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UNSW
AUSTRALIA

Graduation Projects 2014

Bachelor of Industrial Design

Never Stand Still | Built Environment

DESIGN BY: Equilibrium Design
equilibriumdesign.com.au

“

The Bachelor of Industrial Design (BID) student projects presented in this 2014 exhibition are outstanding examples of the many ways in which design opens up new possibilities. The work displayed makes visible and tangible what can be done to address needs in the community and take advantage of emerging technologies.

”

THESES INDEX

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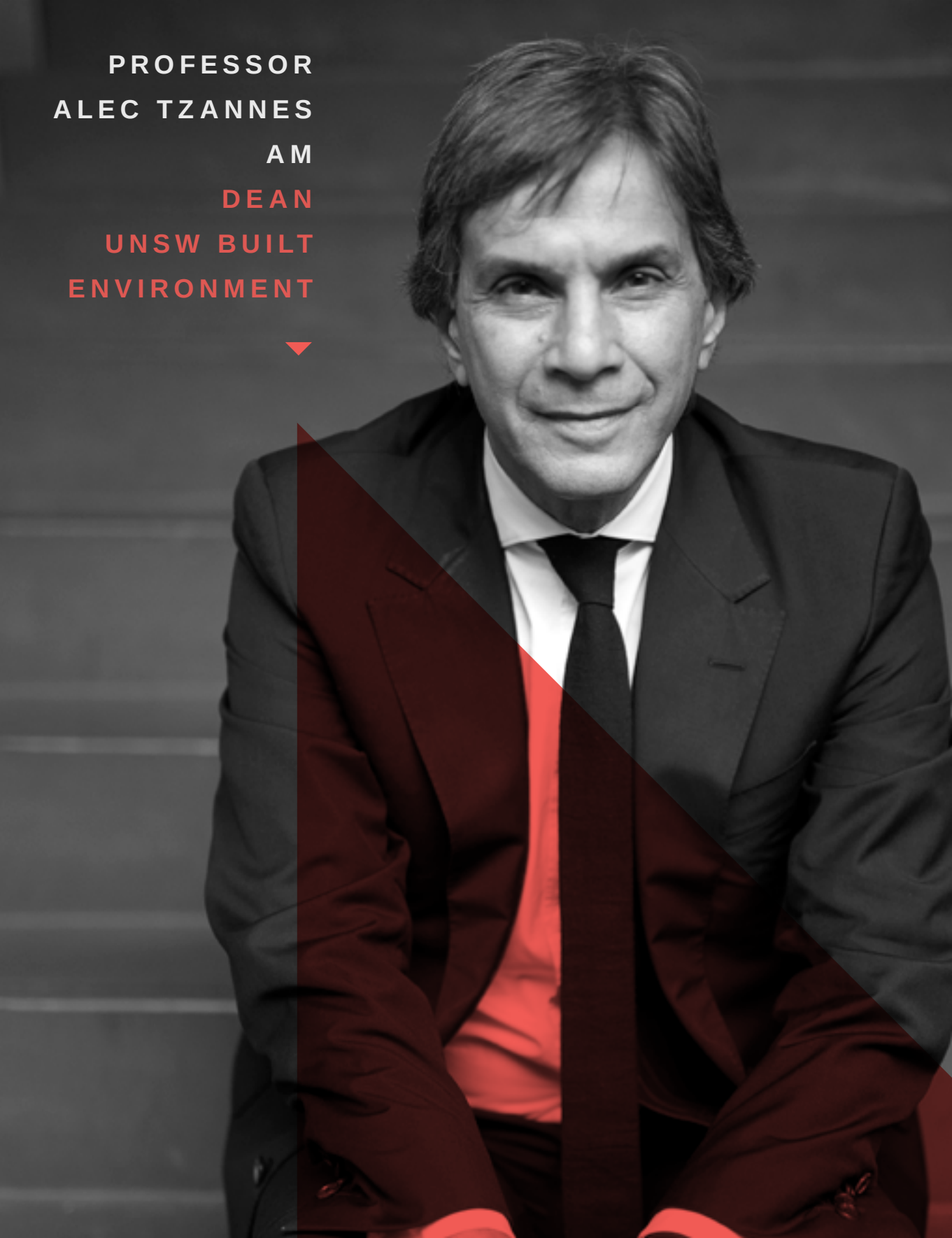


PROFESSOR
ALEC TZANNES
AM

DEAN
UNSW BUILT
ENVIRONMENT

Congratulations to the students who have completed their degree at UNSW Built Environment and now join our alumni community.

This catalogue provides a glimpse into some of the many study themes and projects you have undertaken as part of your academic experience and serves as a record of your graduation class.

We have designed your program of study to reflect advanced contemporary professional practice emphasising the development of leadership skills and innovation, ensuring that as a graduating student you have the best opportunity to be at the forefront of your chosen field of endeavour.

Register to join the alumni community at www.alumni.unsw.edu.au

Now that you have graduated, our relationship evolves from student to alumnus, continuing a lifelong engagement of support and involvement (register to join the alumni community at www.alumni.unsw.edu.au). As you travel the world through your career, you will meet many alumni who have become global leaders through their innovative thinking, acting as catalysts for change in all facets of the built environment professions as well as in other fields of work. As an alumnus we encourage you to keep in touch with UNSW Built Environment. We are always keen to support our graduates and publish their successes throughout our alumni network.

Share your news and updates BEalumni@unsw.edu.au

Please email us your news and updates at BEalumni@unsw.edu.au.

Support future students

We are also always grateful to our alumni who support our future students with scholarships, prizes, internships and mentoring programmes.

Go further at the UNSW Built Environment Graduate School of Urbanism (AGSU)

Should you wish to further your education, qualifications and knowledge, UNSW Built Environment Graduate School of Urbanism (AGSU) offers an extensive suite of post professional degrees. AGSU focuses on advanced qualifications in specialised interdisciplinary areas of professional practice and a suite of highly relevant research orientated programs of study. Our commitment to being the leading educators in the design and delivery of more liveable, sustainable cities has underpinned the creation of the AGSU.

Join our LinkedIn group (UNSW Built Environment) and network with your peers

As a professional, I also invite you to join our LinkedIn group (UNSW Built Environment) where you will be able to keep in touch and network with your peers, other professionals and UNSW Built Environment.

I wish you a successful and rewarding career.

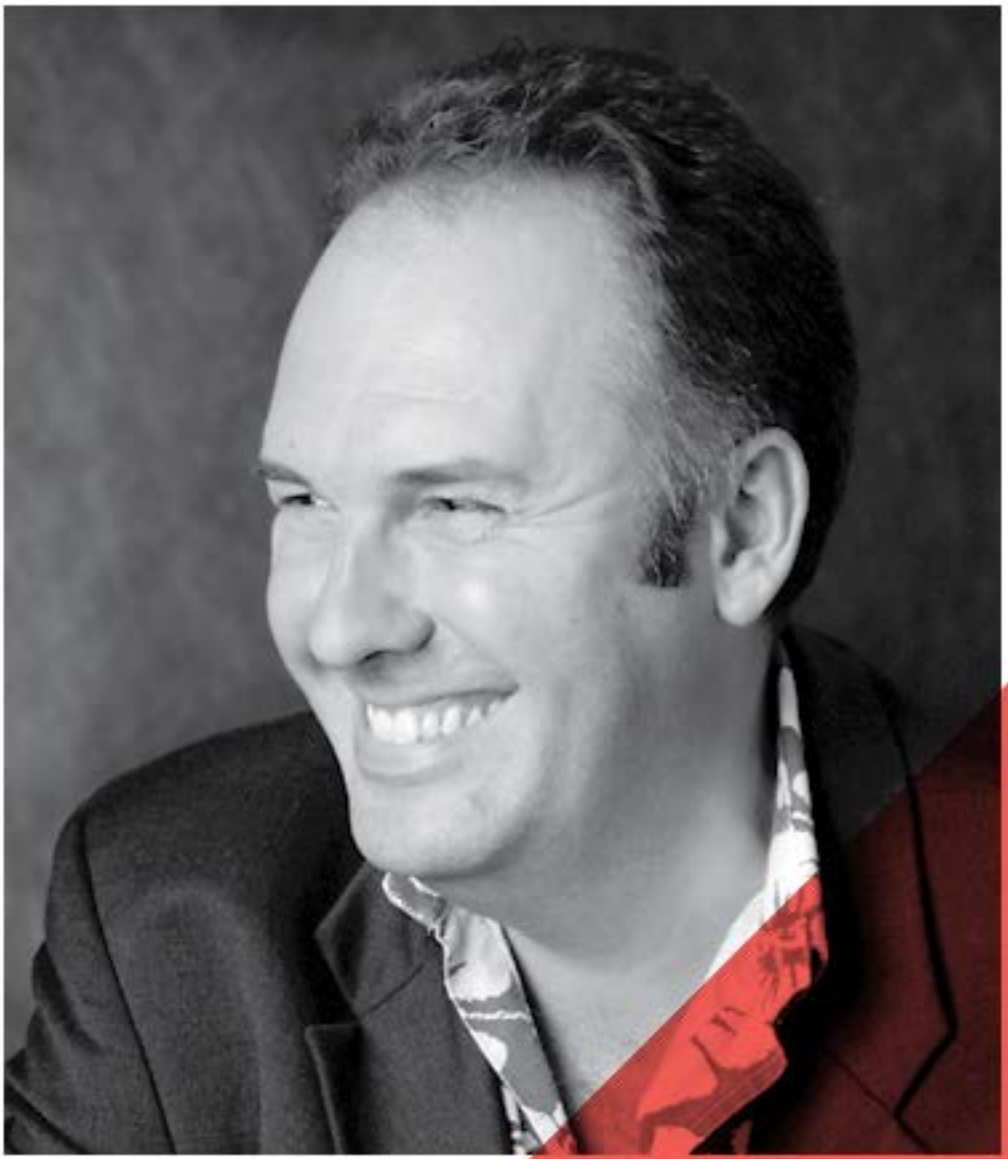
STEPHEN WARD
DIRECTOR, INDUSTRIAL DESIGN

The Bachelor of Industrial Design (BID) student projects presented in this 2014 exhibition are outstanding examples of the many ways in which design opens up new possibilities. The work displayed makes visible and tangible what can be done to address needs in the community and take advantage of emerging technologies. Students this year have produced designs that contribute to well-being for individuals and the community in areas such as leisure, communication, health, transport and industry.

The final year of the four-year BID program at UNSW gives students a true Honours level study experience. In both the research phase and the design development, students have undertaken independent exploration in a largely self-directed project. There is an expectation that the skills, knowledge and spirit of inquiry cultivated throughout the whole of the BID program will be evident in the final design and supporting rationale.

This exhibition highlights the innovative thinking and sheer hard work of students in bringing a substantial project to completion but it is also appropriate here to acknowledge expertise and commitment of academic staff and tutors who supported the students on their journey. It has been a combined effort of academic staff members in the Industrial Design program a larger number of sessional tutors and lecturers who bring experience and skills from their roles in industry.

It has been a privilege to have been on the journey with the students now finishing – watching them make discoveries, extend their capabilities and sometimes astonish us with the reach of their ideas. These students have completed a four year program that integrates design process with learning in diverse areas such as manufacturing, communications, ergonomics, marketing, sustainable practice and design theory. They are ready to take up positions where they will make a valuable contribution to industry and society. On behalf of the team of full time and sessional staff, I congratulate them and wish them well in their further endeavours.



ANDREW FOWKES
COURSE CONVENOR, INDUSTRIAL DESIGN

The range of projects undertaken by this year's Industrial Design students highlights the importance of product design in the early 21st Century. Few human beings go about their daily lives without coming into contact with highly advanced technology. The ever-expanding user experience across billions of people across all cultures means designers need to get products 'right' on so many levels. The emergence of new and profound technologies on an almost daily basis means the Industrial Design profession is ever changing and ever challenging.

The 2014 final year student projects deliver an increasing diversity and complexity that celebrates the goal of the program to provide a level of learning, exposure, self-motivated and innovative thinking that makes the UNSW Built Environment Industrial Design degree a life changing experience.

The catalogue highlights the extremely broad range of projects undertaken over the final semester ranging from mobile medical equipment and prosthetics, metropolitan catering, airline passenger logistics and inflight baby care through to surf lifesaving and effortless snorkelling, to name a few.

Each project commenced as a research topic of their choosing. Upon developing a greater understanding through a structured research project, each student has defined the problem and identified areas of concern or opportunity. The outcomes in this catalogue are a balance of manufacturing processes, material usage, user needs, behavioural insights, technology, style, ergonomics, costing's and a sound business plan.

All of this would have been impossible to achieve without the dedication of the Industrial Design staff members. I would like to take this opportunity to say thank you to all our part time staff and especially Craig Burke for his outstanding contribution to the final studio experience.

On behalf of the full time and part time staff, we congratulate the students on their achievements and wish them well in their future careers.

BACHELOR OF INDUSTRIAL DESIGN

2014 PROJECTS

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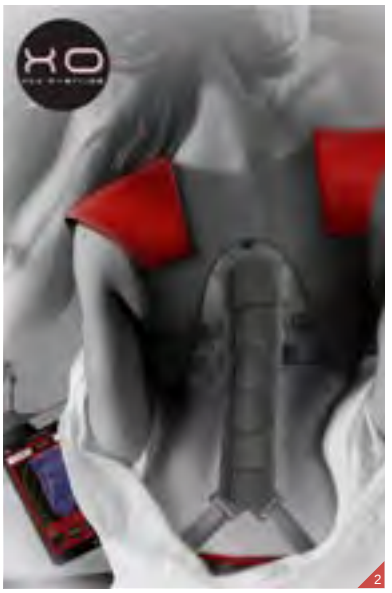

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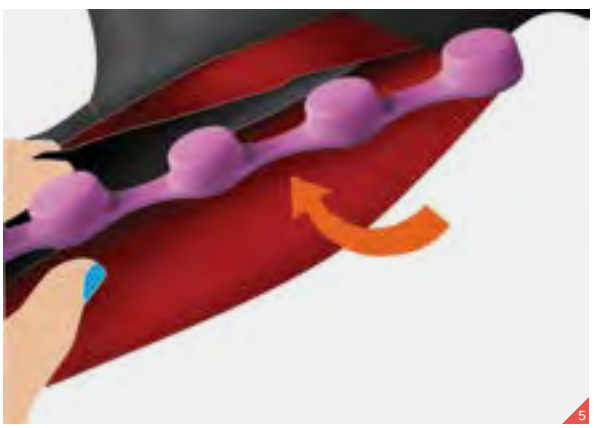
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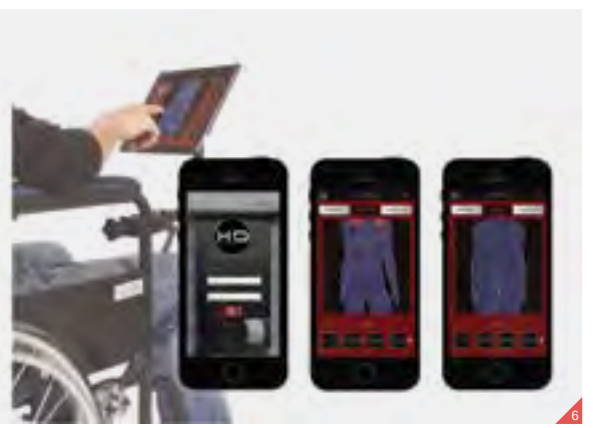
6

PAMELA ABLANG

"For me, design is about innovation and innovation starts with empathy. Its developing a deep connection with the people you serve." Pamela Ablang

XO WEARABLE MASSAGE DEVICE

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The XO is a wearable massage device designed for individuals with a spinal disability. On a physical level it enables them to participate in intimate activities. It can be activated through the control interface of the app or by applying hands on pressure for a more sensual experience. For those who are a bit too shy there is an app that allows for them to be whoever they want to be and connect with others like them. It will give the disempowered a platform in which to be open and explore their desires.

PICTURED:

1. XO Wearable Massage Device
2. XO XTC override
3. E3 Body zone
4. Concept sketches
5. F2 electromagnetic vibrator inserts
6. App interface

The XO consists of electromagnetic devices which are housed in the form of undergarments and are interchangeable between ensembles within the XO range of lingerie. The different garment pieces perform a range of actions, from tickling, massaging and pleasing. The bolero piece contains rotating spheres strategically placed around the shoulder muscles to simulate the act of a relaxing shoulder rub after a long day.

The bodysuit is designed with actuators down the back allowing the controller to emulate a back rub. The vibration motors in the briefs and bra stimulate sensitive areas. The suspender belt houses small coin motors that emulate the tickling sensation your partner might give to your side if you are feeling playful. Each garment has a pocket in which you can slip the devices in and out of for easy laundering.

The XO wearable along with the social media app component will hopefully reduce the negative stigma behind disabled sexuality and bring the subject to the forefront that not all individuals living with disability are asexual.

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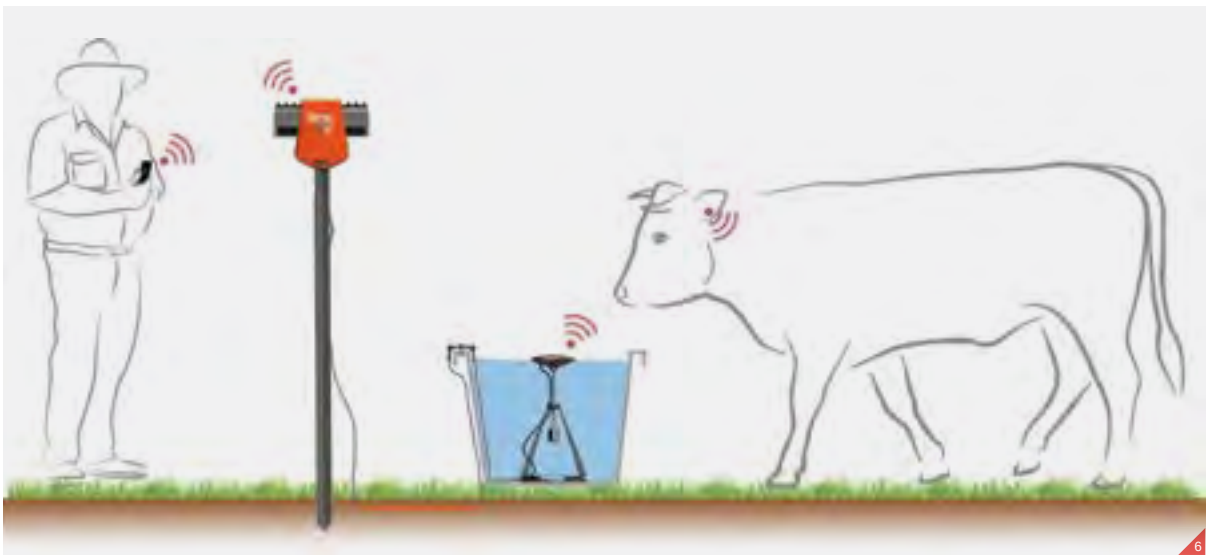

6

EUGENIE BARNET

HYDROTRAK: Livestock monitoring

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PICTURED:
1. HydroTrak context
2. Interface
3. Housing detail
4. Float housing detail
5. Water level adjustment
6. HydroTrak system map

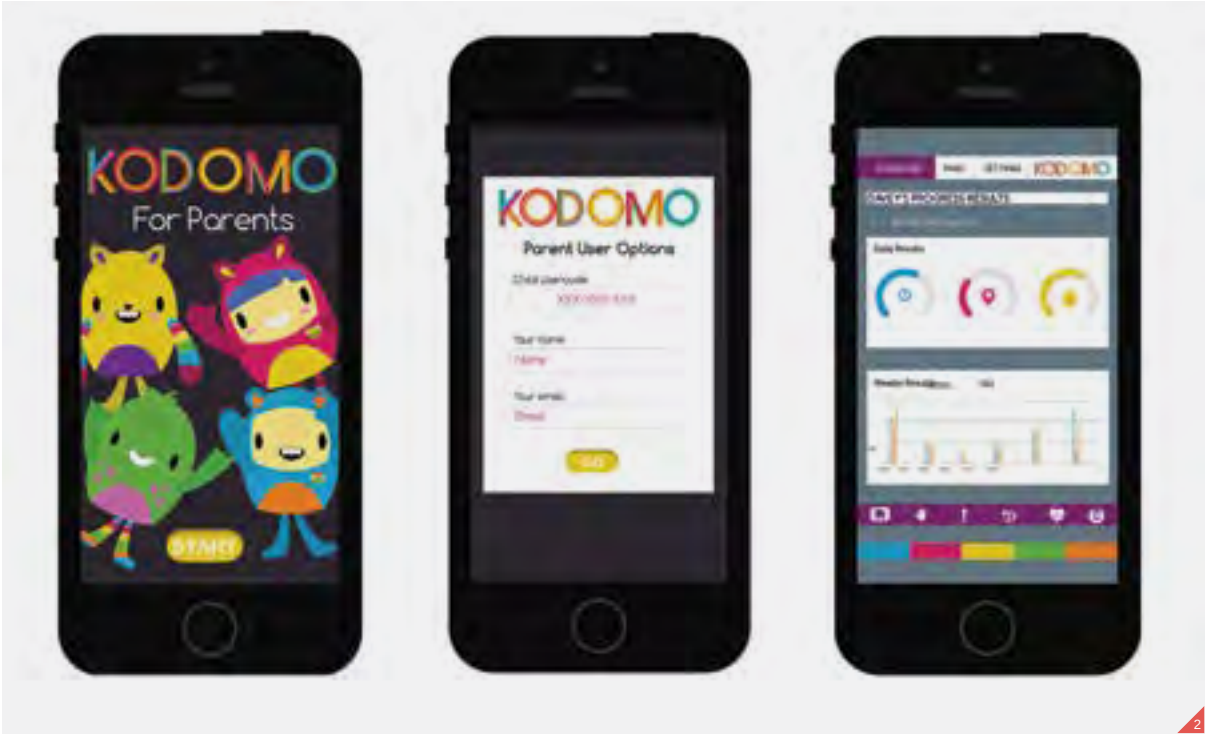
HydroTrak is a remote monitoring system that analyses the behaviour of livestock at a water source in order to determine their location, health, productivity and reproductive status.

The system automatically records and analyses the frequency and duration of each visit individual animals make to a water source and forms a database which can be accessed via smartphone or computer. HydroTrak detects and alerts farmers of uncharacteristic drinking patterns associated with disease and pregnancy before visually identifiable symptoms can be recognised during routine stock checks. The system can also be used for identifying missing animals and has the ability match offspring to their mothers.

The remote monitoring of livestock increases efficiencies and improves animal welfare through quicker identification of health and well-being indicators. This allows for more accurate management practices to be implemented by the farmer and reduces the need for unnecessary stock handling.

HydroTrak works in conjunction with passive radio frequency identification (RFID) ear tags attached to animals as part of the National Livestock Identification System implemented by the Federal Government to ensure lifetime animal traceability. A floating antenna which adjusts to variations in the water level, reads the animals tag and the information is transmitted up to 40km via telemetry.

Featuring a built in lithium iron phosphate battery and solar cell power supply the device does not require charging or maintenance even when ample sunlight is not available. The rugged housing incorporates UV resistant plastic and waterproof connectors suitable for extended exposure to harsh outdoor environments.


KODOMO
For Parents
START
KODOMO
Parent User Options
2


Amu
Ayu
3


KODOMO
Press START to play!
4


Hello, DAVEY!
703
points!
you've climbed
Mt. Everest!
horray!
5

JACQUELINE BUI

"Fun is good." Dr. Seuss

KODOMO

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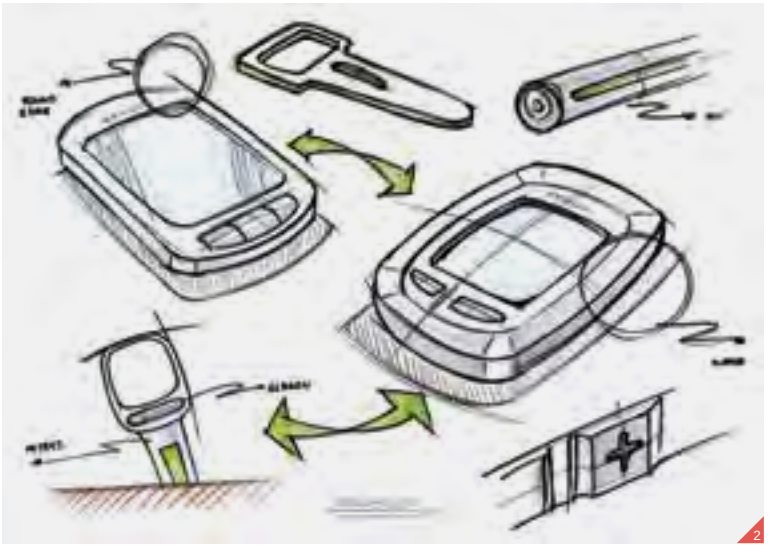
PICTURED:
1. Hero shot
2. App design
3. Exercise characters
4. Welcome screen
5. Gaming results screen

Kodomo is a child therapy interactive motion gaming console for children needing physiotherapy.

Kodomo's design allows for the child to carry the stuffed plush as a comforter, once placed onto the console, the toy actively illuminates and triggers the console to begin the game on screen. Kodomo bases all gaming activities from the GFMF 66, a standardised observational instrument designed to measure progress in mobility over time in children.

The console utilises non-immersive virtual reality technology to support conventional rehabilitation treatment of children have motor function issues. Kodomo's activities include limb, behavioural and cardio exercises.

The child's gaming results are then translated in colourful images, turning all frustrations into positive feedback by rewarding the player to help motivate independent gaming/therapy. The gaming results are then sent through to a parenting app that carefully monitors and provides updates on the child's gross motor progress and other measured skills. Kodomo then uses the data collected to help build future at-home treatments by transmitting the data to the child's therapist and primary caretakers.



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CAI MIN

"Simplicity is the ultimate sophistication." Cai Min

BLOOM:
Digital almanac and plant monitor

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0457 378 384

PICTURED:
1. Bluetooth connectivity
2. Concept sketch
3. Easy grip soil tester
4. Bloom in use
5. Large graphics and easy wipe keypad

Bloom is a digital almanac aimed at the mature gardener. The almanac offers information on weather forecasts; full moon dates, weather history, sunrise and sun set times, best planting dates and planting advice. It also has sensors to monitor moisture of soil, weather, sunlight and more to provide accurate local garden care information. It is not only measures conditions in the garden but also provides a diary of treatments for bugs and pests.

The information gathered by monitoring sensors is sent to the digital almanac so that the older user can organise their garden work and find the information and guidance needed all in one lightweight digital almanac. The tablet surface is waterproof, dirt resistant and strong, making it perfect for outdoor and greenhouse activities.

Bloom would be an ideal gift for gardeners of any age.

OVERALL DIMENSIONS: 168mm x 128mm x 2.45mm
MATERIAL: ABS

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MATTHEW FREDRICK CARAIG

T-TU TENNIS TUTOR:
Digital coaching system

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PICTURED:

1. t-tu tennis tutor set
2. In-court sensor mounted
3. Shoe sensors in context
4. Wearable sensor concept – hand sketch and copic rendered
5. Concept variations – hand sketch and copic rendered
6. Illustrator illustration

't-tu tennis tutor' is a complete digital coaching system for tennis players that tracks and analyses on-court data including speed, accuracy, motion and overall performance, aiding tennis players to learn and improve their tennis skills into the next level and reach their goals.

t-tu comes in a set of an in-court sensor, wrist sensor, two shoe sensors and a wireless earphone. The in-court radar sensor is mounted to the net post by two Velcro straps. The dual-tech motion detectors are multi-LED Infra-red projectors and radar are responsible for the system coverage. A 6-axis inertial sensors and GPS for the wearable sensors track motion. And a wireless communication partnered with a mobile application informs the user of their specific posture and performance via on screen graphics.

Designed for the novice and amateur tennis players, it deploys live acoustic instructional coaching feedback in real time and data are translated into 3D-kinematics, numerical and graphical for real-time and post analysis use. The combination of a dual-tech sensor, wearable sensors and a mobile app makes it possible for precise motion tracking of the whole court performance.

It is durable and weather-proof making it suitable for indoor and outdoor tennis court use. It provides professional tennis coaching in a digital package that becomes the individual's personal coach.

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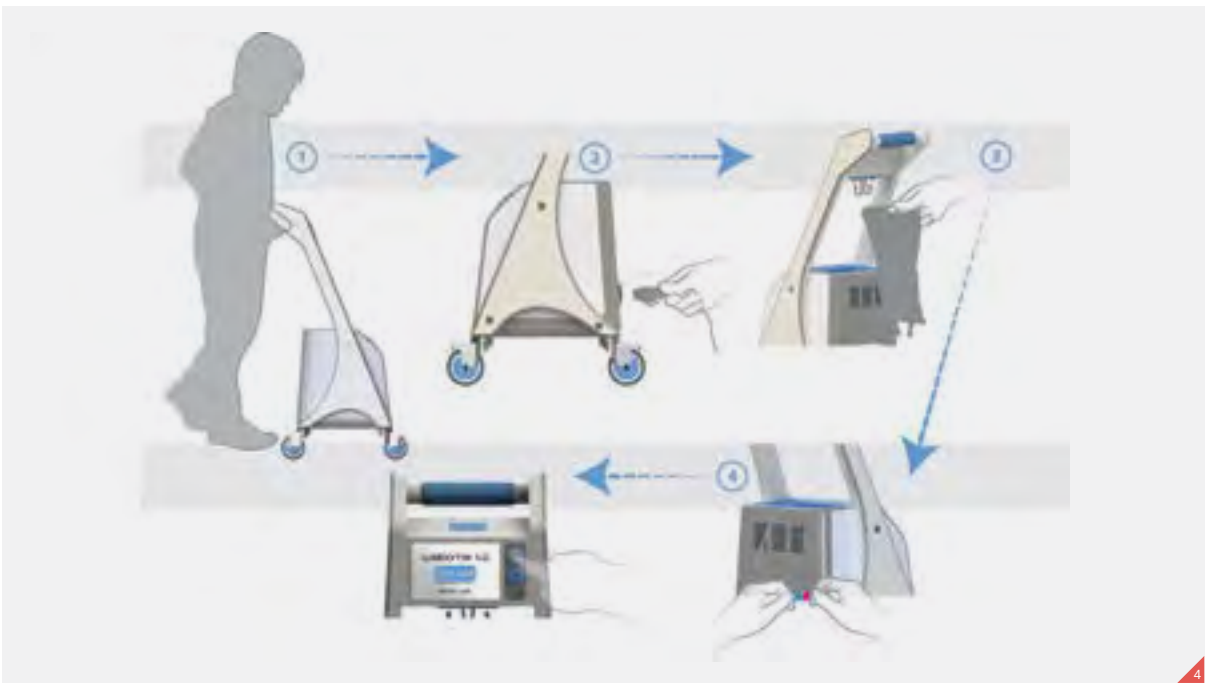
4

CHRISTINE CHAU

"Inspiration exists, but it has to find you working." Pablo Picasso

P.D PAL:
A home dialysis device for children

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0403 338 628

PICTURED:
1. P.D PAL – child's dialysis device
2. Access screen and button details
3. Exploded view
4. User scenario
5. Wheel mechanism
6. Rear detail shot

Chronic kidney disease is one of Australia's largest growing medical problems, with dialysis treatments requiring month long waits in hospitals. Although children are a minority group affected, children under the age of 13 make up 2% of those currently on peritoneal dialysis treatments in Australia.

P.D PAL (Peritoneal Dialysis Pal) is a dialysis machine designed for children aged 6–13, enabling dialysis in the comfort of their own homes. It features a full colour touch screen system, with a built in hard drive to store session information. This information can later be accessed, and copied by medical personnel for the child's monthly renal check-ups. The cart is a slim and compact design that can be easily stored away, and easily accessed when needed.

P.D PAL features pneumatic pump technology which cycles the peritoneal fluid through a filtration system, acting as the child's artificial kidney. Dialysis bags are attached to hooks under the monitor on the cart. The catheter is stored in the top container, and can be easily extracted and attached to the appropriate cavities.

P.D PAL would meet a need in the current market as there are no other dialysis machines targeted towards the needs and wants of children and their parents for dialysing in a home environment.

OVERALL DIMENSIONS: 610mm x 32mm x 26mm
MATERIALS: Polycarbonate (PC)

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DAMING ANTONY CHEN

SUB–20

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PICTURED:
1. Hero shot
2. User interaction
3. Product detail – front view
4. Counter placement
5. CAD wireframe

The ever demand for bar cocktail drinks to stay cold longer is difficult to promise without having the risk of over diluting the beverage with additional ice. The bartender serving the concoction drink to the bar's patron can simply be spoiled by excess water dilution from the ice, as a result guests will experience reduced flavour of liquor in the cocktail.

SUB–20 or 'sub minus 20' is a conceptual product designed for the bartender as a new way to rapidly chill cocktail drinks with food-grade liquid nitrogen. The naturally occurring nitrogen in liquid form will not dilute the drink, and having extreme subzero temperature at –210°C. This element offers the speedy method to generate colder drinks within a short amount of time. In addition this product presents to guests the tasteful possibility to enjoy chilled cocktails at its purest form.

The interior of SUB–20 consist of a processor that is programmable with preset settings to intelligently control the valve release and dispense precise amount of liquid nitrogen from an external reservoir vessel, into the cocktail within the cobbler shaker. The controllable feature enables the bartender to select different serving temperatures from the chilly –5°C, the icy –10°C, and to the arctic –20°C. A ball-bearing device and a rotary motor to create an axis spinning motion in the drink as method to assist the efficiency of chilling and to hasten the evaporation of liquid nitrogen into its gas form – a necessity to ensure no liquid nitrogen is present in the drink when served for consumption. Two safety features implemented in the design require two activation buttons to be depressed for SUB–20 to operate. The second safety feature require for the hinge lid is sealed and locked to prevent splash, and prevent opening of the lid during operation of the device. Blue LED glow on SUB–20 indicates its in the chilling process, and the white LED indicates the device is both safe for handling and serving the drink to the patron. The lightings are process by a timer sensor that is in sync with the operation of the product.

OVERALL DIMENSIONS: 304mm (H) x 143mm (W) x 155mm (D)

1

RICKY CHU

PULSEFIRE

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PICTURED:
1. Pulsefire exploded
2. Mechanical button
3. Cable connection
4. Glove adjustment interface
5. Hero shot in context

Pulsefire is an open glove designed and programmed primarily for motion and gesture video games. It allows users to play a variety of games without having to change in to different controllers simply by moving the hands or fingers. Secondary uses are also possible with depending on software such as learning the piano via Synthesia or sculpting in Sculptris and Mudbox.

The Pulsefire computes information it gets from a series of sensor modules. Each hand has ten acclerometers; nine in the fingers and one in the hand which work together to create a diagram mimicking movie motion capture technology. A mobile type rumble motor is implemented to give haptic feedback and communication between the glove and consoles is done via an A4 CPU, wireless bluetooth all powered by a micro USB-B rechargeable lithium battery.

There are currently no gaming gloves on the mass consumer level thus the Pulsefire is a unique product with hopes to encourage the gaming glove idea. Pulse occupies a very specific and niche category in the market segment in between core-gamers and hardcore-gamers.

LUKAS CUBIRKA

DISPARITY KIT

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PICTURED:

1. Eco-packaging
2. Adjustability of residual limb socket
3. Can be fitted at temporary field hospitals
4. Knee joint adjustment
5. Context: accomadates a wide range of child sizes
6. Adjustment of ankle joints

Disparity Kit is a prosthetic kit available for children in third world countries in rural areas suffering from the aftermaths of military conflict. The prosthetic within the kit is designed to be cost effective and customisable to the user's requirements allow a variety of sizes.

Disparity Kit provides children from age 6–12 years with a temporary prosthetic leg which can be fitted to a variety of residual limbs and its height can be adjusted to suit the user. The prosthetic is delivered in a kit which contains an itinerary of exercises for the user to complete for their rehabilitation process.

This kit will be funded by charity donations and delivered by a charity to the affected areas all over the globe. Delivering this kit to the specific areas of need will prevent the user travelling to the cities for rehabilitation and prosthetic fitting. This allows the users to return to independent living as soon as possible.

The user's family, caregivers or charity workers with little specialised skills and tools can fit the Disparity Kit limb on the spot.

The socket is tightened around the residual limb and an air bladder is filled at the base to occupy the voided space between the end of the residual limb and socket. The remaining segments of the prosthetic are then adjusted to the specific height of the child. This customisation feature allows for a wider range of amputee's requiring a prosthesis leg to achieve mobility faster.

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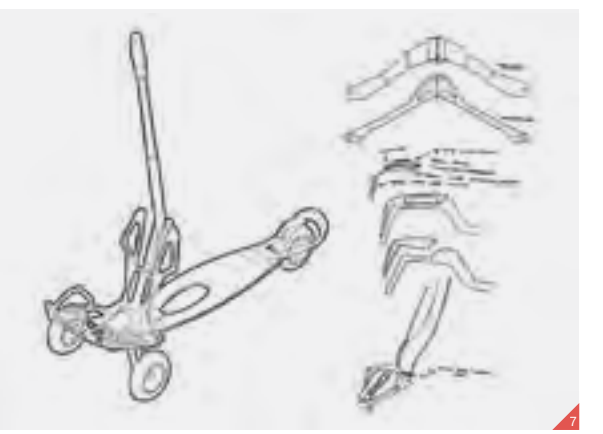

7

DOUG CUSACK

Mantis is a personal transport and luggage system for children that provide a fun and exciting transition between home and school.

MANTIS

It is designed to be a first mile – last mile option that works in conjunction with existing and future transport infrastructure. The vehicle is ridden as a hybrid between a scooter and a skateboard with propulsion being provided by human power kicking and then ridden sideways in a carving motion. The steering mechanism involves a central control tiller that is pushed or pulled in the desired direction, which moves the steering mechanism that both turns and tilts the wheels.

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The front load carrying section is designed to carry a child's belongings to and from school, decreasing the physical load that needs to be carried on their persons.

The product has three positions; folded away for storage with the rear wheel, steering arm and load carrying rack retracted. Trolley mode that allows the product to be used as a handcart for the transportation of goods that are either to heavy to carry whilst riding or when the user is in a confined space or in one that does not allowing the riding of this class of vehicle.

PICTURED:
1. Mantis with tilt steer mechanism in operation
2. Rear ¾ view showing riding deck
3. Three configurations, packed away, load carrier deployed, unfolded and ready to ride
4. Mantis folded in front ¾ view
5. Rear wheel folded intersecting deck
6. Mantis in context

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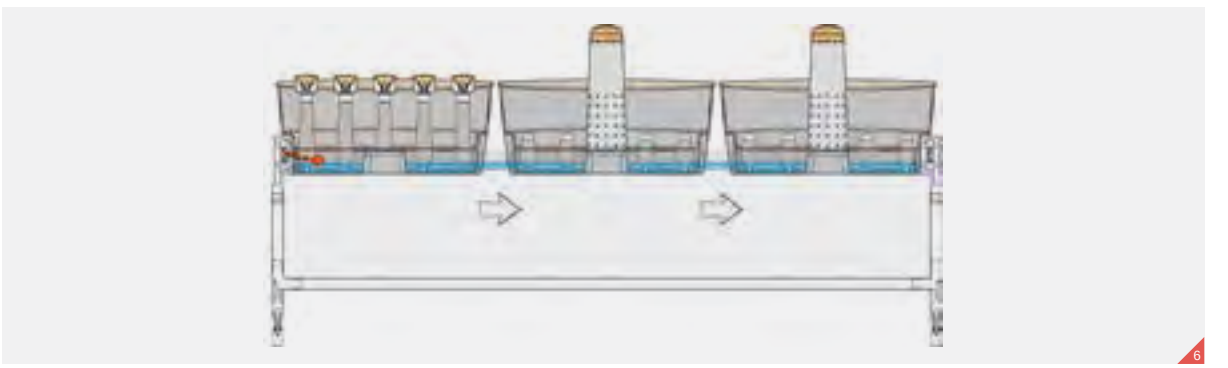
6

PATRICK DUNN

GROWIK

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PICTURED:
1. GROWIK in context
2. GROWIK in use
3. Exploded mounting frame
4. Wicking in action
5. Rows of seedlings
6. Float valve and flow between units

GROWIK is a self-watering rooftop system designed to grow herbs and vegetables. It can be used in either an individual or shared setting and has the opportunity to expand through its modular design allowing for multiple units to be connected together – forming a complete system.

The system works by connecting directly to mains water or a rainwater tank (if available) and features an internal float valve that allows for automatic filling of the reservoir located at the base of the first unit. The secondary units are then connected via hoses in the side, and their associated reservoirs are subsequently filled up.

Each internal reservoir is linked to the soil by a specially designed cotton and perlite 'wick' that allows water to be drawn up from the reservoir to the soil using capillary action. The lower levels of the soil in each associated unit are kept constantly moist while the upper reaches of the soil are relatively dry-creating an ideal growing environment for many herbs and vegetables.

GROWIK also features a number of add-ons, including a 'worm tower' that can process food waste and supply nutrients directly to the garden beds, and a seedling section that allows for an ideal environment for seedling propagation, leading to continuous planting and therefore, continuous harvesting.

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DANIEL FOO

"You can sleep when you're dead." Daniel Foo

HYDROPUMP

Hydropump is a backpack style wet/dry vacuum cleaner that uses various filtration techniques to recycle and reuse water in the cleaning of hard surface environments with surfaces such as tiles, wood, stone, and other resilient and seamless flooring.

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PICTURED:
1. In context shot
2. Hero shot
3. Orthographic views
4. Concept development
5. Internal detail and water flow
6. Exploded view

Through a combination of UV and HEPA filtration, dirty water is able to be vacuumed and cleaned to be reused. Hydropump stands out from existing wet/dry vacuum cleaners as it is able to recycle and reuse water that traps fine particulates more efficiently than regular vacuum cleaners. The benefit of wetting surfaces reduces the amount of dormant dust being released back into the air and breathed by occupants. Clean water is regulated through a water pump within the backpack that allows the start and stops the flow of water making it easier to maneuver above and around other spaces.

Hydropump's vacuum head is lso specialised for its environments with its flexible TPE structure. Four separate suction points fitted together with a TPE over-mold allows the head to flex up radiuses and over/around different obstacles. As the vacuum head is used in a similar fashion to a squeegee, users are not restricted to the standard back and forward vacuum motion, reducing strain on the upper back and shoulder.

In storage, two specific features help in the tidy packing of the product. The hose part can be connected into the top of its water tube allowing for minimal spillage of dirty water whilst storing, whilst the hose itself is connected to a clip on the back side of the main unit.

1


Made from 3 Layers of fabric.

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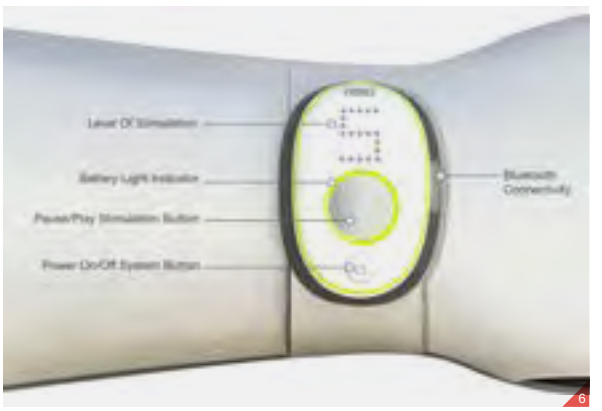
Level Of Stimulation
Battery Light Indicator
Pause/Play Stimulation Button
Power On/Off System Button
Bluetooth Connectivity

6

7

JAN RAYMOND GERARDINO

MOVE:
Wireless hand rehabilitation system

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PICTURED:
1. Hero shot
2. Context image
3. Exploded view
4. System features
5. Control unit interface
6. Colour options

MOVE is a wireless hand rehabilitation device that improves hand function and reduces muscle spasms of a person with weakened arm caused by stroke (cerebrovascular accident). With its wireless operation, the system can easily be integrated with daily activities and achieve personal recovery goals.

The process begins by using electromyography (EMG). This method reads and processes weak brain signals using the muscle sensors embedded onto the built-in electrodes. The device then rewards the user with low-level (non-invasive) electrical stimulation to activate the nerves that control the hand and forearm muscles, thus grant the desired movement. This allows the hand to freely grasp, reach, open and close and increase the range of motion.

The system consists of several parts that communicate together in order to perform its function. A simplified control unit that allows the user to easily pause and play the stimulation. The control unit is wirelessly connected to the mobile device. Its application is needed to adjust the stimulation, change modes and record daily progress data.

The system also consists of a glove and a sleeve with accurately placed built-in fabric electrodes and sewn conductive yarn as connection to the control unit.

MOVE focuses on the rehabilitation and assistance to daily activities of the user in the comfort of their homes. The system's intentions are to reduce muscle spams, increase hand function and range of motion while re-educating muscle functionality, hence promoting independence.

OVERALL DIMENSIONS: 300mm x 90 mm

MATERIALS: Polycarbonate, micro-fibre polyester fabric, spandex

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MAX GLANVILLE

FIRE FRONT:
Providing residents with a frontline of protection against bushfires

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PICTURED:
1. Fire Front detector in context
2. Hyper local detection network
3. Thermal imaging camera
4. Ultrasonic wind sensors
5. Mobile app and interface
6. Exploded view

Fire Front gives residents a front line solution in protection against bushfires.

It offers the ability to detect a bushfire early, meaning a rapid response by both residents and fire services in determining either early escape or preparation to fight and protect. Detectors mounted around the property, combined with the home module and mobile app, allows residents to stay alert and prepared year round when both present and absent front their property.

This unique combination of thermal imaging and ultrasonic wind sensing allows early detection of extreme heat and flames, whilst monitoring temperature, wind speed and direction. Each factor highlights the risks of the approaching bushfire, assisting you with your survival plan and providing essential information making the vital decision on whether to stay and protect or escape early to a safe location.

The system links to create a hyper local detection network, providing simultaneous communication and pairing between all detectors within the network to ensure live, accurate and fast delivery of information to those effected by a bushfire on ground level where it is needed most.

The sleek design reduces the gap of current ‘industrial’ design languages used in current domestic fire products, providing a product of desire intended to instigate conversation amongst residents and their friends to promote ongoing and continued fire safety.

By joining the network, users are providing residents and fire services with quicker more accurate information in an ever-changing and dangerous environment. The ultimate goal is to ensure that every household within a bushfire zone is connected to the network to better protect people in the instance of a bushfire emergency.

1

RYAN GO

HYSPRAY

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PICTURED:

1. HySpray paint system
2. Usage environment
3. Product usage
4. Integrated colour change system
5. Exploded view

HySpray is a portable spray painting outfit with an integrated colour change system intended for use by technicians in the 'skywork' industry, specifically for tasks that require greater mobility, line-free operation, working in highly inaccessible areas and fast work turn-around times. HySpray optimises the repair/refinish process by enabling line-free spray painting operations and increased material control through a personal colour-change system attached to the user. The improvement in work flow and efficiency contributes directly to a decrease in safety hazards for all people in the immediate area. Such safety hazards include falling equipment/tools, line entanglement, unnecessary movement/actions due to inefficient processes, and increased worker fatigue.

The HySpray system consists of two components worn over a technician's safety harness and secured at a harness anchor point. The first component is an injection moulded ABS cylinder pack with a santoprene over-mould. This holds two carbon fibre-wrapped CO^2 cylinders that power the HySpray system. These lightweight cylinders remove the need for traditional air/electric compressors in order to perform spray painting and allows the user to reach the most inaccessible areas while decreasing their work times and potential safety hazards on each job.

The second component is a ballistic nylon leg strap with an injection moulded hytrel colour change unit. This allows up to four paint cartridges to be attached at one time (including a waste cartridge, that is used to clean out the chambers between coats). The integrated colour change system contains a number of interlinking, internals chambers where the CO^2 cylinders attach to and pump out the selected paint. The paint cartridges, labelled 'C1' to 'C4'; manufactured in HDPE, attach to the main control unit by a press-fit locking mechanism and detach by a 2-step process to prevent accidental removal.

OVERALL DIMENSIONS: 1100mm x 350mm x 300mm
MATERIALS: ABS, aluminium, HDPE, hytrel, nylon, santoprene
MANUFACTURE: Injection moulding, metal casting, machining

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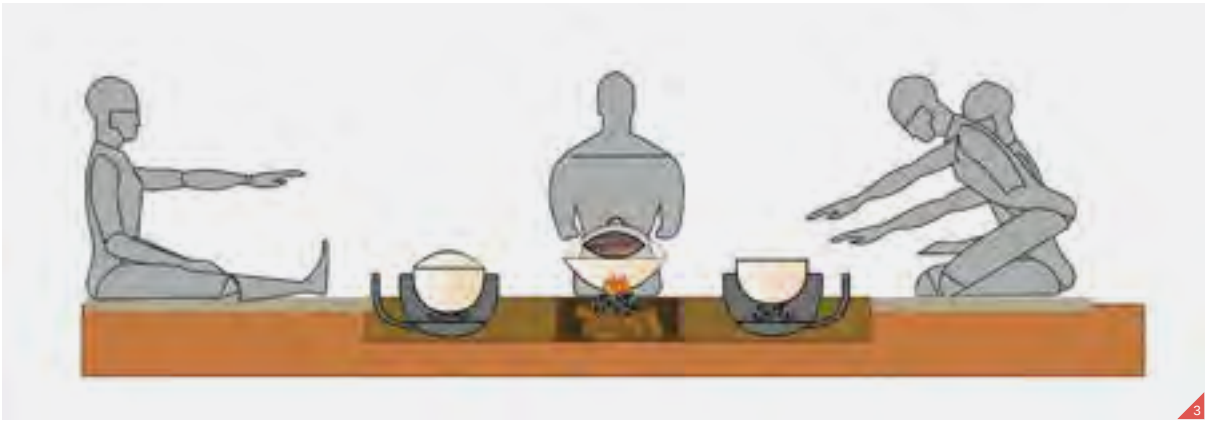
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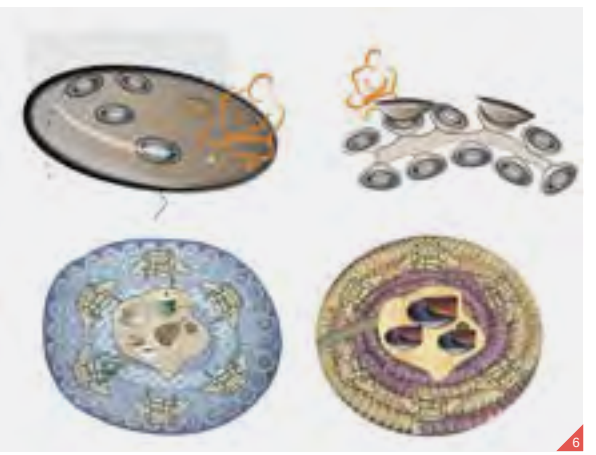
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ROWENA GOODALL

Karlup is a culturally inclusive communal cooking system to improve the nutrition of Indigenous Australians living in rural and remote environments.

KARLUP

The system would be located outside, where community members could bring mats and comfortably gather around. There are five cookers within the Karlup system to encourage traditional communal cooking as well serving the needs of overcrowded households.

In use, a fire is lit underneath the large main oven in the centre and coals from the fire can be brushed down the channels to the smaller burners onto which the smaller ovens are placed. The smaller ovens are for bush food such as grasses, grains and rooted vegetables. Heat is controlled by regulating air flow at the burners. The design allows easy cleaning by brushing out coals after use.

Materials used are locally sourced as far as possible and left to wear to the natural environment. The form reflects Indigenous Australian circular pattered art as well as the contours of the Australians hills. The main grill and flute and oven air holes also display the circular pattern motif.

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PICTURED:
1. Karlup in context
2. Exploded view
3. Grill
4. Flute
5. Bowl detail
6. Bowls

OVERALL DIMENSIONS: 1905mm diameter and 376mm height

MATERIALS: sand blasted ochre died cast concrete, ovens: enamel painted fire clay with oak handles, grills: porcelain coated cast iron, flutes: matte steel tubes with desert acacias handles

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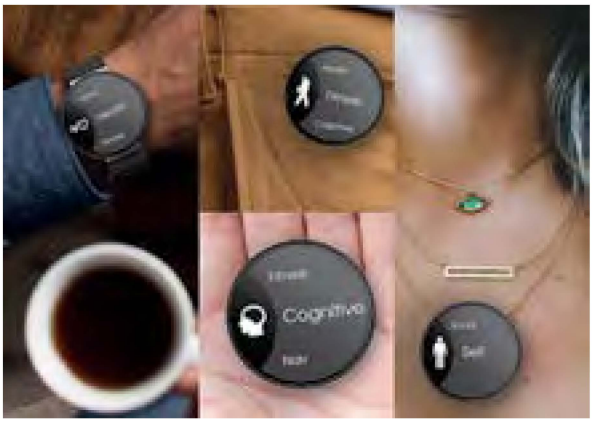
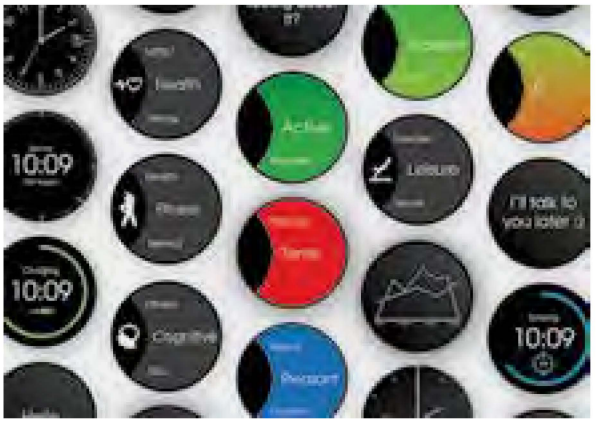

Cognitive
Self


Health
Active
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Leisure
I'll talk to you later
Cognitive
Passport


Work
Exercise
Eating


Cognitive
Health Analytics

ALEX JACKSON

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'R U OK?' It's the phrase that started a campaign to raise awareness of mental illness within our society, and the inspiration for this design: Cognitive – Health Analytics.

COGNITIVE: Health Analytics

With 1 in 4 people experiencing a mental illness throughout their lifetime, greater accessibility to treatments is a necessity to ensure that the problem is dealt with accordingly. Cognitive is designed as a supplementary device for those diagnosed with a mental illness, incorporating medical and psychological treatments prescribed by medical practitioners.

Cognitive has been inspired by the emerging range of wearable technologies currently available today. It is designed in the hope of creating a product that looks less medical, more subtle and everyday, primarily to assist in combating the stigma that often plagues attitudes towards mental illness.

A pair of galvanic skin response sensors fitted in the base and collects psychological data through sweat and electrical signal. This is stored and analysed by medical professionals to generate targeted treatments. A user input component, where the user answers a series of questions, allows for comparison between perceived feelings and actual responses.

Cognitive is controlled via a combination of touch screen gestures and a rotary dial, inspired by the control wheels found in car entertainment systems. This allows for easy manoeuvring through menus and screen, whilst keeping the display uninterrupted by fingers. There are also a number of attachment accessories available, including a clip and watch attachment so the device can be carried according to preference.

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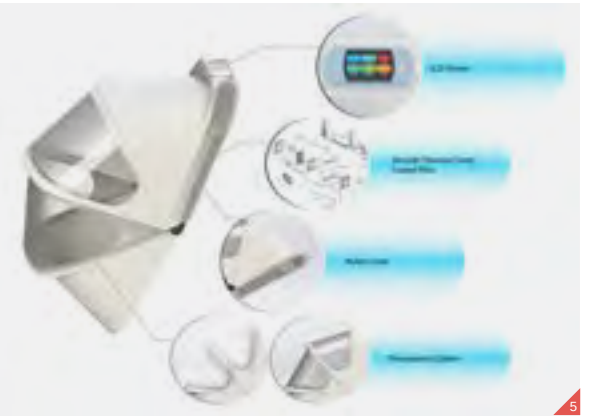

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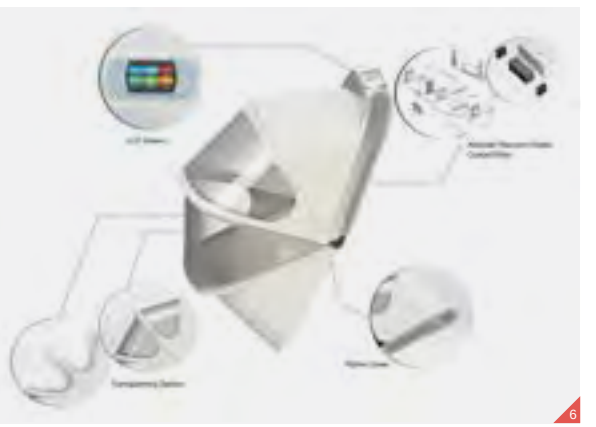

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GINNY KWOK

"I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel." Maya Angelou

ZEPHAIR

The Zephair air filtration canopy helps aids infants and children protecting them from harmful air pollutants in major cities. The fresh air system has been designed to fit onto a Bugaboo Baby stroller.

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It uses filter-less technology (Airocide) to eliminate Volatile Organic Compounds (VOCs), pollutants and allergens in the air. Within the filter-less chambers, there are 20nm LED lights and titanium oxide coating to create a reaction within the chambers that cleanses the air that travels through.

PICTURED:

1. Hero shot
2. Product display interface
3. Product scenario – outdoor
4. Product scenario – indoor
5. Product detail
6. Product detail

The chambers can be easily interchanged every 3–5months depending on the air quality of the environment. Central parts of the shell use a transparency material known as E foil to allow parents to adjust the transparency of the canopy according to the weather and activities of the baby.

Many of air purifying technologies on the market only monitor the environment or purifier in an open space that targets all ages. The Zephair will primarily be aimed towards infants and children because their respiratory systems are not fully developed and therefore not sufficient to defend themselves in harsh urban environments.

It is a pro-active product that not only monitors the air quality but act as a shield for children in both indoor and outdoor environment. Helping to reduce respiratory diseases and allows the freedom to travel wherever they desire.


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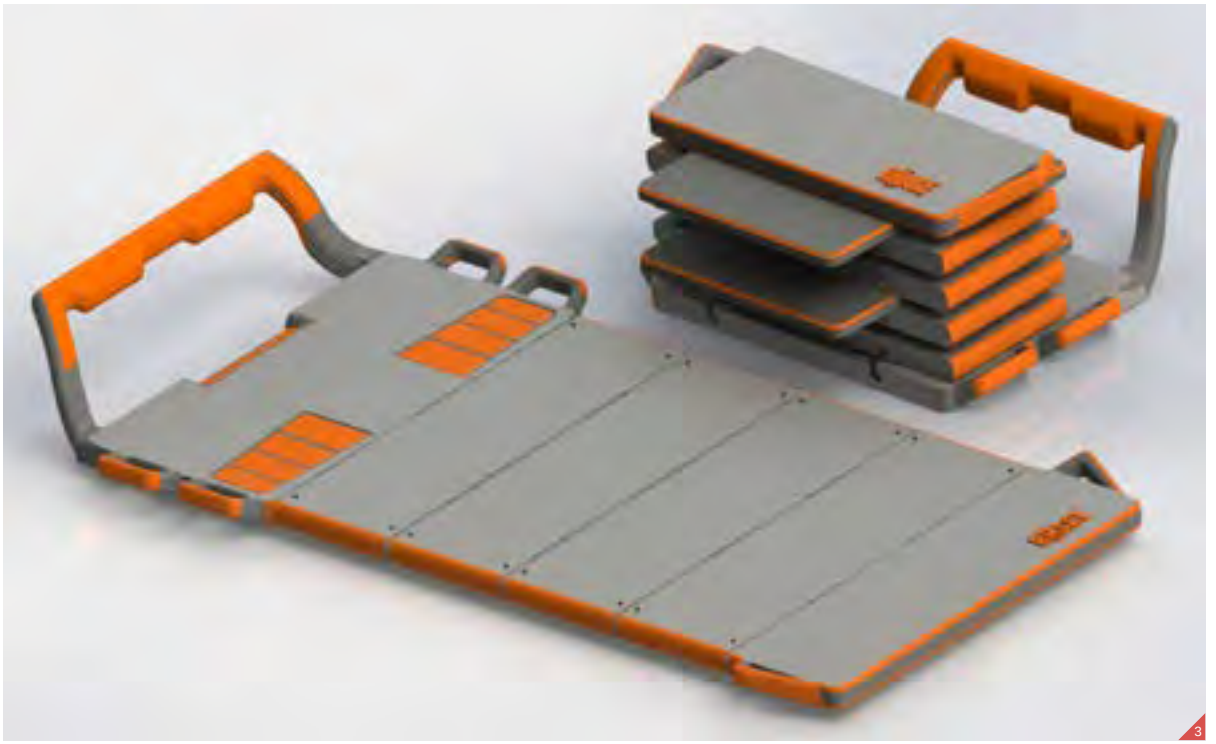
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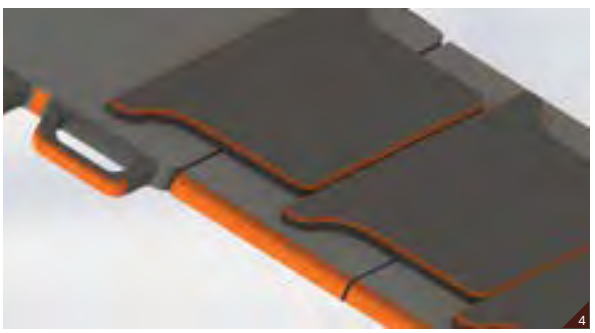
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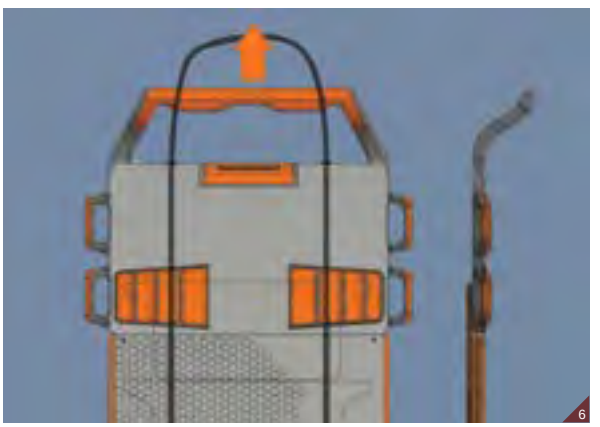
6

CHRISTINA LE

"Question everything generally thought to be obvious." Dieter Rams

BRACE

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0432 126 907

PICTURED:
1. BRACE Spinal board
2. Exploded view
3. Detail shot of internal structure
4. Compact and ready to carry
5. User context
6. Handles and neck brace mechanism

BRACE is a revolutionary spinal board for paramedic motorcycles designed to be lightweight and mobile in highly congested areas. Spine related injuries account for nearly half of motor vehicle accidents, and as paramedic motorcyclists are the first on scene, it helps the paramedic to immediately mobilise the spine whilst moving the patient out of danger.

In an emergency, BRACE can be assembled quickly and used to remove the patient out of harm without further risk to the spine. A synthetic hi-tensile cord runs through the board to help secure the segments together and the collapsible system is secured at the top. The Hexalite honeycomb polypropylene structure makes up the main partition of the board, and with its rigid nature due to its material properties, it enables the board to easily withstand the weight of an adult male.

BRACE consists of a combination of polypropylene and glass filled polycarbonate molded sections which offer excellent impact and abrasion resistant properties. This is ideal as the system will be dragged across different terrain in a variety of accident situations. The overall shape is minimalistic for low profile storage on the motorbike.

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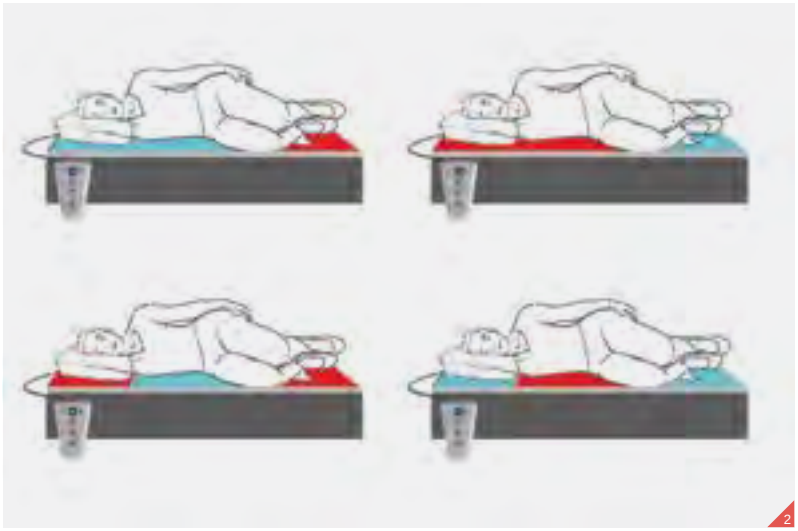

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FELICIA LEVINA

SENSE: Smart heating blanket

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PICTURED:
1. Sense blanket fitted on bed
2. Heating diagram
3. Sense exploded view
4. Sense user's context

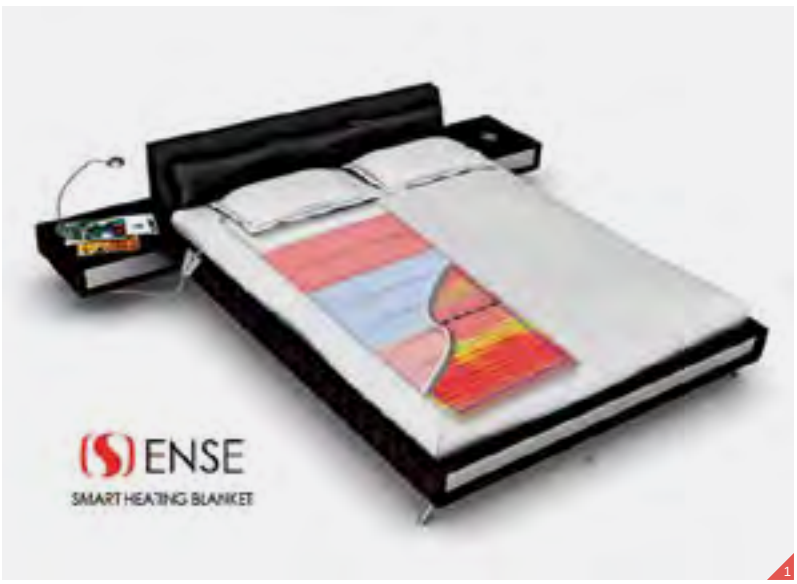
Sense is a new improvement of the current electric blanket in the market. It is designed to provide people with personalised temperature control for a good night sleep. The current electric blanket only provides people with timer and specified temperature level, which often results in people feeling too hot or too cold when the surrounding temperature fluctuates. It is often frustrating and requires people to wake up to adjust the blanket settings. This results in them not being able to get back to sleep.

With Sense, the blanket will automatically operate as the users lay on it (pressure sensor tape) and the user's sleep pattern will then be recorded and the blanket sill smartly detect the temperature involves in the user's deep sleep stage. The blanket will adjust its temperature based on the sleep data recorded to maintain the user's comfortable temperature even when the surrounding temperature fluctuates.

Additionally, body-zoning feature is also incorporated and can be easily set up using the attach remote control. The three zones include neck, body and legs area. This feature may also be used for releasing muscle tensions for relaxation.

OVERALL DIMENSIONS: 765mm x 2030 mm

MATERIALS: Cotton, polyester fillings, SEFAR Smart Fabric



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CHUMING LI

AEROVIVE

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PICTURED:
1. Hero shot
2. AEROVIVE in context
3. Smartphone application interface
4. Exploded view

Fine particles from dust, dirt, soot, smoke and liquid droplets in the atmosphere are invading public breathing spaces, and creating huge problem for all residents in China. The consequence the lower air quality and is potentially harmful to the health of an individual. Construction workers are most at risk for labouring and being exposed in open areas.

AEROVIVE is to be worn as a mask with device that will filter the breathing air, and providing the clean air to the mask wearer. Outstanding lightweight and soft silicone mask piece provides comfort with better seal-ability on different size of faces under long usage time. A built in rechargeable dust sensor measures real time air quality by detecting particulate matter, data can be checked by smart phone application which may call attention to wearer to put AEROVIVE on.

The rechargeable dust sensor is effective at detecting airborne fine particles. Sensor could be charged by micro-USB. All data will be transmitted to any Bluetooth-compatible smart phone via Low Energy Bluetooth. AEROVIVE uses specific N95 filter to against tiny airborne particle which is smaller than 2.5 micrometre diameter.

Major innovation in AEROVIVE is a compact and lightweight design, with soft silicone mask seals gently and easily to wearer's face. Eco-friendly design with changeable filter works with the same silicone mask. Two spare filters could be store within the device sits at the back of neck. As well as the silicone mask pieces could be easily clean by water. AEROVIVE is designed to work with safety helmet compatibly.

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ZHAOZHAO LI

[PRODUCT NAME]:
Bike helmet and glove wireless cooperation system

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[Product name] is an integrated helmet and glove system to improve bicycle safety and is particularly focused on needs of city commuter cyclists. The system includes lighting, signalling and navigation functions.

Hand gestures detected in the gloves activate signals for indicating left/right turns, and the rearward facing stop light.

A wireless earphone in the helmet is integrated with a GPS system to offer navigation advice specifically for cycling needs such as following designated cycle routes or routes with least hills.

Safe lithium polymer batteries in the helmet and glove are rechargeable anywhere via a USB port. Durable and efficient LED lamps are used for all the lighting functions.

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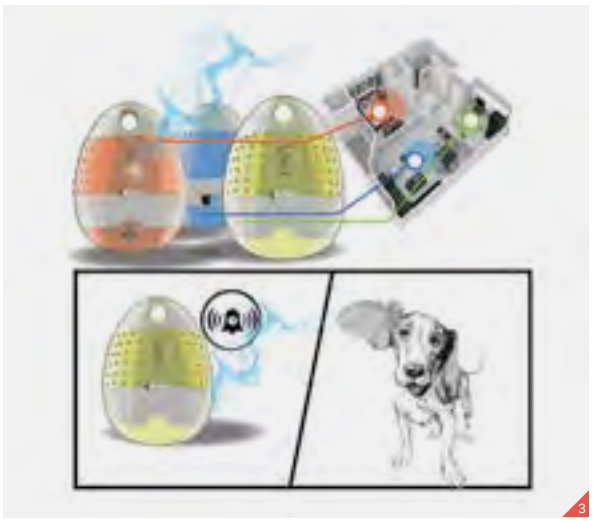
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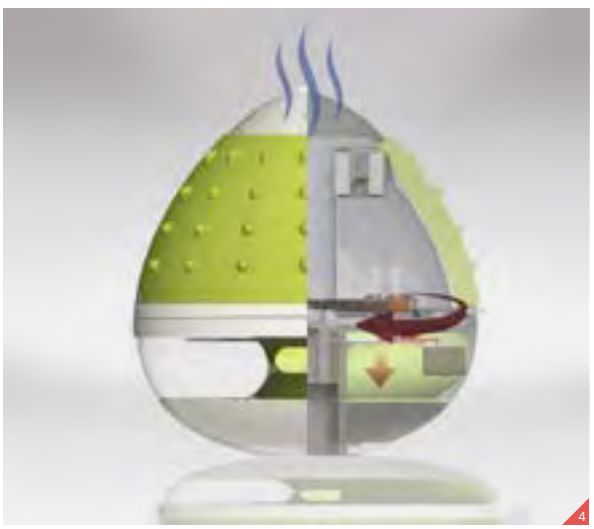
4

CHRISTINE LIANG

KIB-BALL

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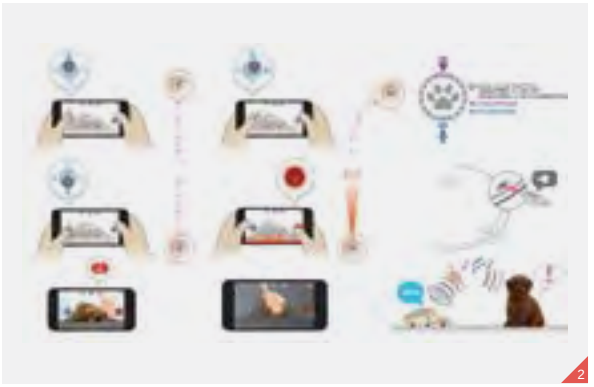
0404 570 822

PICTURED:
1. Kib-Ball pet entertainment and training system
2. Treat packaging
3. Concept sketches
4. Internal mechanism
5. Customisable skins
6. Phone application

Kib-Ball is a remote sound, scent and treat based training system that is used for domestics pets. Many dogs left alone at home are bored and unengaged, which can lead to separation anxiety and costly destructive behavior. Kib-Ball aims to engage directly with the pet's highly developed sense of smell, challenging and entertaining them when alone. Its unique sound based training method will provide owner or trainer with a non-invasive method to acquire insight into their pet's activities and well being.

The Kib-Ball remote system consist of three consoles, and utilises revolutionary multi-scent and easy-refill treat cartridge system. The system works works by placing wifi-enabled consoles in different areas of the house, a signal tone is released and the pet is either rewarded with a treat or sound. Stimulating and encouraging the pet to exercise while you're away. The Kib-Ball is designed with an innovative locking mechanism and are built super tough, the outer skins are replaceable and recyclable allowing you to swap out a worn part rather than throwing away the entire toy. In built is a self-righting mechanism designed to suit the natural animal behaviours, it also includes scents, lights and sounds tuned to the pet's seeing and hearing abilities. The Kib-Ball system is designed for the pet and end users in mind, autonomously the system will turn on while you're away and turn off after play time allowing the animal to rest.

Give it expandable capability through wireless technology. Kib-Ball will be able to be activated via smart phones and computers. The app will allow trainers or dog owners to customise the settings to their needs. Kib-Ball will provide your pet with endless amounts of stimulating and challenging play, while you're away.



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SparkDog
We detected that your dog is yelping in high frequency. Please check what's happening.

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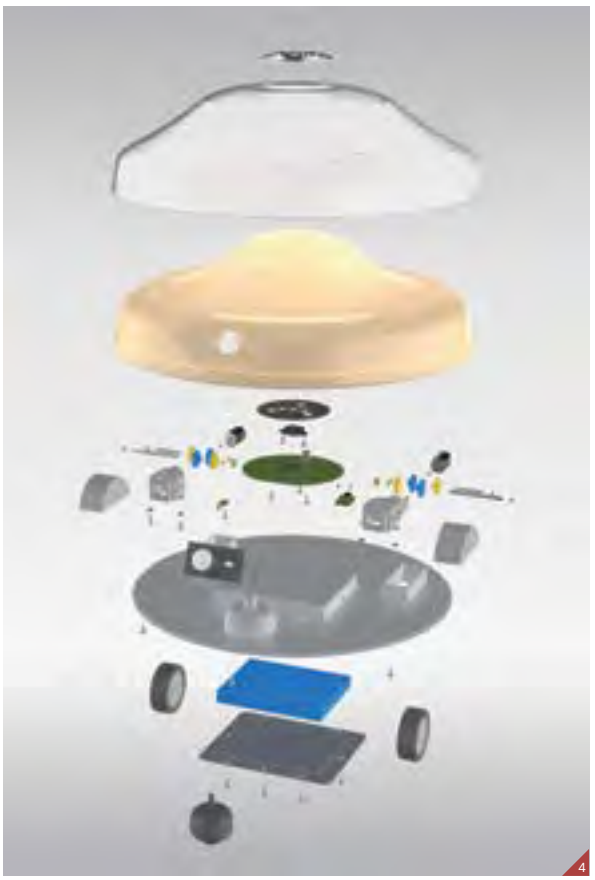

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QIUYUAN
OLIVIA
LIN

MONIDOG

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PICTURED:
1. Context and use
2. User guide
3. Real-time notification function when quit the App
4. Exploded view
5. The paw icon aluminium switch for power and wi-fi connections
6. Relationship with different sizes of dogs

MoniDog enables a dog owner to monitor and interact with their dog at home while they are out. The product allows connection anywhere with internet technology accessed and controlled via an App on the owner's smart device. The App interface imitates game controls, giving the user an interesting experience when controlling the movement and a the device in the home.

Communication works both ways, allowing both the owner and the dog to hear each other through embedded microphones and speakers. In addition to direct communication users can 'play' with their dog by shooting a laser beam (harmless to human and dog eyes) a reasonable distance from the device. The dogs' curiosity of the laser will allow the owner to interact with their dog by aiming and controlling the laser through the App. The device also allows the video recording and to taking photos that will be displayed through the App.

When the user quits the App, the product would automatically turn to sleep mode for power saving but the sound sensor remains active and will notify the owner if any unusual pitch of sound is detected at home. Customisable 'ringtones' will let the dog know when the user opens or quits the App, and the user also can set other tones as different instructions for training the dog.

OVERALL DIMENSIONS: 260mm x 260mm x 92mm
MATERIAL: Polycarbonate, PMMA, aluminium

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BENJAMIN MA

"Design requires passion, heart, and sleepless nights." Benjamin Ma

EMMA

Emma is an elderly mobility walker with an integrated chair lift to provide assistance for those who have difficulty standing up from a lower position such as sitting on a chair, from a bed or lower such as kneeling down for gardening.

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Emma's ergonomic design allows the product to be used universally by all who have mobility issues and it reduces dependence on a personal assistant. The simple internal or remote controls allow the users to easily adjust the seat to their desired height.

PICTURED:
1. Hero shot
2. Orthographic views
3. In context
4. Exploded view
5. Manoeuvrability

The unique design of the raise and lower handles allow adjustment to the most comfortable height and angle for the user. The seat can provide lift of up to 150kg with the use of a powerful high torque geared motor and a large internal battery with capacity for about two hours use. Special Omni wheels are used on the front for added manoeuvrability in tighter spaces.

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XAVIER MANCINI

WEED BEETLE

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0402 463 145

PICTURED:
1. Context
2. Hero
3. Ergonomic handle, indicator light and finger trigger
4. Snug fit air compressor
5. Aggregate fill up portal
6. Nose tip

The Weed Beetle is an eco-friendly weed knock-down device, incorporating abrasive matter with high velocity bursts of air to eliminate weeds from undesired locations.

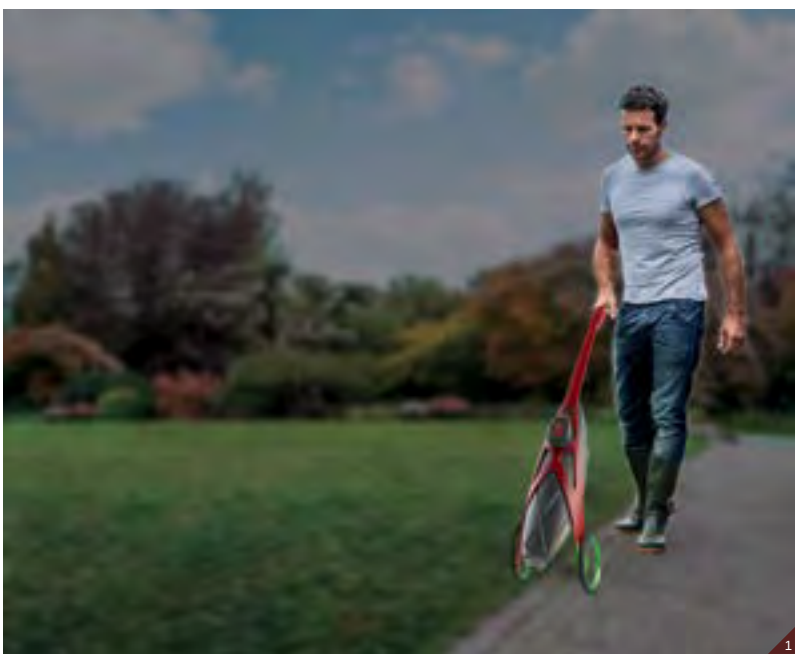
Based on a sand blasting principle, the Weed Beetle obliterates and destroys the weeds cellulose structure rather than cutting it like conventional methods, thereby hindering the weeds chance of a come back and survival.

Not only does the Weed Beetle make light work of physically removing weeds, it also reduces the amount of potential pesticides otherwise applied in order to control weed pressure; and by reducing the plant material to smaller pieces it fast-forwards the benefits of plant matter returning to the soil.

Balanced over two large circumference wheels for ease of use over rough and uneven terrain, the Weed Beetle's heart, a 240V air compressor, plumbs straight into a refillable aggregate reservoir to keep the contents under constant pressure for immediate disposal. An LED light initially informs the user when the reservoir has reached working pressure and a trigger switch located on the handle opens and closes an electric release solenoid at the tip of the device.

Intended for domestic use, the Weed Beetle combines the physical advantages of a brush cutter with the chemical advantages of pesticides. In turn it proves to be a much safer and cleaner exercise.

OVERALL DIMENSIONS: 900mm (H) x 270mm (W) x 835mm (D)



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JOSHUA NHAM

TRAILER CAM

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PICTURED:
1. Hero shot
2. User context
3. Exploded view
4. Ultrasonic sensor detail
5. Camera detail

Trailer Cam is a detachable reversing camera and overtaking assistant designed for semi-trailers and heavy vehicles. It is designed to enhance safety among rural roads and alleviate inherent problems that come with driving semi-trailers.

The Trailer Cam is a completely wireless solution, it features a 5mp camera alongside an ultrasonic sensor. This ultrasonic sensor is used to alert drivers of a safe merging distance between vehicles which are being overtaken. The reversing camera provides a live image of the rear of the trailer, thus eliminating the “blindside” of the vehicle. All of these inputs are wirelessly relayed to an in cabin monitor. The camera is powered by a 1100mAh battery; the monitor also features a charging dock on the rear as to charge a secondary battery whilst one is in operation.

The camera has been designed to withstand the rugged forces of nature. Using a multi mount system, the right mount can be chosen to suit the drivers’ vehicle. This design aims to fill in the gap in the market for reverse cameras catered to truck drivers as most systems require hard wiring and installation. A luxury, logistics drivers do not have when they are picking up and dropping off company trailers.

OVERALL DIMENSIONS:
CAMERA: 69mm x 96mm x 37mm
MONITOR: 130mm x 100mm x 21mm
MOUNT: 45–70mm x 65mm x 15 mm
MATERIALS: PC, ABS
MANUFACTURING: Injection moulded

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MUSA NOORSJAMSI

KITARU: Learning guitar

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0432 364 917

PICTURED:
1. Hero shot
2. In context
3. Front
4. Adjustable music screen
5. Collapsed
6. Exploded

Kitaru is a full sized digital guitar that will enhance the experience of the user's musical journey. Kitaru offers users an easy and simple way to teach themselves how to play. Aimed at complete beginners, this product will serve as an effective way to teach users how to play the guitar and will act as a virtual music teacher.

Kitaru is a completely digitalised guitar. It features buttons that light up to guide the user through certain lessons. By completely removing the strings, Kitaru will give the user an edge in learning how to play by removing factors such as finger strain and tuning. By adjusting the pressure needed to press down the fret buttons will allow the user to slowly adjust to the physical strain that comes with playing guitar. Even though Kitaru is digitalised, it is designed to feel and play like a real guitar.

Kitaru is also collapsible for easy storage or portability. The neck detaches and slides into the main body and the frame folds up into a small package.

Kitaru will be able to be rented from guitar stores so that people that are interested in learning guitar will be able to rent Kitaru so they don't have to make a commitment to buying a guitar. Kitaru will also be used in schools in for young kids to learn guitar in their music classes.


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CORIDER
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MATTHEW ALFRED PATANE

"Design is shrinking the gap between what a product does and why it exists." Sahil Lavingia

CORIDER

The exponential growth of motorcycles on the road has brought upon the need for a method to efficiently teach motorcycle learners how to ride safely.

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0410 316 663

PICTURED:
1. Hero shot
2. In context view
3. Mounting location views
4. Exploded view
5. Mounting types
6. Mobile app

CORIDER is at the forefront of the motorcycle safety and learning industry. Designed specifically for beginner motorcyclists, it enhances, educates and eases the rider's learning experience. It can be easily mounted to any motorcycle and becomes a riding companion through taking on the role of an instructor.

CORIDER analyses the riding style of the user, records their journey, and gives appropriate instant and post feedback on how they are performing. It then provides an analysis of how the user is progressing as a rider; showing comparisons of their initial to their current riding performance, presents what aspects of their riding they are performing well and what aspects need improvement, suggests alternative methods in order to achieve a proper riding style, and alerts for safety hazards and warnings when riding.

CORIDER has the ability to record and inform the rider about appropriate braking distances, corner lean angles, correct speed for turns, aggressive riding style and potential riding hazards. This is demonstrated to the rider in a variety of ways, including immediate feedback from the GUI interface, and a detailed post feedback when synced with a PC or smart phone. It is able to achieve this using a 1080p action camera, laser range finders, GPS, accelerometers, and tilt sensors.

CORIDER allows the rider to teach themselves how to ride at their own convenience using proper riding practice. CORIDER is the future of how we can learn to ride a motorbike.

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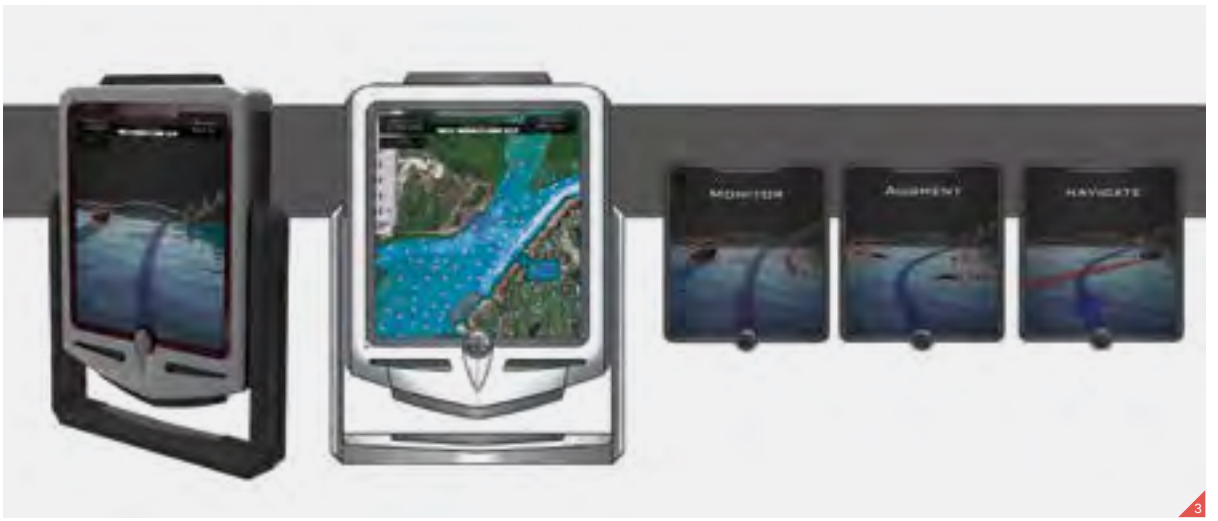

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KEVIN PENG

AUGNAV

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0409 113 399

PICTURED:
1. Hero shot – Lidar
2. Exploded view – Lidar
3. Interface functional displays
4. Exploded view – interface
5. Variation and development – Lidar
6. Lidar in context

AUGNAV has the purpose of preventing collisions for water borne vessels. Statistically the majority of incidents are due to inattention, inexperience and improper lookout. AUGNAV will then provide a second layer of lookout to ensure the operator is fully aware of their surroundings and are given more information about the presence of other vessels, environment hazards and other risks.

AUGNAV utilises LIDAR technology to create a 3D virtual, augmented environment presented on the interface. Working alongside 3D segmentation and algorithm software it will highlight no go zones for environment hazards and show silhouettes for vessels and smaller hazards. It will also calculate the project pathways of these opposing vessels by using reference points. Depending on the situation and type of hazard, AUGNAV will augment the operator by presenting safer, alternative routes on the interface. It may also provide literal advice and visual commands for those who are less experienced.

The AUGNAV offers multi-faceted functionality compared with conventional navigation systems. Being a three in one package utilising advanced technologies puts it in a field of its own, improving safety and awareness.


MÓVIL


MÓVIL


MÓVIL


MÓVIL
KITCHEN CART
SANDWICHES

ADRIAN POON

MÓVIL: Mobile kitchen

CONTACT
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0412 922 063

PICTURED:
1. Sketches
2. Night context
3. Hero context
4. Stove detail
5. Context poster
6. Sink detail
7. Open detail

The Móvil kitchen cart is an adaptable and versatile outdoor kitchen/service vehicle designed for the burgeoning street food-vending scene in Australia. Móvil is designed for new operators seeking to enter the street food/ vending business or for the experienced operator seeking to adapt and improve their existing systems.

The Móvil kitchen cart is designed to be customisable into a variety of service and transport options to provide an adaptive solution for a variety of urban environments and situations presented by street food vending.

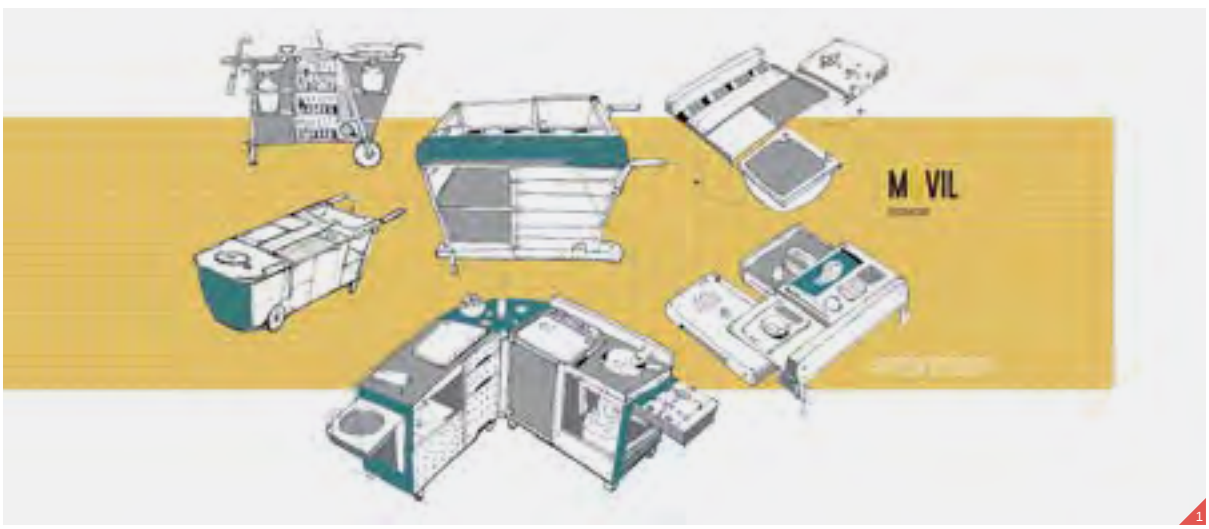
The design consists of two designated areas, intended for cooking and service. A series of hinges that are connected to two aluminium frames allows for the Móvil kitchen cart the option of being moved and assembled in a variety of positions according to the terrain, layout and needs of the operator and their environment.

Self sufficiency is key in the street vending environment, so self contained gas, water and refrigeration are incorporated into the design, which is powered by conventional and readily available power sources such as LPG gas and 12-volt battery supply.

Marketing and advertising space has also been considered in the main corner feature as well as the front panels of the unit. These areas are ideal for those wishing to expand their sales and marketing of their business and products.

The main material selection is combination of aluminium, stainless steel and American oak. These materials were selected due to their function, performance and aesthetic.

The varying size and scale of street vending operations means that the Móvil kitchen cart can be a both a high end and affordable solution for any operator seeking to set themselves apart in the street dining scene.



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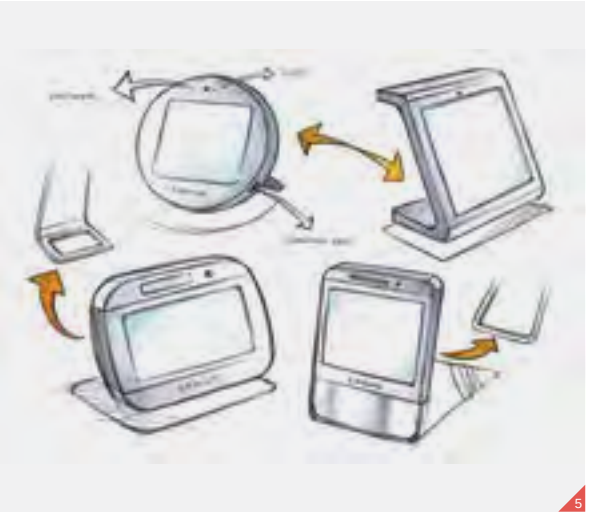
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ZIHAN REN

ASURE is a smart kitchen system that helps manage purchase and consumption of food in a busy household. It also assists users to balance their nutrition and diminish food waste.

ASURE: Food manager

The ASURE device with a touch screen interface can be affixed to the refrigerator or sit on a stand on a bench or table. When arriving home from shopping, QR codes on the receipts or products are scanned with the device's camera. This enters products' names, prices and expiry dates into the system and the details can be displayed with the "fridge list" function. When food is near expiry dates, ASURE alerts users to consume it through colour codes. Green indicates food still fresh, orange indicates the expiry date is near and red shows the expiry date has passed.

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PICTURED:
1. User scenario
2. Hero shot
3. QR code scan
4. Food expired alert
5. Concept sketch
6. Exploded View

ASURE can offer cooking recipes for purchased food and especially for making use of nearly expired items. When food items are consumed the system can suggest adding them to the shopping list, and users can make use of online shopping services according to the list. Moreover, the system could send recipes and shopping lists to other devices such as a phone or tablet for more convenience of family members.

OVERALL DIMENSIONS: 124mm x 100mm x 12mm
MATERIAL: ABS

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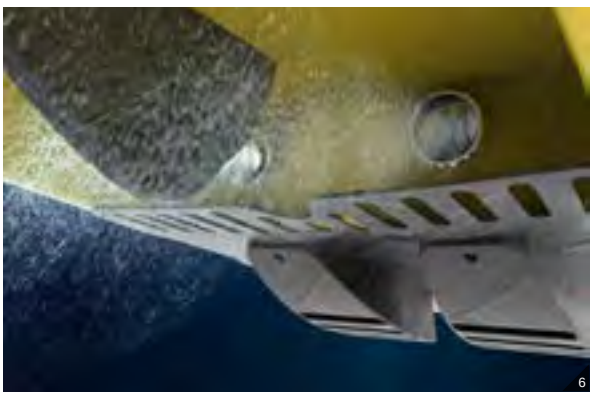
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4

MIKEE RONQUILLO

AUXILIUM:
Mass surf rescue board

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PICTURED:
1. Lifeguard with Auxilium board
2. Auxilium board resting on the beach
3. Lifeguard and patient returning to shore
4. PFD and rearming mechanism detail
5. Interface details (control panel and throttle)
6. Jet propulsion system underwater

Auxilium is a rapid response surf rescue craft. It allows lifeguards to reach patients faster through its twin jet-drive propulsion system that reduces lifeguard fatigue as they would otherwise spend time and energy paddling against waves. The jet-drive system is ideal in shallow waters such as those close to shore and rock faces.

The board is controlled through throttle handles on both sides, each controlling the corresponding jet for better manoeuvrability and acceleration control. An automatic cut-out stops the jet propulsion if the lifeguard comes off the board, detected by absence of pressure on a kneepad sensor. The board is powered with a rechargeable lithium ion battery.

Auxilium also carries self-inflating personal flotation devices (PFDs) that keep patients buoyant and reduce their risk of drowning. This feature is especially beneficial in mass rescue scenarios where there are multiple patients that need assistance in a short period of time.

Emergency lights are installed at the front of the craft for easy identification purposes, also acting as a warning signal for nearby swimmers. Handles are on the sides of the board allow easier transportation as well as assisting patients to grab on to and mount the board when being rescued.

OVERALL DIMENSIONS: 3200mm x 550mm x 150mm
MATERIAL: Polystyrene, PVC, fibreglass
MANUFACTURE: Extruded polystyrene, injection moulding

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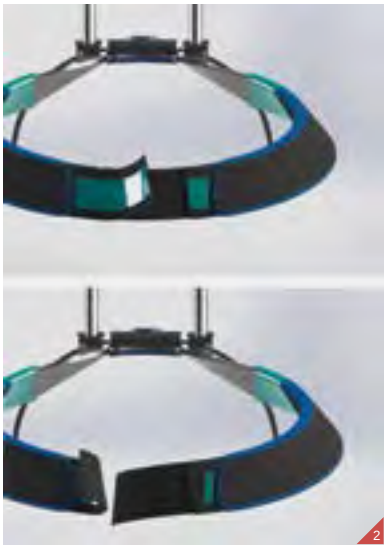

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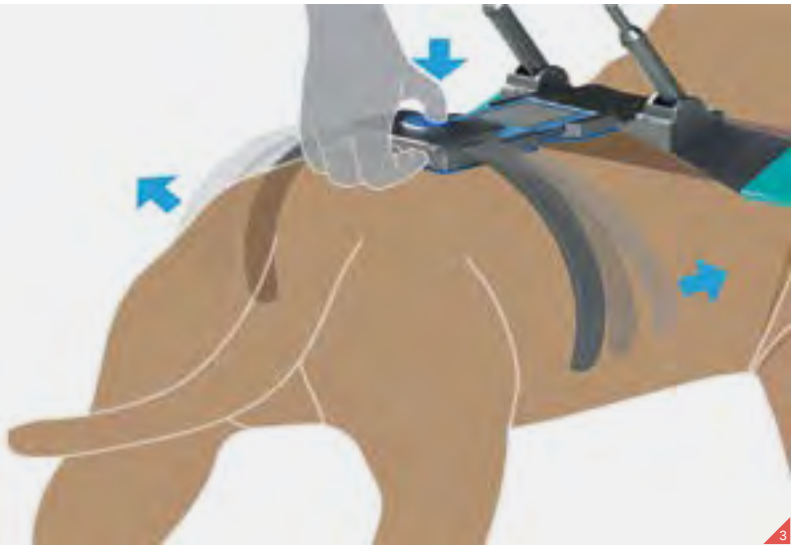

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DOMINIC SEE

"Do something wonderful, people may imitate it." Albert Schweitzer

FARSIGHT: Guide dog harness

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0416 304 976

PICTURED:
1. FarSight in context
2. Front view detail
3. Harness mechanism
4. Illuminating bands at night
5. Navigation device in context
6. Navigation device whilst walking

FarSight is a harness worn by seeing-eye dogs, used to help their visually impaired owners travel about in their daily lives with greater accuracy and safety.

Starting with the daily task of putting on the harness before leaving the house and taking it off at the end of the day. The FarSight harness is more comfortable and easier to use because of the rear 'harness mechanism' which takes away the need to reach around and underneath the guide dog to connect the rear straps of the harness.

When in use, the FarSight harness has a 'destination-based navigation device' which uses voice recognition technology to listen to where the owner wants to go, the device then confirms and calculates a route, from there it helps to direct the owner who then repeats the direction to the guide dog. The navigation device comes with built-in weatherproof speakers, but is also compatible with Bluetooth earphones.

As daylight fades the FarSight harness employs several bands of 'powerless illuminating polymer ribbons'. These bands help to make the guide dog more visible to motorists, cyclists and other pedestrians, whilst not requiring a battery power source. The bands are charged through exposure to natural or artificial light.

MATERIALS: Aluminium, polycarbonate, nylon


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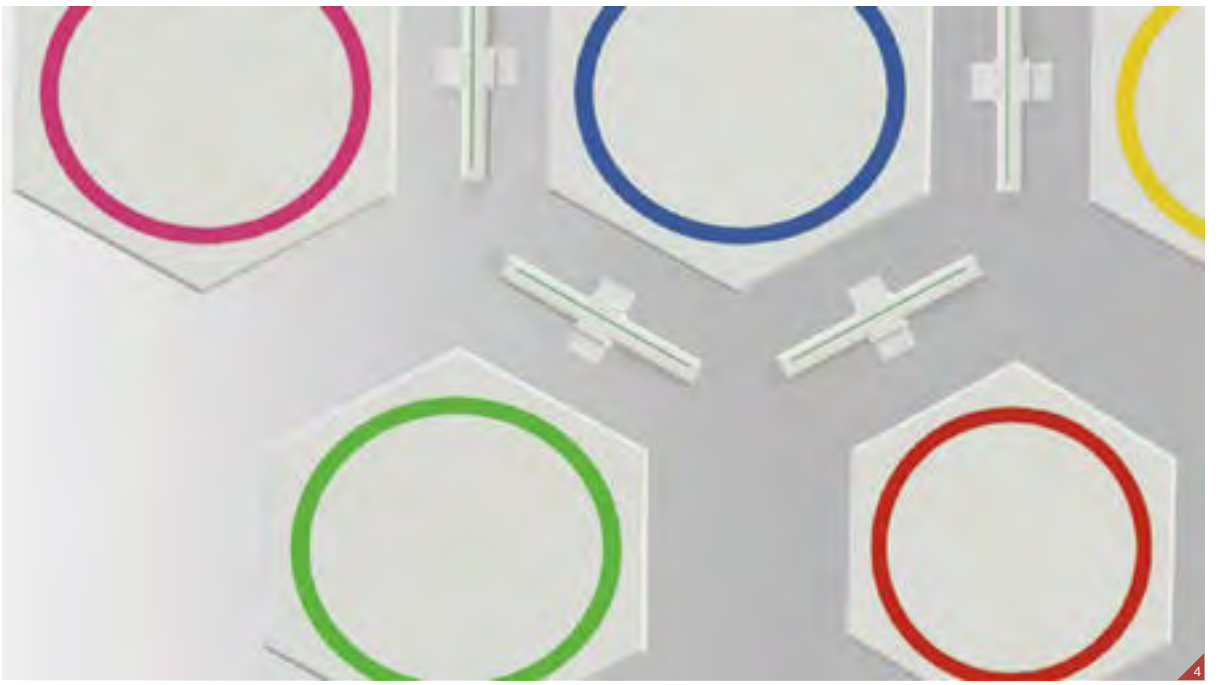
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NATALIA ELLA SETIAMIHARJA

RESONANT is a modular device that translates music into vibration to allow people with hearing impairments to enjoy music through feel.

RESONANT

Resonant's modular system allows the user to configure the system, making it unique for each user. There is one main module which acts as the 'motherboard' where users connect their phone/music player using Bluetooth. This main module is where the music is translated into vibration and would send the vibration to the other modules connected to it. The main module is rechargeable and acts as the main power source for connected modules. Modules are equipped lights and visual effects that further enhance the music experience.

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PICTURED:
1. RESONANT in context
2. Music to vibration
3. Connectors
4. Modular and personalised
5. Details
6. Exploded view

In addition to the main module, there are two types of other modules:

Vibration Module – the module which delivers the vibration

Connector Module – the module which connect each modules into one design

These modules can be configured in many different was according to user preferences.

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XIAOMENG SHI

AIRCALM

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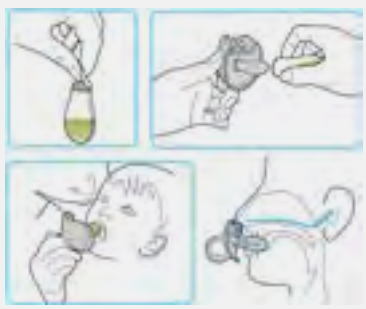
0430 082 911

PICTURED:
1. Hero shot
2. Sales method and sale package
3. Detail views
4. Explore view and section view
5. User scenario

Aircalm is made to relief the ear pain for infant during air travel. Pressure changes from flying and sudden elevation changes while driving can be irritating or downright painful for passengers' ears. Adults can help themselves to reduce this discomfort by swallowing and blowing air while infants cannot swallow consciously. Aircalm is designed to stimulate infants to suck and with each sucking and swallowing action, air goes through the air tube in his nose and then opens the Eustachian tube.

Aircalm is developed based on Politzer bag principles. The device contains a pacifier filled with suitable food or liquid for infants and an air bag inside that connect with a nasal. Whenever the baby swallows, the air bag is compressed and pops air through the air tube into the infant's nose and the direct pressure opens the Eustachian tube. It only needs to be used for a few sucks until the air is pop into the nose successfully. In using Aircalm, parents need to cover the hole on the handle to cut off the connection to the outside from another nasal.

It is available from vending machines in airports. Parents can buy a full package with one function pacifier and two changeable feed nipples. Changeable nipples are individually available for retail. The product is assembled and controlled by parents at all times. It might be the easiest and most suitable way to help your baby have a comfortable air travel without ear pain.



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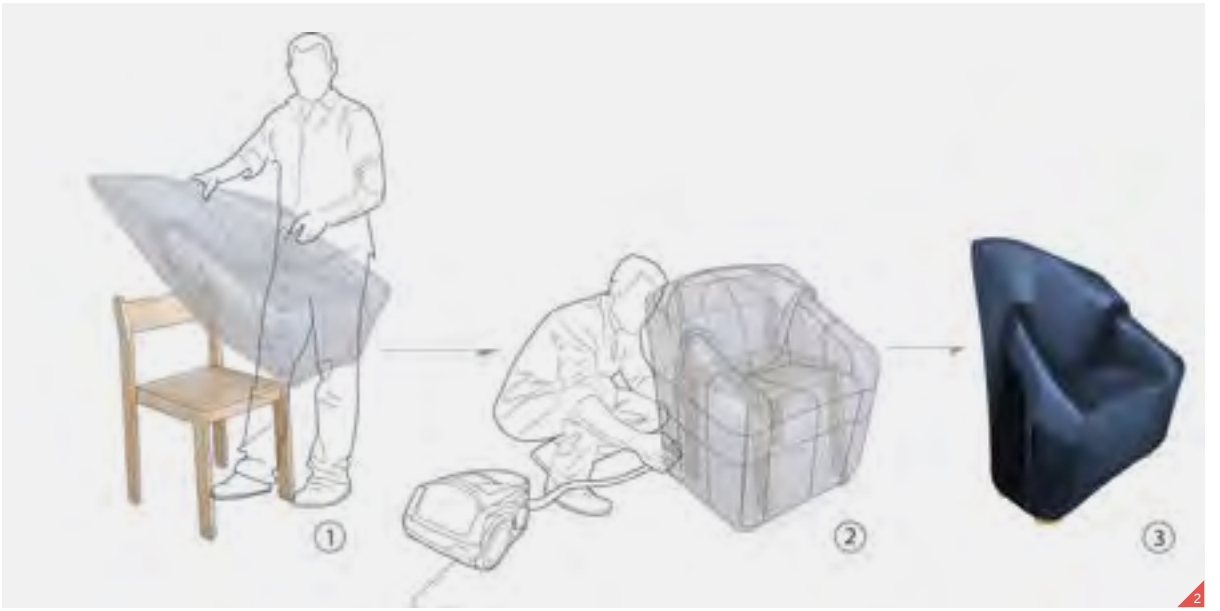
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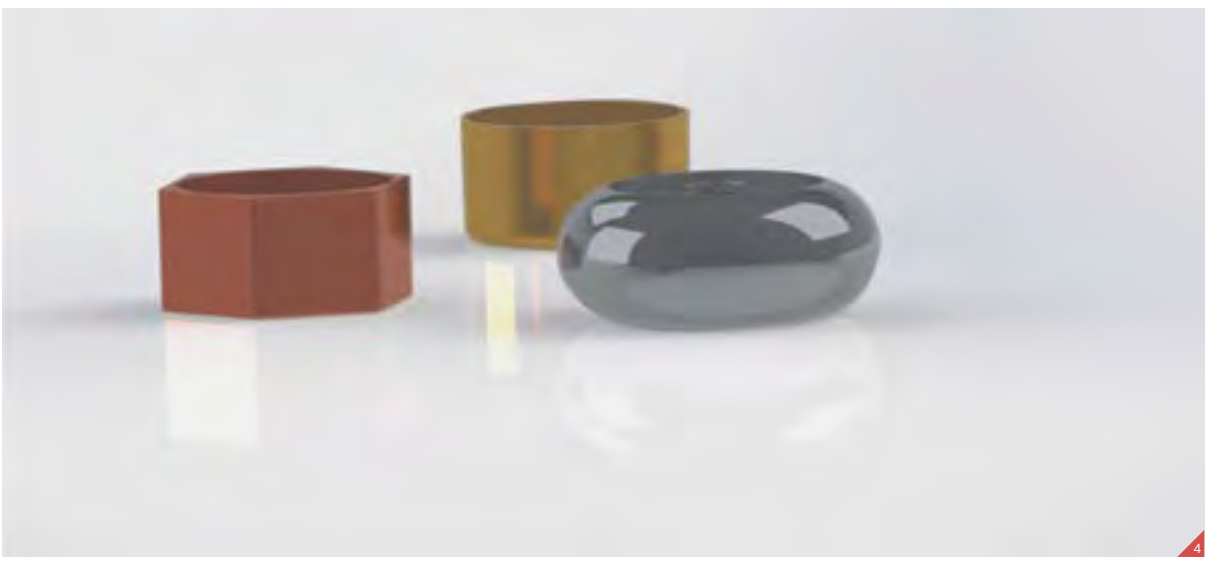
morf.



RACHAEL SIGLEY

MORF.

Morf. is a collection of chair covers, which encourage people to update and reuse old chairs. These covers are airtight and have been designed to deflate over existing chairs. These structured covers act as ”upholstery” once deflated. Each cover in the range has a particular charismatic personality, which morphs to the contours of the inner chair creating unique forms.

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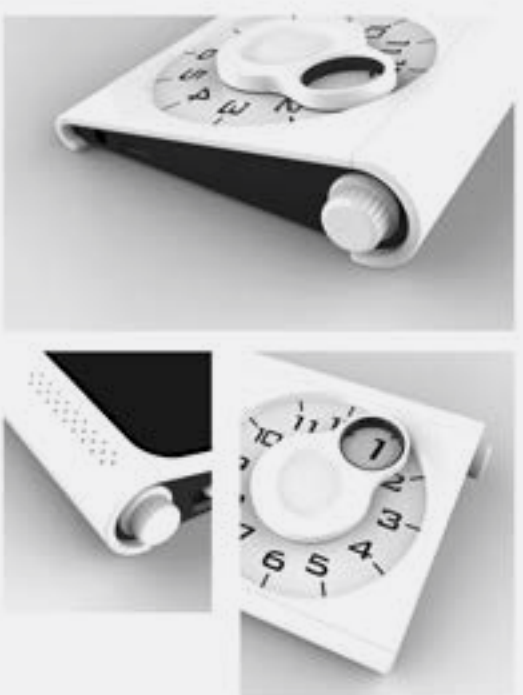
The consumer places a chair inside the cover and zips the cover shut. The cover can than be deflated by attaching a domestic vacuum cleaner or pump to the covers suction air value. The consumer attaches the new chairs feet the design is complete.

PICTURED:
1. Morf. hero
2. Assembly diagram
3. Morf. in context
4. Interchangeable feet
5. Progress sketches and illustrations

This DIY furnishing product allows the consumer to become a co-designer. The incorporation of co-design and product personalisation in this home renovation project, aims to influence a long-term emotional bond between consumer and pre-loved furniture. This creative bond is designed to encourage sustainable consumption and longer product life.


Mindr


Event
Doctor Appointment
13:30
Event
Dr.Henley
Emily
SMS
Jenny's
Shopping(Tomorrow)
13:00



PING SONG

MINDR:
Elderly digital organiser

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ping.s19@hotmail.com
0403 913 663

PICTURED:
1. User friendly format
2. Volume control and scroll wheel
3. Interface dial
4. USP

The Mindr Elderly Digital Organiser has the role of providing the elderly with a better-organised lifestyle as well as to build and maintain connections with loved ones. The interactive interface is simple and makes use of familiar icons and gestures, such as the old rotary phone dial, so it is easily interpreted for those who are unused to new technology.

Mindr could be used, to manage meetings with family members, making surgery appointments or reminding the elderly when to take medication. When any appointment is required a message is sent to the digital organiser and if the senior user agrees to it, the appointment or event will be created automatically in the Mindr calendar.

Mindr's digital interface will display all essential information for the owner, such as event times, information, who, when and where their transport pick up will be. For those with impaired vision, the digital organiser is able to assist through voice confirmation. When there are no pending appointments the digital display will act as a clock or digital picture frame showing family photos. This list can be added to by family members simply through messaging with the purpose of maintaining bonds between the older user and the family.

OVERALL DIMENSIONS: 200mm x 100mm x 30mm
MATERIAL: ABS plastic


t•brush


t•brush


t-brush
t•brush

NING
SUN

T-BRUSH

CONTACT
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0433 643 637

PICTURED:
1. Hero shot
2. Hero shot of toothbrush
3. Product details
4. Application interface design
5. Toothbrush in use
6. Exploded view

t-brush is a smart toothbrush system for children that make brushing teeth enjoyable by turning it into a game. Additionally, t-brush tracks every movement of the brush in 3D thereby helping parents monitor brushing technique and effectiveness. t-brush is a smarter system than any other existing brushes today. Sensors in the brush transfer information via Bluetooth connection, and display the data on a dashboard that can be viewed on a parent's phone or tablet. Analysis by parents or dental professional can be used to help improve children's brushing over time.

To achieve the best results from the system, an incentive for brushing is introduced. Interactive fairy tales provided but only continued for the child when brushing is timely as well as done correctly. There are different stories available to satisfy individual children's preferences.

The t-brush system helps children develop good brushing habits from an early age – resulting in healthier teeth.

OVERALL DIMENSION: 180mm x 25mm
MATERIAL: ABS


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RAYMOND TINYOW

"People ignore design that ignores people." Frank Chimero

NAUTILUS LIFEJACKET

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0419 199 444

PICTURED:
1. Nautilus in context
2. Rescue
3. Being worn
4. Compacted and expanded views
5. Steps

Nautilus is a self-righting lifejacket with an integrated inflatable life raft system. Intended for use in the offshore commercial industry it is designed for use in cold water. The Nautilus provides immediate short term protection to those to fall overboard, protecting the user from drowning and water spray until rescue. Being prepared and equipped with the right equipment is critical in determining the likelihood of survival.

The Nautilus is comprised of two parts, the self-righting lifejacket and the inflatable raft. Once activated the raft inflates from beneath the victim raising them out of the water, meaning that minimal movement is required. A twin zipper lined canopy allows for quick protection from the elements. Rescue is viable through a variety of d-ring hooks located on the lifejacket.

Upon submergence in cold water, shock causes the body to perform involuntary gasping causing the ingestion of water. The crippling and restriction of bodily movement means that it is difficult to protect the face from water spray and waves which also leads to the ingestion of water ultimately leading to drowning. The restriction of body movement means that victims find extreme difficulty with elevating themselves out of the water without the assistance of others. This difficulty in combination with water ingestion means that the worst can occur in only a matter of minutes in an emergency. The Nautilus combats these difficulties and ensures survivability in the water.

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RICHARD TRAJCEVSKI

PRO-TECH-T:
Snowboard luminous indicators

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0409 392 596

PICTURED:
1. Hero shot
2. Console and pressure sensor connection via conductive strip
3. Pro-tech-T in use
4. Pro-tech-T in context
5. Context/in use
6. In use – demonstration of lights on

Pro-Tech-T is a snowboard indicator system for beginner snowboards, aimed at increasing safety for both the user and surrounding participants. The objective is to allow beginners to focus their attention on gaining control and improving form, without being distracted by the constant thought of collision with surrounding skiers and snowboarders – learning at their own pace, with/without instructor supervision.

Pro-tech-T allows others to take evasive action if collisions are imminent – by incorporating pressure sensors into the snowboard bindings that trigger LED indicators at each end of the board, surrounding users are able to see any sudden changes in direction by beginners within a fair proximity. The LED indicators are LED strips powered by 2 x AA (interchangeable) lithium ion batteries within each console at both ends of the snowboard, and connected to pressure sensors mounted on each 'highback'.

There are no products of a similar nature on the market, making the 'Pro-tech-T' the first of its kind. Pro-tech-T also provides protection for the snowboards nose and tail edge, much like any other cheap nose guard, only its polycarbonate body is durable enough to protect its internal components as well.

Pro-tech-T does not become obsolete once the user progresses from beginner to intermediate/skilled snowboarder. Pro-tech-T can be mounted to any snowboard, and can be used during night skiing and in terrain parks and half pipes, etc. for those who wish to add a little spark to their videos and overall experience.


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DEBBIE TRAM

ZEPHYR is an indoor air purification unit that reimagines the HEPA filter by using traditional origami techniques to create intricate shapes and pleats that celebrates the process of air cleaning.

ZEPHYR:
Air purifier

The unit is designed for use in small offices, bedrooms and around the house to remove odours, allergens and airborne particles. Indoor air pollution has the ability to affect concentration levels and productivity and removing contaminants can not only have physical health benefits but also psychological benefits. The filter changes over time as more pollutants are collected, giving the user visual assurance that they are breathing in cleaner air.

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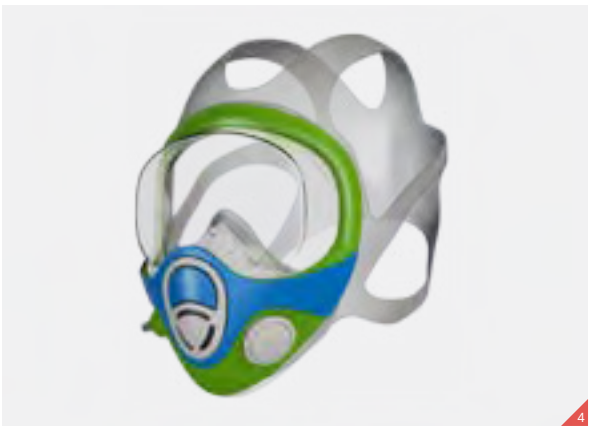
PICTURED:
1. Zephyr air purifier
2. Exploded view
3. Detail
4. Zephyr in Arctic Blue
5. Zephyr in Rose
6. Air flow

The construction of the filter makes it versatile in design. Different shapes can be created depending on the location of the folds, and the filter is also made collapsible so old filters can be easily disposed, and replacement filters can be packaged and stored conveniently. Once the filter is collapsed, collected pollutants become locked into the pleats, so disposal is clean and safe. Below the main filter sits a layer of 3M filter medium and an activated carbon filter to remove odours and collect any particles not trapped by the main filter.

OVERALL DIMENSIONS: 170mm x 170mm x 200mm



EDRIC VERBEEK-MARTIN

"Design translates ideas into reality to enable change. Through it we can help to create a world that is safer, more productive and more enjoyable."

FREEDIVE

FreeDive can be used by anyone who knows how to swim. It will allow them to explore the underwater world in safety and comfort without SCUBA.

CONTACT

edricverbeek@gmail.com

0404 132 728

PICTURED:

1. Compressor hero shot and context of use
2. Carrying FreeDive
3. Mask hero image
4. Mask storage
5. Exploded view

With its full face mask and surface-supplied air, FreeDive lets divers' breathe as easily under water as they do on land, staying submerged at up to 5 meters for an hour. No heavy tanks, no complicated hoses, no bulky buoyancy compensators and no lengthy training program.

FreeDive is designed for the rental market, to be available on boats or at reef destinations. It uses a compact air compressor floating on the surface to supply air via a hose to the diver's mask. The compressor follows the diver wherever they swim.

FreeDive's full face mask gives diver's full, all-round vision while simultaneously eliminating the need for a regulator. Both the 'blinkered' vision of traditional dive masks and the need to breathe through a regulator are known to be major reasons why many SCUBA divers – especially beginners – feel uncomfortable under water.

FreeDive bridges the gap between SCUBA diving and snorkelling, allowing people to stay submerged like a SCUBA diver, long enough to be immersed in and explore the magic of the underwater world, even if they do not have the time to undertake the training required to become a certified SCUBA diver.

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PHUNTHITA (OUN) VIMOLPATRANON

PACER – intelligent crutches that coach and monitor, speeding up the recovery process for people with lower limb injuries.

PACER

The road to recovery following lower limb injuries can be slow and stressful. Crutches are often prescribed by health practitioners along with a rehabilitation program to ensure fast and effective recovery. However applying too much or too little weight on the affected limb as well as the incorrect use of crutches can prolong this process – causing further damage and discomfort.

PACER is a non-invasive coaching aid that allows patients to effectively continue their rehabilitation program at home, monitoring their progress as well as remotely connecting this information to health practitioners.

Integrated with a force sensor and 6-axis MEMS (accelerometer and gyroscope), the intelligent crutches detect the amount of weight put through the injured limb and evaluate the patient's gait and crutch usage. The microcontroller analyses information from both crutches connected via low energy Bluetooth modules and provides live vibratory feedback to the patient when it senses incorrect use. Information regarding the amount of force applied and gait movements are also displayed on the interface to help the patient self-learn and self-adjust, allowing him or her to continue effective rehabilitation during the absence of a health practitioner in a home environment.

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0413 374 809

PICTURED:
1. PACER
2. PACER – perspective
3. Length adjustment
4. Exploded view
5. Product in use – interface
6. Battery compartment

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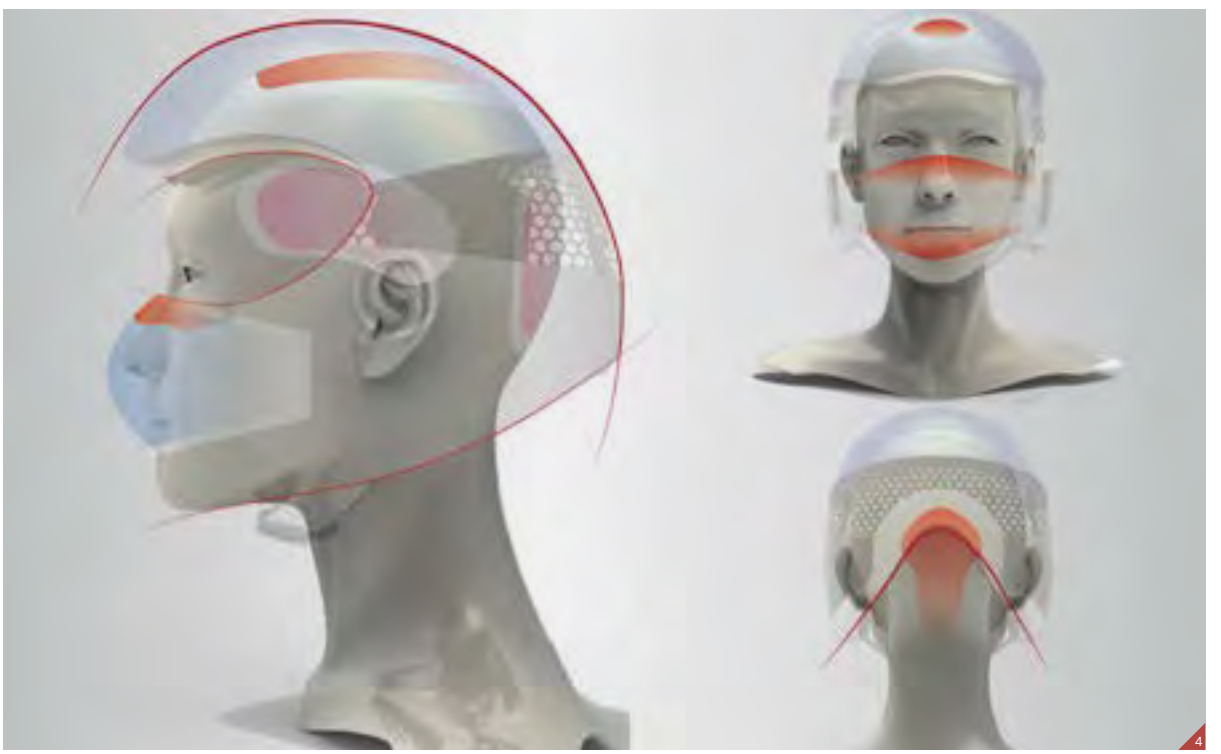
99.9%
Diposable Mask


AIR FLOW



QIANWEN WEI

URBITES: Personal urban protection

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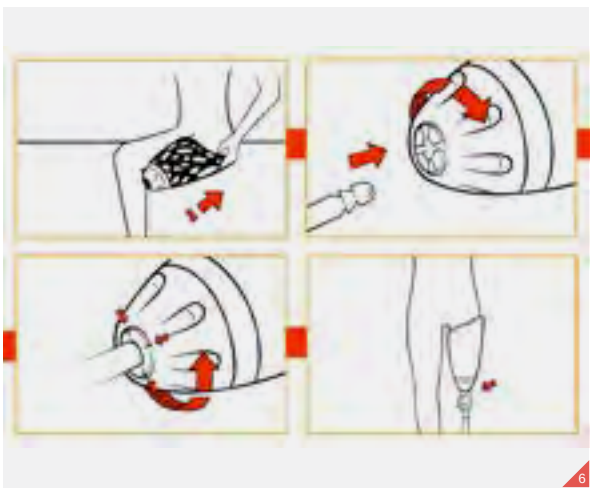
0421 807 630

PICTURED:
1. Using situation
2. Function
3. Concept sketch
4. Hero shot
5. Detail render
6. USP

Urbites is a personal protection product that reduces bicycle riding accidents and can protect the user from urban air pollution. The target market is school age children and teenagers (7–15 years old).

Designed for high pollution urban environments, the Urbites helmet combines the protection of a normal bicycle helmet with air filtering masks that can be pulled out from the helmet. When the level of PM2.5 (fine particles) in the air is high, the user can pull out a mask and connect it to the other side. There are five disposable masks stored in the helmet to offer protection against PM2.5 pollutants. Masks can be split and thrown away after use, leaving a fresh mask ready for the next use. A honeycomb net design allows air to flow through the helmet for keeping cool.

Additional features are GPS and SOS communication built in to the helmet. The GPS function can help parents locate their children on a device with an app. In the event of an accident the SOS function can be activated to send an alert with location information. Power for the electronic functions is recharged via micro USB connection.



WAI CHUNG YEUNG

SWITCH:
Adaptive prostheses for adolescents

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PICTURED:
1. Switch – adaptive prostheses for adolescents
2. Detail shot 1
3. Detail shot 2
4. Exploded view
5. Customisable exterior to suit individual taste
6. Using the interchange fitting

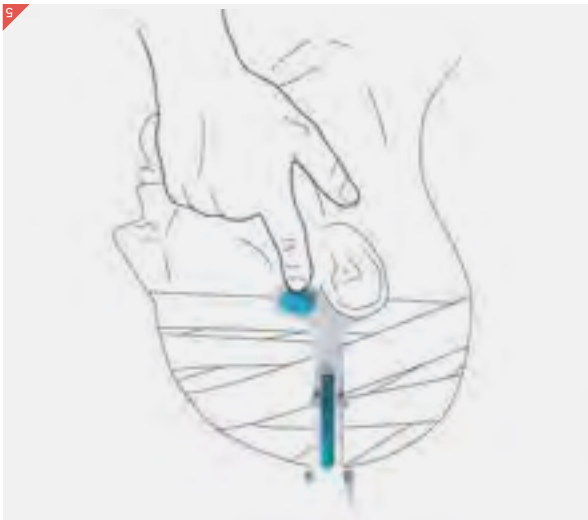
Designed with adolescents in mind, Switch is an above-knee prosthetic socket that sets out to change the way young amputees interact with their environment by giving them an increased ability to participate in various physical activities while at the same time, encouraging them to adopt an independent and active lifestyle with confidence.

A collet-type interchange fitting provides an easy interface with which individuals can 'swap' pre-existing lower prosthetic attachments depending on their activity and need whilst utilising the unique locking system comprised of ball bearings activated by a separate magnetised 'key.' All this is done with a simple push, click, and twist – making for a swift changeover to a running blade at an athletics event at school, or a swimming flipper when heading off to the local swimming pool.

A double-layered 3D printed socket securely holds the residual limb in place throughout all activities, with the integration of new technologies – such as 3D scanning and printing – working seamlessly together to create a viable and effective solution that addresses the current issues that adolescent amputees face; a lack of available prosthesis options, the restrictive and often out-dated nature of government-subsidised prosthetic limbs, and the often impossible cost of self-funding a completely separate limb and socket that allow for more specialised physical sports.

OVERALL DIMENSIONS: 164mm(w) x 362mm(h) x 160mm (d) (variable due to customisable nature)
MATERIAL: FDM Nylon 12, stainless steel, silicone rubber

1


5


4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2

ALLEN YIE

ACCLIMATE is designed for head trauma patients who are experiencing temporary blindness caused by traffic, industrial and sports accident.

ACCLIMATE

ACCLIMATE aims to increase individual's independence by allowing patients to regain spatial awareness and some degree of independence and comfort.

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PICTURED:
1. Context of use
2. Detail view
3. Silicon insert detail
4. Switch detail of headphones
5. Call for nurse

RFID tags are placed on items required by the patient i.e. a bottle of water, mp3 player etc. that are kept within arms reach on the over-bed table top. Any items tagged in the hospital room are then scanned by the RFID reader in the ring unit. Data is sent to the bone conduction headphones via Bluetooth which is processed into a vocal output informing the patient of the item they are reaching for and the distance from that object. An advantage of using ACCLIMATE is not only that a patient becomes more autonomous, but hospital staff can be better allocated to higher priority tasks.

Adjustability and comfort is achieved through various sizes of washable silicon inserts for the ring unit, and an adjustable headband tensioner for the bone conduction headphones.


Inflight bassinet
UNITED
Premier Access
Collect bassinet and stroller frame after security check
Gate-check the stroller before pre-boarding
Attach the bassinet on the bulkhead
Inflight child seat
Take out the child seat from the overhead compartment
Secure the child seat by fastening it with the seat belt
Adjust seating position and restraint the child when required
2


3


5


Skybee
4


6

CLEMENT YOONG KAR SENG

SKYBEE

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0411 523 001

PICTURED:
1. Hero shot
2. User scenario
3. Child seat on airplane
4. Concept development
5. Exploded component rendering
6. Detail view of the base and stroller

Skybee stroller system allows parents travelling with toddlers to check in their domestic stroller at the check in desk. They receive a lightweight stroller that can be adjusted into a child size flight seat or a bassinet depending on the age of child.

The stroller comes with a pair of custom designed seat adapters to attach either an inflight bassinet or a child seat with airline grade materials and fasteners that fit to existing airline systems. The bassinet is only appropriate for infants below 7 months whereas the child seat is suitable for infants aged 7–12 months and toddlers aged 1-3 years old. When the bassinet is required the lightweight alloy stroller frame is designed to fit into the onboard stowage areas.

Both of the bassinet and child seat can be installed on a base which is equipped with built-in connectors that can be inserted into the stroller's adapter. On the airplane, the bassinet can be installed on the bulkhead by using a separated aluminum frame equipped with quick release pip pins to lock the fasteners into the bore of the bulkhead. For the child seat, the base is secured on the airplane seat by fastening the seat belt to hold the base in place.

On arrival at the destination the family stroller is returned at the baggage claim, and the Skybee airline stroller is cleaned and ready for the next long haul flight.

1

2

5


JOANNA MOORE
Sydney
New York
QF 129
13 OCT
20A
1500
Economy
Time Remaining 60mins
ETRAK

3


JOANNA MOORE
Sydney
New York
QF 129
13 OCT
20A
1500
Economy
Time Remaining 60mins
Time to gate 27
20mins
Time Remaining 60mins
ETRAK

4

XIAOYA
JESSY
ZHANG

ETRAK

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PICTURED:
1. Etrak system in context
2. User scenario
3. Final product
4. Product interface
5. Sketches

Etrak is a product system that creates secure, efficient and smooth future travel experience. It also reduces the issue of airlines' last minute searches for delayed passengers and their bags.

Services provided by Etrak to frequent flyers are differentiated from the general public. Each frequent flyer receives his or her personal permanent Etrak with their photo and other required information registered in the system. By scanning the Etrak in the self-check-in kiosks or check-in desk at the airport, the system will read the information and update automatically. A RFID baggage tag is attached to the bottom of the Etrak, which can be used for baggage tracking purpose. Passengers do not have control of the Etrak as it is only one-way system. It is activated 60 minutes before boarding time to remind the passenger of updated map, time and luggage status every 10 minutes with sound and led light. At other times Etrak will display the flight details. On arrival at the boarding gate, Etrak can be placed into the biometric self-boarding gate and then displays further instructions on the screen.

For passengers without frequent flyer privileges, Etrak is given in the check-in desk (like a paper boarding pass) and is returned at the self-boarding gate.

1

“

It has been a privilege to have been on the journey with the students now finishing – watching them make discoveries, extend their capabilities and sometimes astonish us with the reach of their ideas.

”

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