

TOM 2.0 REPORT 2019



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WHO WE ARE

TOM: Melbourne is an innovative disability tech start-up committed to delivering extremely affordable solutions for people living with disabilities. By connecting Need-Knowers and Makers, individuals with a deep understanding of disabilities and those with the skills to create solutions, we facilitate the development of impactful, human-centred assistive technology. We believe that technology has the power to make these solutions accessible and affordable to all.

We create, develop and deliver unique assistive technology solutions. Our 3 phase approach is integrated into events, university curriculum and developer groups. All solutions developed through our process are available in the public domain, meaning they are freely available for anyone around the world to access. Founded in 2016, TOM: Melbourne is made possible by Debbie Dadon AM, together with government, corporate, philanthropic and community partnerships.

TOM is courageously pursuing a bold 10-year vision to positively impact the lives of 250 million people worldwide.

TOM: Melbourne is one of the leading TOM communities. Since its launch in 2016 TOM: Melbourne has achieved significant milestones:

- **Facilitated 3 Makeathon events**

Creating 29 unique assistive technology solutions (2016, 2017 and 2019).

- **Established a Developer Group**

A program advancing four TOM prototypes into final products (cycle 1, 2018).

- **Established TOM @ University**

In Partnership with Swinburne University's Design Factory Melbourne and Engineering Practice Academy, developing 8 prototypes and 2 final products.

- **Launched a TOM @ Schools workshop**

Offering innovative STEM workshops for schools ranging from year 6-10.



TOM 2.0 OVERVIEW



STEP 1: CREATE MAKEATHON

TOM 2.0 represents the second step of the TOM process known as "Develop" during which teams continue working to upgrade prototypes developed at the Makeathon into final TOM products. A TOM product consists of both a physical product for the Need-Knower and a Digital Product File (DPF) that is uploaded to the TOM web-platform. This means that the solution can be downloaded and replicated in any makerspace around the world.



STEP 2: DEVELOP TOM 2.0

Previously, TOM: Melbourne had run it's development phase in the form of a Developer Group over a 12-week period, meeting once a week for 3 hours. However TOM 2.0 condensed the process into an intense weekend of making where teams engaged with their prototypes and Need-Knowers in detail with access to the latest tools and machinery at the newly opened FAB9 Makerspace in Footscray.



STEP 3: DELIVER WEB-PLATFORM

TOM 2.0:

JULY 6 - JULY 7TH 2019

VENUE:

FAB9

90 MARIBYRNONG ST,
FOOTSCRAY VIC 3011

TOM 2.0 SUMMARY

4

Need-Knowers

28

Makers

75%

Returning Makers

2

Mentors

4

Key Makers volunteered from other Makeathon teams



"TOM 2.0 was a fantastic opportunity for our team to meet again in a more low key environment. The team knew exactly what needed to be done. We felt really supported by the TOM Team"

Kathleen Love, Team Austin



"Making something to meet a need is exciting and challenging. The collaboration with other teams has been a fantastic. TOM 2.0 has been a great experience. Team Fid will stay in touch for a very long time."

Francesca Davenport, Team Fid



"TOM 2.0 was awesome. It was great to work with the same passionate people again, working more closely with Dati and Philemon. We have developed a great relationship"

Janlee Luzuriagga, Team Dati

TEAM MARY

CUSTOM EXERCISE DEVICE



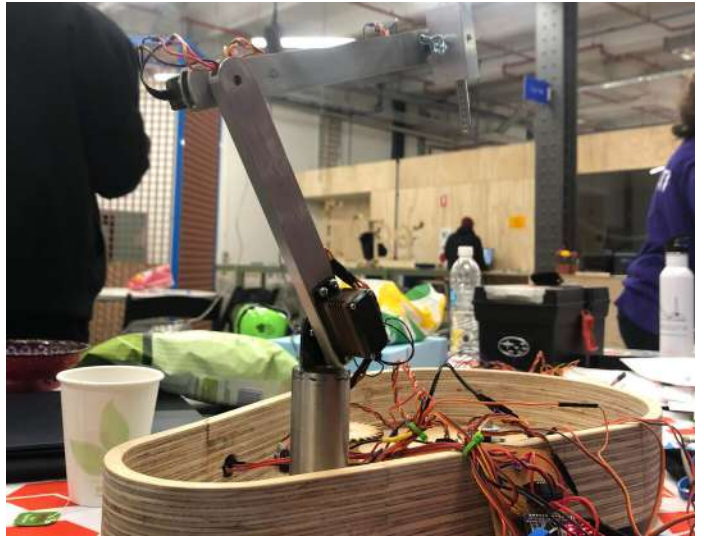
At the 2019 TOM: Melbourne Makeathon Mary's skilled team of Makers created a prototype workout machine which focuses on both cardiovascular and strength exercises. After transferring onto the machine, Mary can engage in a cardio exercise by rotating her torso to either side, sliding up and down an undulating, CNC cut, wooden ramp that provides her with resistance through her own body weight. For strength training, Mary pushes down on a sliding resistance arm that runs along track created with wheels from a skateboard and different resistance bands.

TOM 2.0 saw Mary's new team of Makers converted her exercise apparatus to a spring loaded system, enhancing the overall robustness and durability of the resistance part of her device. Embedded within the apparatus is now a digital reader to feedback the number of reps she has completed of each exercise.



TEAM DATI

INDEPENDENT EATING

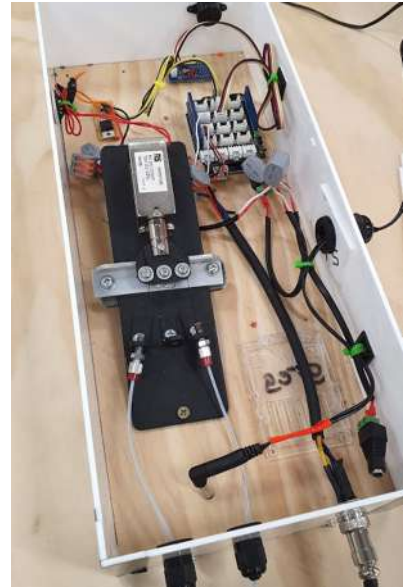


At the 2019 TOM: Melbourne Makeathon team Dati created a robotic feeding prototype that Dati can control with his foot. The team adapted an open source robotic arm, creating a customised spoon attachment that is mounted on a wooden case. When Dati engages the green button with his foot, the arm scoops up the food and delivers it to his mouth. When he presses the red button, the plate carrying the food spins around so that he can access different parts of the bowl.

At TOM 2.0 team Dati switched over from a 3D printing method to metal work design, providing a higher quality and more robust robotic arm for Dati to use long-term. Waterproofing and sanding modifications to the base of the device will now also provide Dati and his family with an easy to clean solution.

TEAM AUSTIN

MASK RELEASE SYSTEM



At the 2019 TOM: Melbourne Makeathon Team Austin designed custom 3D printed latches containing liquid capacity sensors that attach to his bipap mask. When liquid enters the mask, the latches are triggered causing the mask to release from Austin's face.

TOM 2.0 saw team Austin's 3-part mask release system change from a spring-loaded mechanism driven by a servo motor to one driven by a single solenoid. The clasp and humidity sensors have now been thoroughly tested to avoid accidental mask release during the night.

TEAM FID

PORTABLE STAND UP SOLUTION



At the 2019 TOM: Melbourne Makeathon Team Fid developed a pair of powered crutches that enable Fid to stand up from a chair independently for the first time in 9 years!! The crutches are powered by a set of actuators that Fid can trigger using a button built into the crutch grips. After raising himself up and subsequently standing, Fid can remove the temporary seat, which he will be able to stow away and carry with him anywhere he goes.

During TOM 2.0 Team Fid focused on enhancing the stability, elegance and portability of his Stand Up Solution. The team 3D printed crutch connectors and modified the seat interface to provide additional structural support during the stand up process.

TOM 2.0

MENTORS



ANDREW HENDERSON

Mechanical Engineer
& Manager
Intermodal, Transport
Planning, Transport
for Victoria



DAVE JENNINGS

Mechanical Engineer



BEN SHEMESH

Manager of Innovation &
Development
TOM: Melbourne

"TOM 2.0 was a fantastic opportunity for a handful of our teams from the 2019 TOM: Melbourne Makeathon to continue the development of their prototypes along with their Need-Knowers. The event epitomised what we represent at TOM: Melbourne, teamwork, co-design, thinking outside the box and making! We had the privilege of returning to FAB9, a fantastic space that inspires innovative thinking."



STEP 3: DELIVER

WHAT HAPPENS AFTER TOM 2.0?

Step 3 of the TOM Process, known as "Deliver" scales the impact of the hard work of makers in local communities to others with similar needs around the world. By creating a Digital Product File, as well as a physical product for the immediate Need-Knowers, individuals around the world can have access to the same solutions. Digital Product Files are uploaded to local TOM web-platforms as well as the Global TOM web-platform.



1

Mandy
(Need-Knowers)



2

Wheelchair Wheel
Cleaner built for
Mandy
(TOM Product)



3

Mandy's product is
converted into a
Digital Product File
and uploaded to
TOM web-platform



4

Other Need-
Knowers purchase
product from TOM
web-platform



5

A local makerspace
manufactures
the product



6

Costs are
included in
Need-Knowers'
NDIS Plan

The TOM: Melbourne community is about to launch this groundbreaking new process for creating, developing and delivering assistive technology.

To find out more, visit our website: tommelbourne.org

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PRESENTING PARTNERS



GOLD



SILVER



BRONZE



COMMUNITY



Thank you to all of our sponsors and supporters for making this event possible. The partnership between TOM and its sponsors and supporters is collaborative and mutually reinforces the important role TOM: Melbourne plays in the community to support people living with disabilities.