

BEST &
RECENT
WORK

Yong Cheng Toh

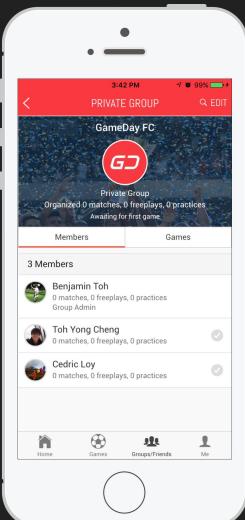
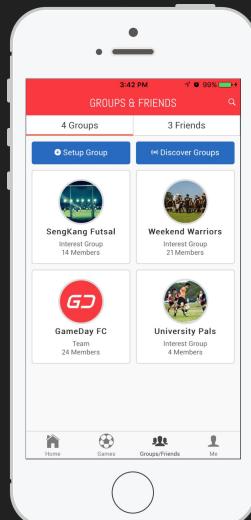


GAMEDAY

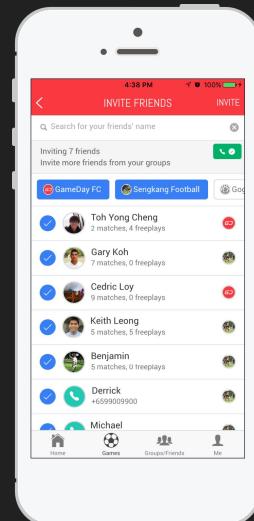
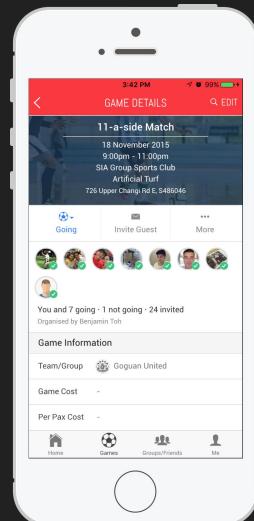
A mobile application for football players to organise games that can instantly reach out to their friends and outside their social circle.

<http://www.gamedayapp.co>

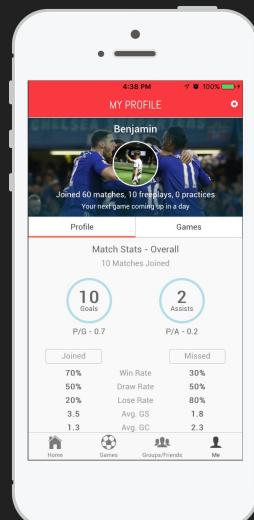
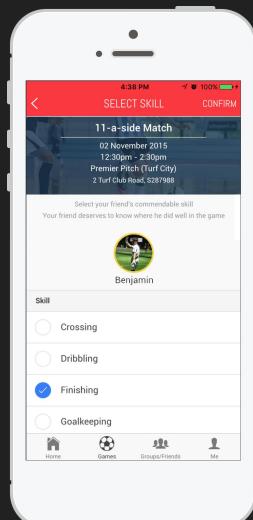
Create Groups & Communities



Push Games Instantly
to friends and groups



Data-driven Profiles for
Teams and Individuals





TOUCAN

A PEACE OF MIND WITHIN THE FAMILY

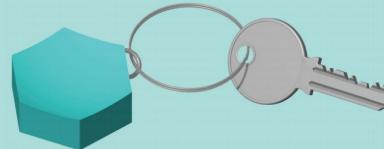
Toucan is a smart watch concept for children so that parents can be less worried when they are away from them. It has a color coded messaging technology for young children to interact with their parents.



Pendant



Watch



Pocket-friendly



Mobile Application



SAFETY TRACKING

When not physically with their child, parents need reassurance of their child's safety. With the use of the mobile application, Toucan allows parents to know the location of their child at anytime.



REAL-TIME COMMUNICATION

Toucan provides a real-time communication channel via voice messaging and thereby, bridges the communication gap brought about by limited parent-child interaction; a fervent problem in many households today.



VERSATILE WEARABLE

Toucan comes in a modular hexagonal design that gives the user freedom to choose their preferred mode of interaction with the device. It can be configured as a pendant, watch or a pocket device,



INTIMACY

Toucan mobile application features an intimacy meter. It indicates the quality of communication between parent and child. In addition to alleviating parental anxiety, Toucan aims to foster stronger filial ties.



FAMILY ORIENTED

A child's safety is invaluable to any parent. Toucan is a smart wearable device that aims to mitigate the problem of excessive parental anxiety, resulting from the potential dangers children are exposed to in everyday life.



EMERGENCY RESPONSE

Toucan comes equipped with an emergency call system which can be triggered in the unlikely event of an emergency. When activated, family members are notified immediately and a direct call can be made to the Toucan device.

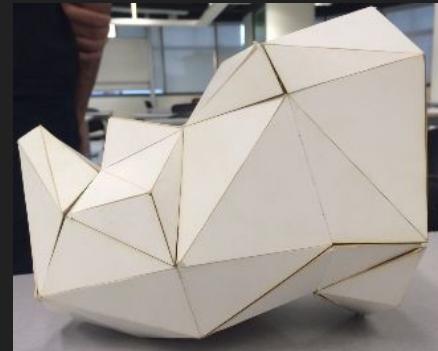
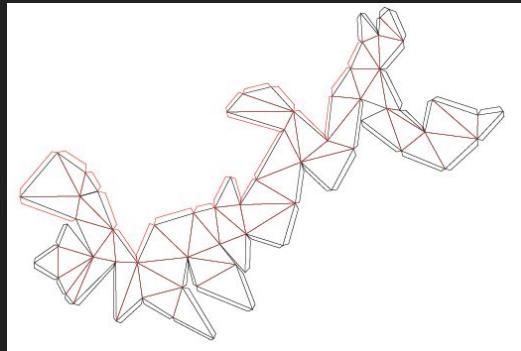
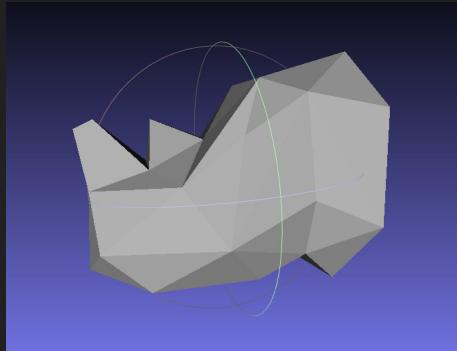


A composite image showing two devices displaying the Beourquest software. On the left, a Mac monitor shows a guest registration interface with a list of names and a circular seating chart. On the right, an iPad shows a dashboard with event statistics and a seating plan. The background of the composite image features a couple smiling with balloons.

A software-as-a-service application that improves onsite guest registration for events such as weddings, gala dinners and reception services.

<http://www.beourquest.co>

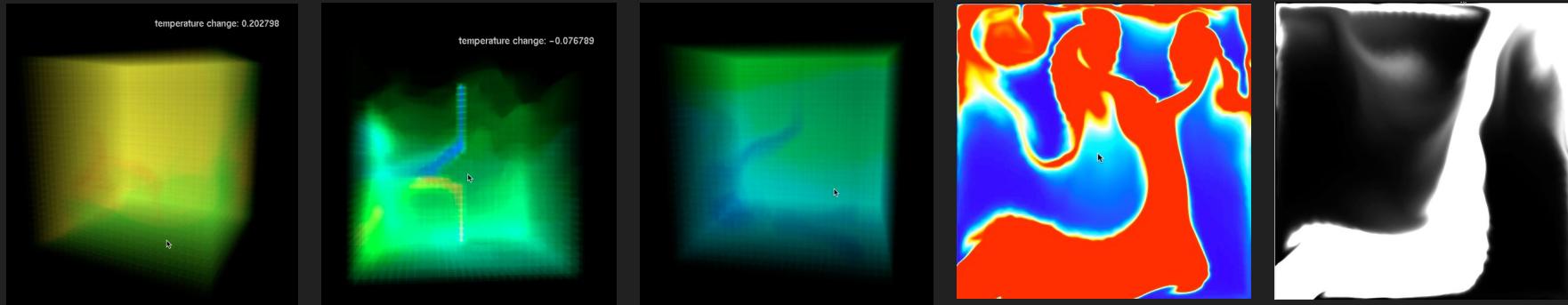
Mesh2Paper - 3D Printing with a 2D Printer



We created a tool to unfold a 3D mesh onto a piece of paper, which can be easily cut out and folded back into the initial mesh. The user can print the mesh onto paper and follow the numbered labels on the paper to fold the object.

Open Source Tool @ <https://github.com/tohyongcheng/Paper3D>

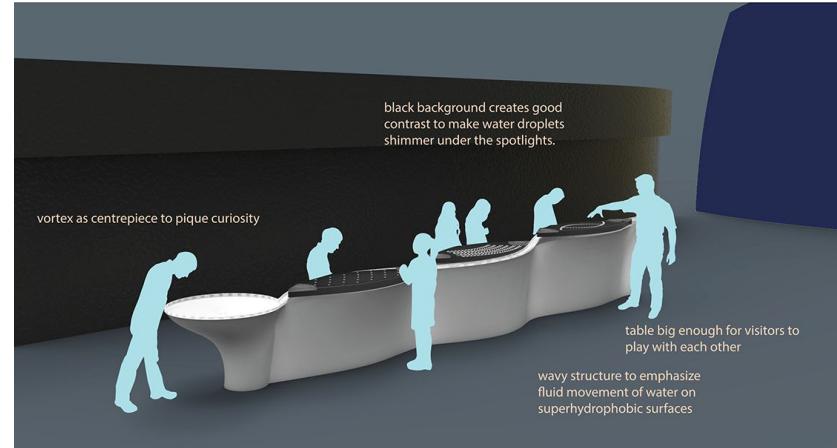
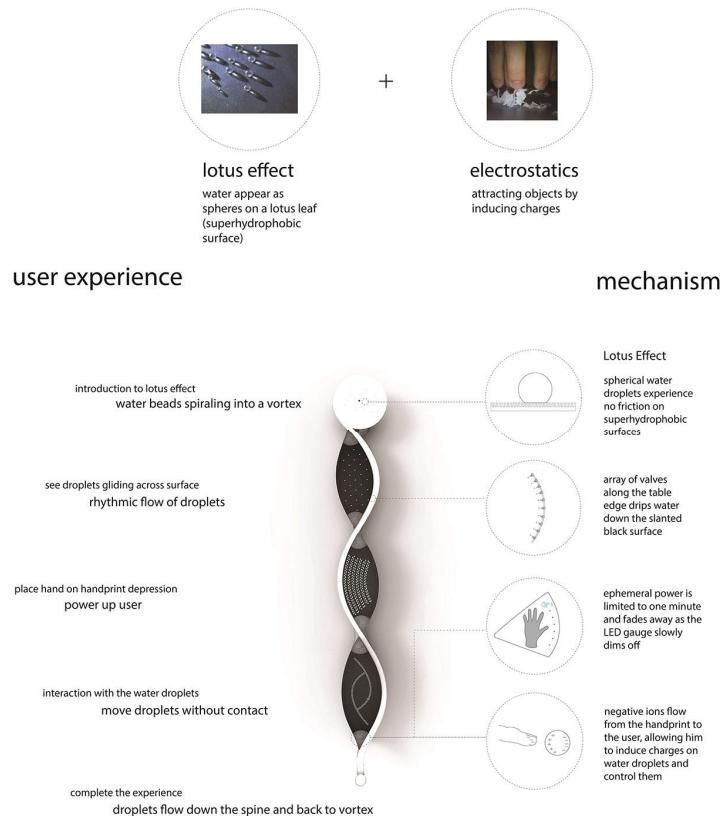
Visualising Convection Currents of Liquid



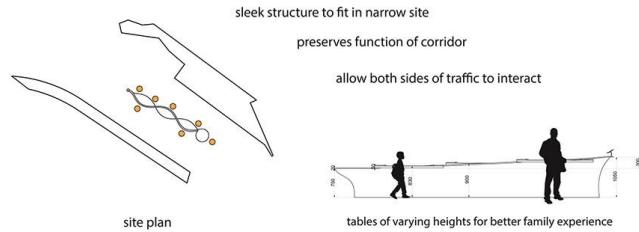
We created a visually accurate simulation of convection currents in fluids due to a difference in temperature by solving the Navier Stokes equation to give us the behaviour of fluidic motion of air currents in a contained area/volume.

Video: <https://youtu.be/5RdkqQL0vPY>

Hydrokinesis - water manipulation on a superhydrophobic surface

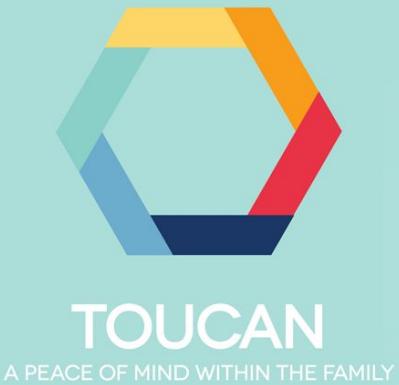


spatial impression



STORY OF PROJECT

Yong Cheng Toh





Source: Find Your Missing Child (FYMC)

Problem Identification

Inspiration

Our initial inspiration was to make the world a better place to live in, and being young children just a decade ago, we felt that there were many times that children could be given more autonomy and independence to roam and explore more. One of the obstacles to that was parental anxiety which is out of concern from our parents, but can be discouraging in allowing children to play more and learn more. With that, we wanted to help children and parents to feel more free in learning to be independent in their development.

Problem Statement

Children aged 4 and above, are vulnerable to the dangers present in everyday life, which causes paranoia and excessive anxiety amongst parents.

Customer Profile

Young, well-educated parents (between the age of 24 and 40) from dual-income families who have minimal contact time with their children and are concerned about the general well-being of their children.



Customer Development and Ideation Process

We identified the top 3 stakeholders from our problem statement: parents, children and family members. After some initial literature review and background research, we conducted customer interviews to first gather initial needs first qualitatively, and then quantitatively. The rubrics and techniques we used for the interview process were broken into 4 different categories: Observation, Laddering, Kano Analysis and the Critical Incident Technique.

Once the needs have been identified, they were broken into specific functions that were parent-specific and child-specific. We then came up with solutions to satisfy each function, and a morph matrix was drawn to coherently visualise and understand the ideation phase. From then on, an iterative process was adopted in sketching ideas, and using pugh charts to evaluate the ideas over and over.

Customer Needs (Parents)



location tracking

Parents want to know where the children are to ensure they do not get lost



inculcate independence

To facilitate self-learning of tasks and teach child emergency response strategies



communication

To enable child to signal for help and let parents know how/what child is doing. SOS feature is also necessary.



relationship

Allow opportunities for collaborative play between children and parents or between community and child.

Customer Needs (Children)



social fun

Children want to make new friends and interact with them.



feel good factor

Children want to have ownership over a product or a competition.



enrichment

Children wants their curiosity to be piqued to explore new things and places. Potential opportunities for adventure and new experiences.



love & attention

Children wants to have attention from family members, so interaction in talking and listening is encouraged.

Constraints



functional

- Durable
- Approved by schools
- Not overly distracting
- Lightweight and inconspicuous

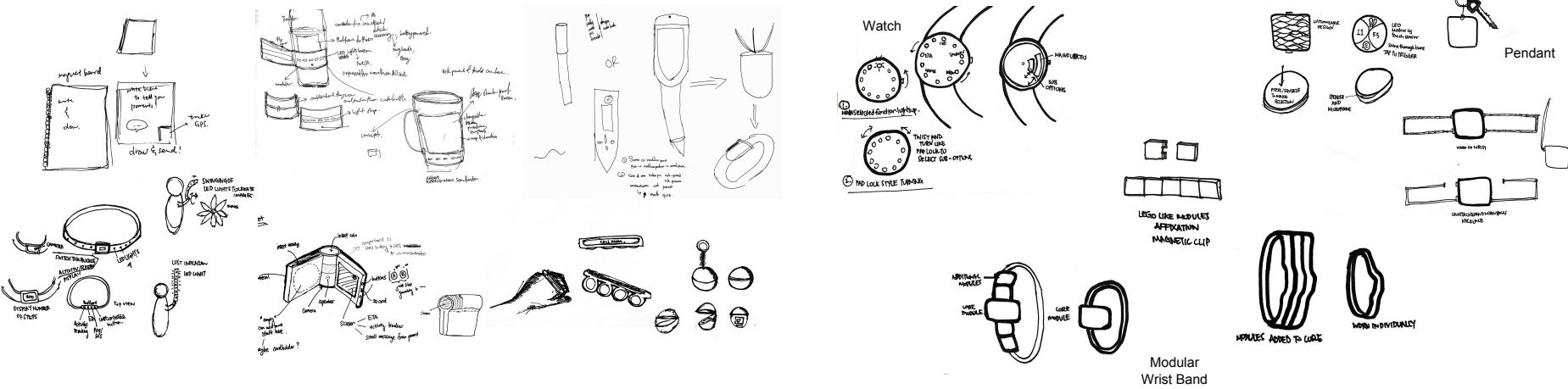
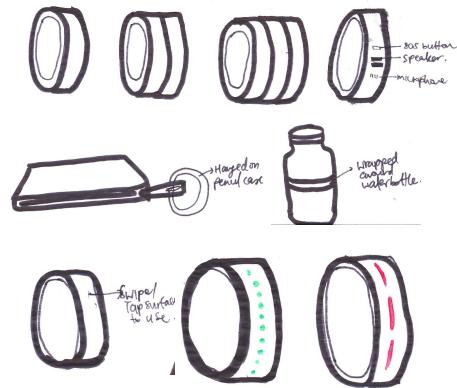
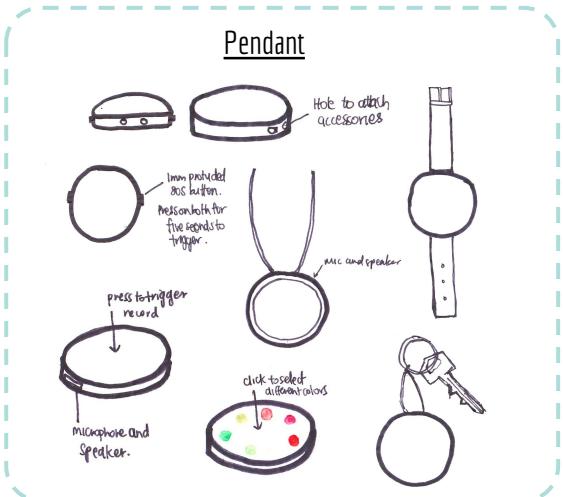


safety

- No sharp edges
- Safe for ages 5 and up
- Child-safe materials that do not cause rashes to the skin
- Non-toxic
- Insignificant radiation emission

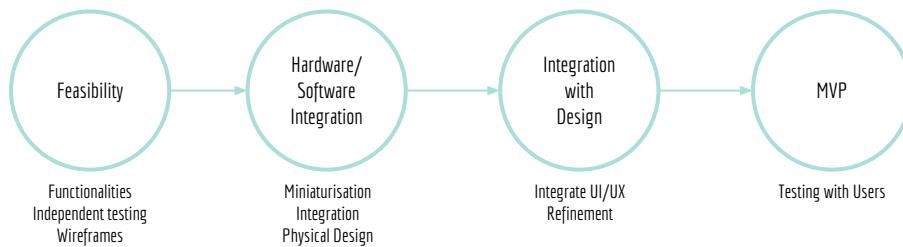
Idea Generation + Selection

We underwent multiple iterations of sketching of our concepts and ideas that we could, using methods such as 6-3-5 to augment each other's ideas with improvements and new insights that we have. Eventually, we chose to focus on the pendant idea that can exist in 3 different forms: a watch, pendant or a keychain.





Prototyping Strategy



The general strategy was to create a minimal viable product that we can test out with users to validate our hypotheses. We came up with our own 4-phases strategy to deliver a working prototype at the end. We mainly worked with both software and hardware first for feasibility testing before integrating them together with our insights from our design process.

Software Technologies Used



Hardware Components for Prototype

