences with our aspiring young minds. We do not know how the world will evolve under technological advancement, but equipping ourselves is always useful to stay ahead of the trend.



Online Learning Materials in Cantonese

The Programme created a series of no-code tutorial videos for individuals and organisations to unlock creativity and bring ideas to life with ease. We can create websites, apps and systems without the need for traditional coding skills. This not only saves time and money but may also open up new job opportunities. Subscribe to our [YouTube Channel](#) and start learning.

Flagship Programmes

Impact Innovation Lab

With visions of fostering the Hong Kong social innovation ecosystem and creating more opportunities for impact investing, MakerBay Foundation was appointed by The Social Innovation and Entrepreneurship Development Fund (SIE Fund) to be one of the intermediaries, to support potential social entrepreneurs throughout a three-year innovative programme, Impact Innovation Lab (The Lab).

Focusing on poverty alleviation and social inclusion, the Lab offers hybrid learning and training to equip participants with the essential skills and entrepreneur mindset of running social innovation projects. Awarded projects will receive up to \$100,000 in seed funding, and enter a six-month incubation period with guidance from experts and all-rounded support.



Programme Structure

01



- Elementary Training

- Introduction to Social Innovation
- Bootcamp
- Maker Skills Workshops (Woodworking, 3D Printing, Laser Cutting, AI & No-Code)
- Online Weekly Tutorial Classes
- Mentorship

LEARNING

Develop an Entrepreneurial Mindset

- Social Innovation Exploration Series

02



- Seed Funding Application

- First Pitch
- Final Pitch

PITCHING

Strive to Actualise Social Innovation Ideas

03



- 6-month Incubation for Awarded Projects with

- Seed Capital Grant of up to HK\$100,000
- Free Use of Makerspace & Co-working Space
- Support to Prototyping and Testing
- Guidance & Insights from Experienced Practitioners
- Networking Opportunities
- Business Referral Support
- Promotion Platforms

NURTURING

Test & Grow the Social Startup



The First Cohort started with a two-month Elementary Training. Themed “Grassroots Empowerment”, the Elementary Training invited participants to discuss the social problems faced by the underprivileged, then seek solutions through our activities and training sessions.

The flagship activity was the Idea Generation and Prototyping Bootcamp. It provided a unique opportunity for participants to immerse themselves in the lives of grassroots communities. Through experiential activities, sharing sessions, and the design thinking process, participants gained valuable insights and generated social innovation ideas.

The Lab also provided the participants with a series of Maker Skills Workshops to equip them with basic maker skills for building physical or digital prototypes. These workshops covered diverse topics such as woodworking, laser cutting, 3D printing, no-code development, and AI.

Seed funding applications for the First Cohort will be accepted in August 2023. 10 social innovation projects with strong potential for development will, starting their incubation period in January 2024. We are excited to empower changemakers to create meaningful social impact through the incubation.





Maker Education

Through hands-on maker skill training with the design thinking mindset, we empower youth to create products of their imagination.



Design Thinking Training for TWGHs Yau Tze Tin Memorial College

We provided a series of design thinking and STEM training programme to F.3 students from TWGHs Yau Tze Tin Memorial College. The aim was not just to teach these students a set of skills, but to instill in them a problem-solving mindset that could transcend the classroom and become a part of their daily lives.

Empathise and Define

The journey began with a profound lesson in empathy, as the students immersed themselves in the world of school janitors. Through job shadowing and direct observation, they gained firsthand insights into their needs, feelings, and the difficulties they encountered in their tasks.



Ideate and Prototype

Once armed with this empathetic perspective, the students started a series of exercises to brainstorm solutions to the problems they had identified through teamwork and collaboration. The journey then transitioned into the prototyping phase, where the students got their hands dirty, applying various maker skills and tools. They dabbled in woodworking, programming, and electronics to create inventions, including an adjustable mop, a set of specialized cleaning kits, and a blackboard wiping device, tailored to the needs of the school janitors.

Test

The programme concluded with a Showcase Day where they presented their works, and shared the process they went through with schoolmates and teachers.



Design Thinking Training for Buddhist Hung Sean Chau Memorial College

Throughout the 16 sessions of Imaker Class, F.4 and F.5 students at Buddhist Hung Sean Chau Memorial College were able to acquire design thinking skills and improve their ideas based on users' feedback. To the students, it was a hands-on experience to take up new challenges and strive for the best.

Sense of Belonging at School

They tried to conceive designs for different targets including the principal, teachers, junior students and classmates, to enhance their sense of acceptance, inclusion and support at school. They came up with designs such as a Monopoly to improve junior students' understanding of the school, a coffee machine and a healthy lunchbox vending machine for students and teachers to rest, a dating board for making more friends, and musical instrument performance sessions to relax.



Community Care

In order to develop facilities that serve the community's needs, they conducted field visits around the Choi Hung Estate and interacted with neighbours of different ages.

For the environment, they designed bug traps and cleaning equipment. In terms of leisure, a portable basketball hoop and a rainbow amusement facility were developed. They also suggested covers for walkways with plants on the roof to provide protection for pedestrians against the sun and rain.

For most students, it was their first time exploring the neighbourhood, speaking with strangers, and learning carpentry. Nevertheless, they overcame the challenges and successfully presented their final design in the final class.





Sustainable Christmas Tree at French International School

We constructed four 7-foot tall sustainable Christmas trees for a community event with participants at French International School. Recycled cardboard and wood pallets were used to build the Christmas trees to align with the theme of SDG 12: Responsible Consumption and Production.

Some participants assisted in cutting the cardboard into various sizes, arranging the pieces according to the sizes, assembling and rotating them to form a Christmas tree. On the other side, some helped draw the ornaments, cut out the shapes, and paint the colors to decorate the Christmas trees.



Coralbot Workshop for HKFYG Lee Shau Kei Primary School

The training for the HKFYG Lee Shau Kei Primary School spanned two days. On the first day, the training took place in the school, where the students learned about an object detection AI model and trained their own model to recognise coral. This was done using our custom-developed Coralbot, which allowed the students to learn how to prototype an AI robot.

The second day's activities were held at WWF's Hoi Ha Marine Life Centre. The students participated in a glass-bottomed boat tour, in which they observed real coral and understood the importance of biodiversity. The day concluded with the students finalising their boat prototypes and testing them in water. It provided a real-life experience to the students and consolidated their learning.



YWCA Tin Library - Playing on the Street

Together with a group of students from Chen Lui Chongde Memorial Secondary School, we designed interesting games for Playing on the Street, an initiative organised by YWCA Tin Library.

In the workshop, students made use of Rube Goldberg machines to create various mechanisms that the action of each triggered the initiation of the next, for example, a marble falling which then hit a block of wood. They worked hard with great patience to develop creative games in the setting of the Tin Shui Wai community and improve the design through trial and error. The creation was showcased on a fun day for the residents in Tin Shui Wai interested in community design.





Basketball x Coding Workshop



We collaborated with InspiringHK to organise a “Basketball x Coding” workshop that introduced the basics of artificial intelligence and applications of machine learning to secondary school and university students. Participants first experienced how to combine AI in basketball training through a mobile app as a warm-up exercise. They then tried inputting training data such as hit rate to develop different training modules on the Teachable Machine. They also used PictoBlox to design a shooting game that detected successful shooting to award scores automatically.



Train the Trainer

The train-the-trainer programme supports educators and social workers on different domain knowledge and soft skills to unleash youth’s potential.

Workshop to Fellows of JC InnoPower Fellowship for Teachers and Social Workers

In the “Technology and Maker Mindset in Education” Sharing, Mr. Cesar Jung-Harada, Founder of MakerBay, had a dialogue with a group of fellows from “JC InnoPower: Fellowship for Teachers” regarding how to nurture maker mindset for Hong Kong students and the use of technology in Maker Education. After Cesar’s sharing, the teachers had a tour of our makerspace and worked in teams to create their work by applying woodworking skills.

Design Thinking & Woodworking Workshop

MakerBay joined hands with Christian Alliance SW Chan Memorial College to host a “Design Thinking & Woodworking Workshop”. Over 20 teachers from different schools started by brainstorming the needs of the school and teachers to enhance the working and teaching environment. Some said the computer screen was too low which caused neck pain while some pointed out it was difficult to collect all the tools used after classes.

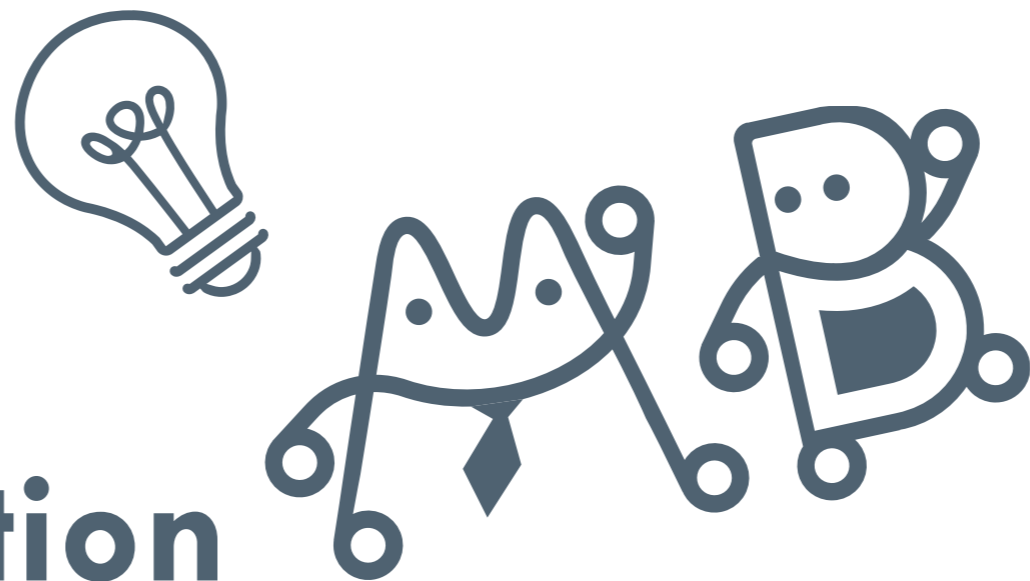
After identifying the problem and deciding the solution, they also learned basic woodworking skills to make a prototype, for example, a team made a monitor stand that helps reduce neck pain.



Youth Mover

We supported Youth Mover, a programme hosted by Baptist Oi Kwan Social Service. The programme aimed to bridge the gap in career planning and employment opportunities for underprivileged youth and youth with Special Educational Needs (SEN), addressing their lack of self-confidence, limited resources and social networks.

Throughout the programme, we trained one of the teams and guided them in designing online games specifically tailored for SEN children. Over the course of four coding workshops, an office tour and extensive consultation sessions, we had the privilege of witnessing the remarkable transformation that each team member underwent.



Impact Innovation

Working with different partners and stores in the districts, we engage public for idea exchange and project implementation to promote the maker culture and sustainability.



Craftsmanship Community Project in Yau Ma Tei

The “Craftsmanship Community Project in Yau Ma Tei” aimed to bring participants to old shops, engage in conversations with the owners and craftsmen, and learn about the stories behind these establishments. In the first phase of the project, participants explored Yau Ma Tei and learned various maker skills to co-create a wooden cart for the community, with an objective to change the stereotype of feeling pressured when visiting old shops. They discussed the appearance, theme, elements, and functionalities of the wooden cart, and improved the design while exchanging ideas with shop owners, craftsmen, and other stakeholders.

After extensive discussions, we decided to create a boat-shaped wooden cart called “Craftsman Ship” (匠油號) with reference to the historical background of Yau Ma Tei. During our visit to Ming Sang Steel Bamboo Receptacle, Mr. Lui introduced his bamboo products and demonstrated how to make a bamboo steamer. Upon learning about the flexibility of bamboo, we decided to use bamboo branches for the bow of the boat. For the other components, we used wooden boards, some of which were joined using dovetail. One side of the cart served as an extended table, and the cover was made of Hong Kong’s iconic red, white, and blue canvas.

Through this community project, participants not only deepened their understanding of old shops and various traditional crafts but also had the opportunity to explore woodworking, carving, bamboo weaving, sewing, and laser cutting. We overcame various challenges and succeed to bring the “Craftsman Ship” to life within the limited time.

For the next phase, we will focus on encouraging people to reflect on the value and impact of the old shops, with the hope that they will continue discovering the stories of different old shops in their community.

Plastic Reborn

MakerBay partnered with P&G and Watsons Hong Kong for the “Plastic Reborn” project, which involved transforming recycled plastic bottles into 3D printing filaments suitable for STEM education in primary and secondary schools.

The project aimed to turn waste into resources that contribute to the circular economy. STEM workshops integrating technology and environmental education were conducted in schools. We aimed to inspire students to address environmental issues with innovative thinking through both theory and practice while enhancing the environmental awareness of the younger generation.

Soap Cycling

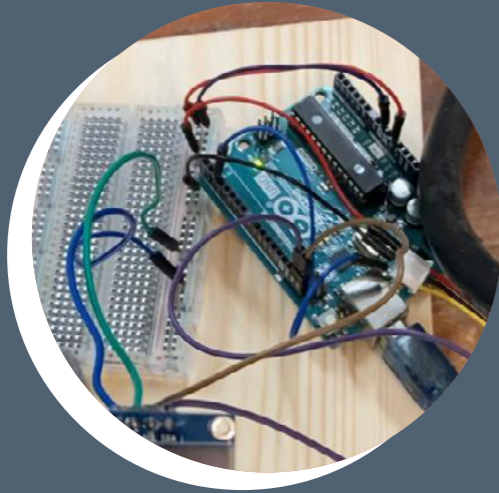
Soap Cycling, a social enterprise, collects and recycles lightly used soap and bottled amenities from hotels, preventing waste and redistributing them to those in need. Beyond recycling, the initiative empowers marginalized communities through job opportunities.

Facing a slow and inefficient soap extraction process, they reached out to MakerBay for assistance. After careful observation and extensive trials, our team developed an innovative solution—attaching a vibration machine to the soap bottle with a 3D-printed component that would automatically drain the soap. This innovation increased soap collection speed tenfold, significantly boosting overall work efficiency.



Impact Projects by Interns

With the expertise, tools and machinery, we support enthusiastic interns for their projects from idea generation to developing the prototype to suit the users' needs.



Arduino Projects: Crafting Water Flow Sensors and Beyond

With a keen interest in technology and innovation, Shrihaan took on the challenge of creating a water flow sensor using an Arduino Board, a crucial component for a miniature perfume-making machine. With guidance and online resources, he managed to not only assemble the sensor but also integrate a functional screen display.

Shrihaan also created two innovative projects. One involved the utilization of RFID technology and a door lock, simulating the operation of an RFID lock. Another project combined 3D design skills with temperature and light sensors to create an energy log, accessible through a local webpage.



An Intern's Journey in Exploring Tsuen Wan

Eliz who studies Social Design joined us in the summer holiday and her main task was to explore the Tsuen Wan community. Although it seemed straightforward, it actually took lots of time and required different skills to observe the environment, plan how to engage the communities, and build rapport with the locals.

Eliz engaged and interacted with the neighborhood during the internship by hosting activities like sewing and bartering on bridges and streets. Throughout the experience, she gained a better understanding of the elderly living alone and hoped the community could take initiative to support them. We provided a platform for her to develop maker skills, advised how to plan her project, and connect NGOs in Tsuen Wan NGO to work together.



IoT project to reduce food waste in Hong Kong

Two interns, Rishabh and Nathan who study at Renaissance College joined us to work on an **IoT project**. The project involves designing **SMART food waste collectors** to facilitate food waste recycling among the public. For each collection, the SMART collector would measure and record the category of the food waste and its weight. Then, the system would incentivize the participants accordingly and inform them of the final destination of their food waste.

After two weeks of dedication, Rishabh and Nathan successfully invented an IoT prototype that included a SMART weighing container, a mobile app, and a database.

Finances

AS OF 31ST MARCH 2023

	2023 HK\$	2022 HK\$
PROPERTY, PLANT AND EQUIPMENT	430,147	78,472
CURRENT ASSETS		
Deposit paid	279,750	196,000
Account receivable	2,476,239	36,979
Cash and bank balances	2,076,730	1,548,295
	<u>4,832,719</u>	<u>1,781,274</u>
CURRENT LIABILITIES		
Account payable	(19,417)	(45,000)
Accruals	(43,440)	(45,505)
Deposit received	(31,510)	(89,750)
Deferred income	(3,069,844)	(1,344,000)
	<u>(3,164,211)</u>	<u>(1,524,255)</u>
NET CURRENT ASSETS	<u>1,668,508</u>	<u>257,019</u>
NET ASSETS	<u>2,098,655</u>	<u>335,491</u>
Financed by:	335,491	379,752
RETAINED SUPPLUS	1,763,164	(44,261)
SUPPLUS / (DEFICIT) FOR THE YEAR	<u>2,098,655</u>	<u>335,491</u>

Partners

Funders



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The Hong Kong Jockey Club Charities Trust

Collaborated Organisations

Aberdeen Kai-Fong Welfare Association
 Baptist Oi Kwan Social Service
 Buddhist Hung Sean Chau Memorial College
 Christian Action
 Community Development Enhancement Fund
 Cotton Spinners Association Secondary School
 Ebenezer School & Home for the Visually Impaired
 Hong Kong Baptist Convention Primary School
 Hong Kong Christian Service

ICE Foundation
 Lok Kwan Social Service
 Man Kwan Pak Kau College
 Saint Francis Xavier's School Tsuen Wan
 Shek Lei Catholic Primary School
 St. James' Settlement
 The Education University of Hong Kong
 TWGHs Yau Tze Tin Memorial College
 YWCA Tin Library

