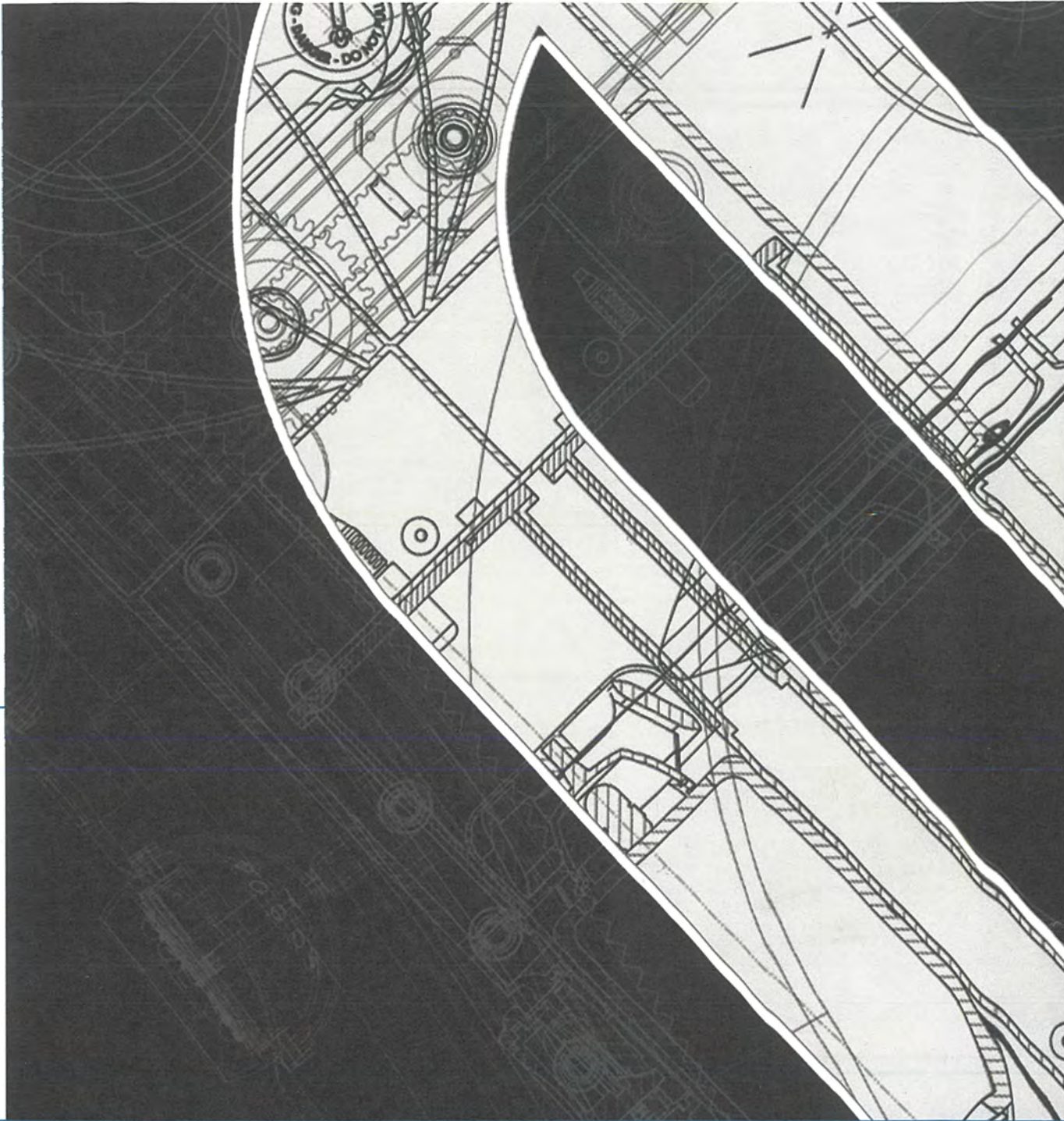


Industrial Design

Final Year Studio 2009

WWW.E4UNSW.COM

E4 explore
expand
explain
excite



The background of the entire page is a complex architectural drawing. It features a mix of black, white, and blue tones. In the upper left, there's a detailed section or elevation of a building with various lines and a dimension of '16.20'. To the right, there's a large, dark, abstract shape that resembles a stylized 'V' or a corner. Below this, there are more technical drawings with dimensions like '150mm' and '80mm'. The lower half of the page is a solid blue area with faint, light blue architectural lines and patterns, including what looks like a grid and some circular motifs.

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UNSW
THE UNIVERSITY OF NEW SOUTH WALES

**BUILT
ENVIRONMENT**

Final Year Studio 2009

Industrial Design

Final Year Studio 2009

Industrial Design



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alec tzannes

Message from the Dean
Faculty of the Built Environment

The last twelve months has seen unprecedented political focus on initiatives designed to address the world's environmental problems. A central theme is the international 'call to action' to address climate change. Within the climate change issue resides the quest to better design, construct and manage our urban environments to deliver an entirely new urban paradigm – the sustainable city.

Thinking and acting with a central and pervading focus on delivering sustainable outcomes reflects a major change to the values that guide human endeavour. The design culture that best represents these values is evolving, generally emerging from new education and research initiatives at universities.

UNSW Built Environment is at the forefront of major changes in education and research with the aim to embed sustainable values in the skill development of students.

Each degree program at UNSW Built Environment aims high and provides our future leaders with the core competencies to enable them to work productively and in a global context.

Developing a sustainable city paradigm involves collaboration. Collaboration embraces an interdisciplinary approach to thinking and action in the context of the coordinated application of specialized, individual skills at the discipline level.



miles park

Program Head

I invite you to celebrate our student's achievements and enjoy the 2009 UNSW Industrial Design graduand student exhibition. This catalogue and the associated graduand exhibition offers an exciting and diverse array of cutting edge design projects. This work represents the culmination of their four years of undergraduate study at UNSW and offers an opportunity to view how students have applied their creative and analytical skills and knowledge to design problems.

Our students are recognised and respected for their abilities to manage and deliver resolved design solutions that are meaningful and consider real world needs. They are required to balance technical, cultural and economic factors within a framework of rapid social change. For our graduate designers, change offers new and exciting opportunities for design innovation. The design work presented here offers an example of the emerging talent that will create a better future and enrich the life of everyday users.

On behalf of a dedicated team of full-time and part-time staff, I congratulate them on their achievements and wish them well in their future careers.

Developing values that support collaborative work practices can also cross national boundaries involving different religions, races and cultures; this is a vital aspect of the student experience at UNSW Built Environment.

This publication provides a snapshot of the final year student work, reflecting the commitment, enthusiasm and exceptional talents of our students and the many people involved in the delivery of a degree program. Perhaps most of all, this publication serves as a lasting record of an important phase in the life of all students as they embrace future challenges and opportunities armed with the values and skills that have been influenced from student life at UNSW Built Environment.

We wish all graduates a long and successful career in any field of endeavour they choose, and we look forward to hearing about their contribution to a sustainable future.



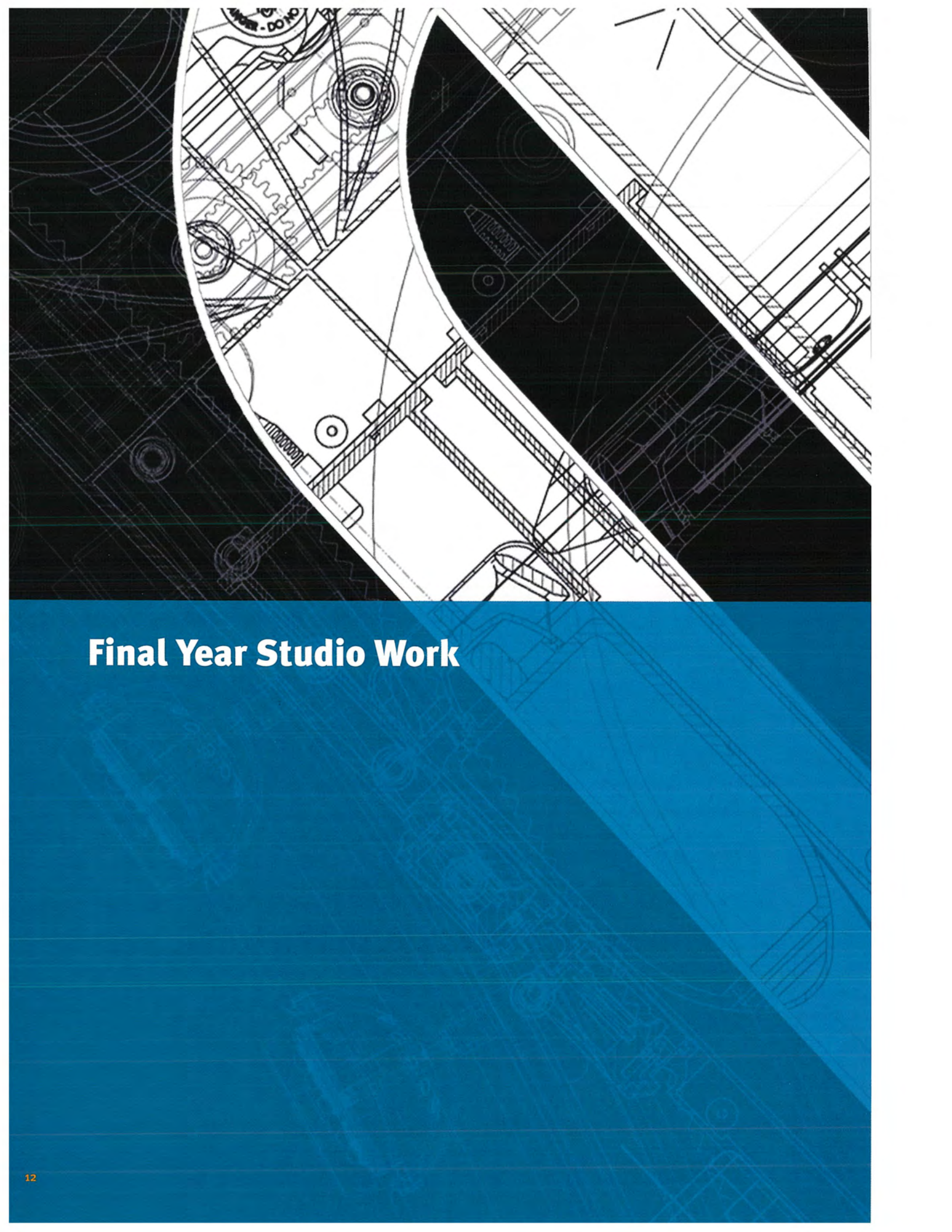
**andrew
fowkes**

Year Four Course Convenor

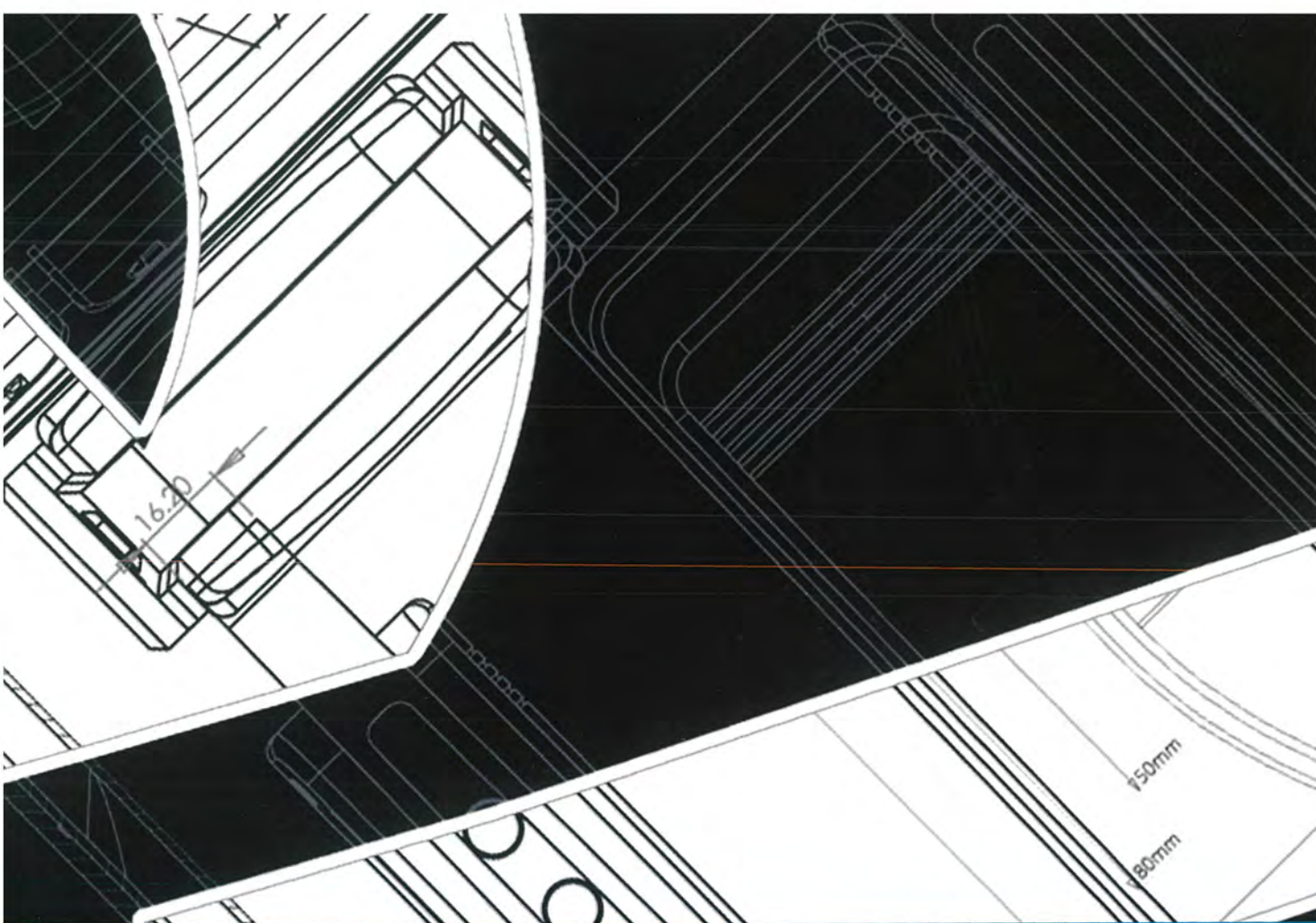
Over the last twenty years the industrial design staff have constructed a design structure that leads the student through a creative journey. Throughout their four years of education they have been asked to question existing paradigms and established norms. As every student has a different learning curve each journey is unique, and so the relationship between staff and the students are both challenging and rewarding. For those students taking the major project route, this structure and close working relationship has been both testing and invaluable.

The outstanding results exhibited in this years degree show and catalogue is a testimony to the commitment, passion, talent and hard work by both staff and students alike.

I wish the graduating year of 2009 every success in their future design career.

The image is a technical drawing, likely a cross-section of a mechanical assembly, rendered in white lines on a black background. It features a large, curved, white component that dominates the upper half of the frame. This component has various internal features, including a central circular opening, several smaller holes, and a series of parallel lines suggesting a threaded section or a channel. To the right of this main component, there are other parts, including what appears to be a bolt or screw passing through a flange. The background is filled with faint, overlapping technical lines and patterns, suggesting a complex assembly or a series of related drawings. The overall style is that of a professional engineering or architectural drawing.

Final Year Studio Work



E4

explore
expand
explain
excite

The Faculty of the Built Environment at the University of New South Wales is proud to exhibit the design work of this year's 2009 grandaunts.

Explore+Expand+Explain+Excite [E4]

Despite the variety of design processes employed by many practicing design professionals around the world they all follow a similar pattern. The design process used in final year studio 4 at UNSW is both expansive and reductive. It allows for consistency and clarity no matter how diverse, unusual, large or small the design challenge maybe. This technique is key in discovering fresh new design directions.

Student's concept designs were refined through a reductive process which involves open discussions with peers, academic staff, industry experts and most importantly groups of users. In addition designs are mechanically, electronically and ergonomically evaluated to reveal the merits and failings of the concept. After review and refinements the design requires explanation via drawings, CAD and engineering documentation supported by a valid business plan to a critical audience.

If the design solution has sufficient merit and reaches the right business it may well be manufactured and find its way into homes around the world.



Longreach

Temporary Buoyancy Development System

Every year hundreds of people are drowned in situations where rescue systems are present, but unable to reach the victim in a timely fashion. 'Longreach' is designed to accommodate a wide range of users from the beach and small fishing boats through to super tankers. It is a man-portable system that allows for the rapid conveyance of temporary, water-activated buoyancy devices to a victim's location in a situation where other forms of rescue and safety devices would fail. It is designed to allow a victim to remain buoyant while rescue personnel prepare the appropriate response to the rescue situation.

The project is designed in three components; the rescue package, the propulsion system and the storage mount.

The rescue package uses hydrophobic or rapidly expanding foam to provide buoyancy once the package contacts the water. This allows the package to be vastly smaller in size than any currently existing buoyancy device. To reach the victim a very simple range-finder is implemented to significantly improve rescue package accuracy. The propulsion system uses a low yield butane-oxygen mix propelling the device to target up to 150m.

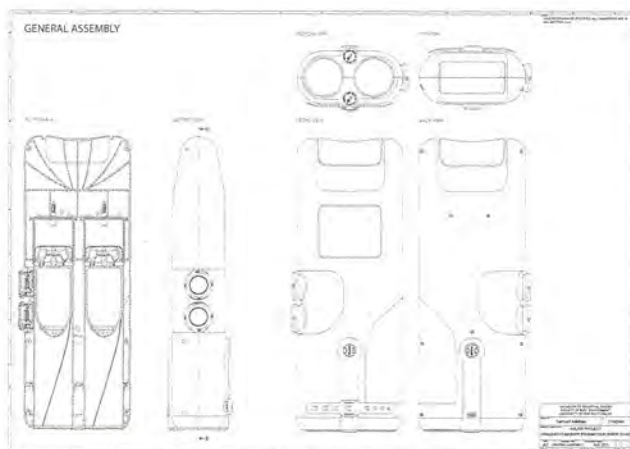
Equipped with a light for attracting attention, the shape of the rescue package also allows it to whistle when travelling through the air, aiding in directional trajectory perception.

The system is stored in a wall mount similar to a fire extinguisher and is equipped with Para-flares for night-time illumination and distress signalling.

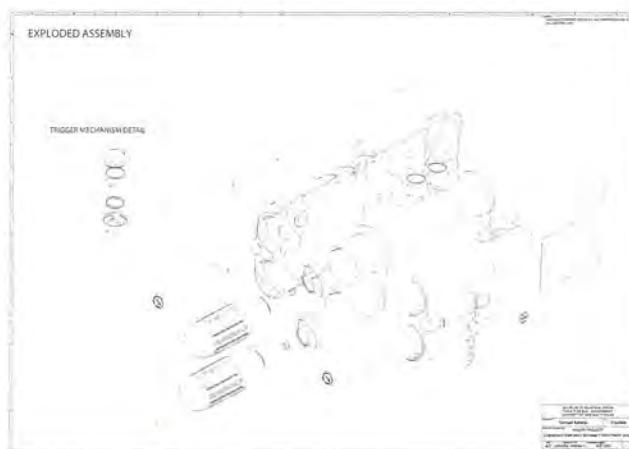
Longreach is designed to be simple to manufacture and easy to handle. Ideally used by emergency services personnel or a ship's crew, Longreach has the potential to significantly reduce the number of drownings at sea.



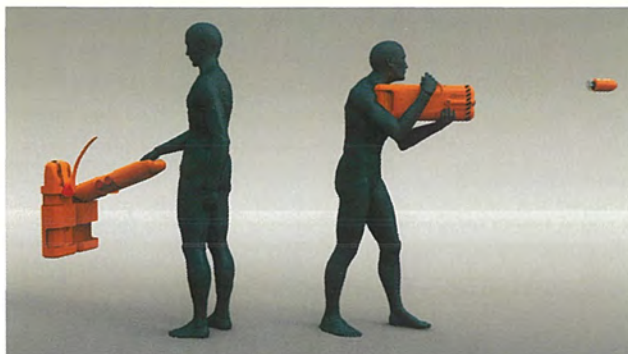
Target market



General Assembly



Exploded Assembly



Industrial Design



Man with Launching Device



C-Qure

Airport Security Device

Airport Security is an ever-increasing concern in today's world. The number of travellers has declined substantially since the 9/11. Attack on airplanes and airport has been more noticeable and each events were covered heavily in the news. Since then, we are more and more concern about security and safety when flying.

X-ray machine technology has improved over the years implementing new and better technology to scan passenger's bags. Such technologies are material and density identification and colour coding of the materials and 3D x-ray. Yet with these improvements, officers are still viewing the x-ray in old 2D format, the way we access and utilise that information has not advance to take advantage of the technology available. This has several disadvantages, as the officer may not be able to see clearly the object in the x-ray such as knives.

C-Qure overcomes this problem by taking the x-ray information from the 3D machine and overlaying that information on the screen. This enables the officer to see the position and size in relation to the actual object inside the bag. And with the use of gyroscope and accelerometer, the officer is also able to view the item in 3D, therefore enabling him/her to scan the bags more efficiently and precisely. C-Qure also enables the officer to capture a picture of the item and analyse the item. Utilising image recognition software and the x-ray image information, it is then able to report back information about the item and whether the item is prohibited or not. This reduces human error and the chance of misinterpretation. By increasing the safety aspect of flying, C-Qure can ensure a safer, more comfortable flying experience for everyone.



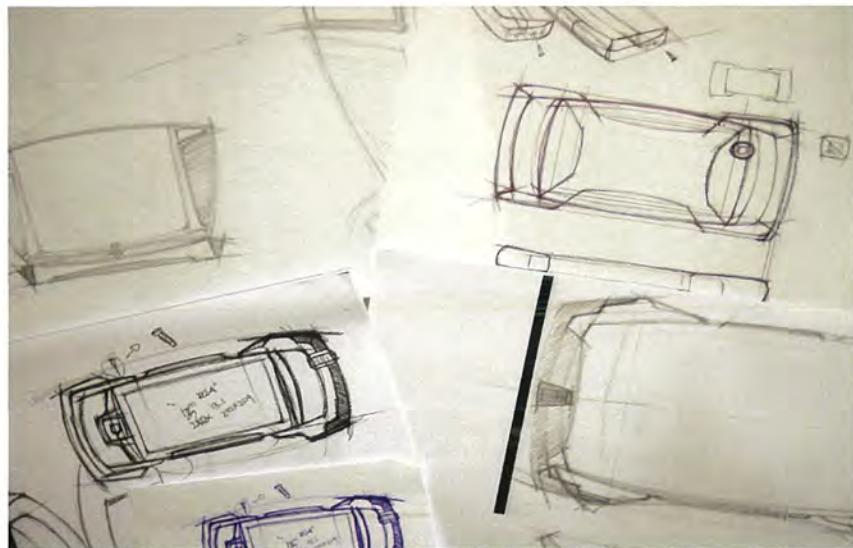
An exploded view of C-Qure parts



Sketch model making, ergonomic testing



Detail view of C-Qure button interface



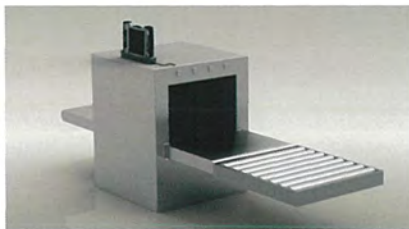
Concept sketches



Overall view of C-Qure



Front and back view of C-Qure showing the dual

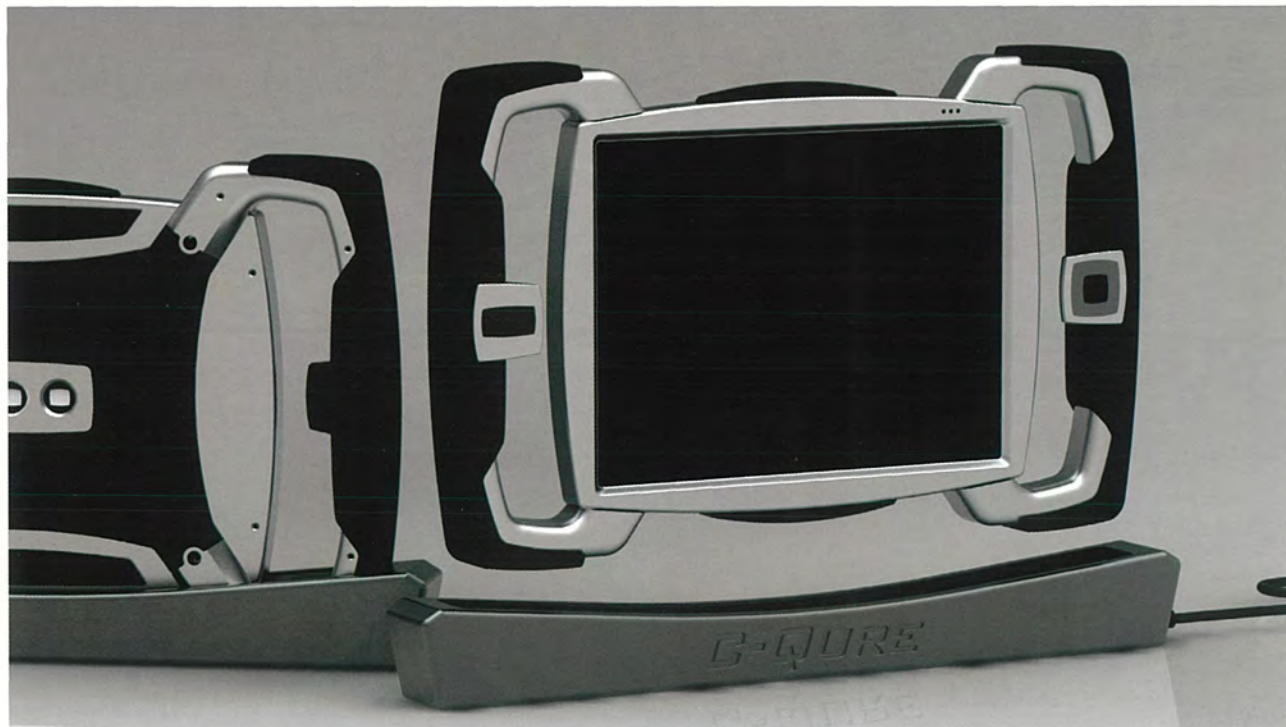


C-Qure in context with x-ray scanner



Perspective view with sample interface

Industrial Design



Overall shot with interface

Overall Dimensions (mm)
261 x 156mm

Material
Acrylonitrile Butadiene Styrene,
Polypropylene, Thermoplastic Rubber

Manufacturing
Injection Moulding, Overmoulding, Extrusion



Surgical lights are utilised to provide a better operational environment for treating patients. Currently, operation rooms use single field halogen lights as a high illumination source to target the desired area and associated risks as a result of this practice have been brought to the attention of the industry.

'Halo' addresses three problems that arise from current halogen lights. Halogen globes generate high levels of heat that can be detrimental to the surgical environment and patient's health; specific surgeries may require illumination in several orientations at one time, or different perspectives other than the normative top-down view; and current halogen lighting requires an assisting nurse to control light field location, leading to possible discrepancies between surgeon instructions and nurse's light field control.

Nevertheless, thanks to new technologies such as LED lighting and modern robotics, these problems can be addressed.

'Halo' substitutes LED's over halogen lights to offer efficient illumination with consistent and stable lighting in the surgical field. LED's provide forty times longer service life without globe replacement, 30% reduction in energy consumption and being made out of recyclable aluminium, and achieve a higher level of environmental sustainability.

Less physical handling is achieved through an integrated robotic system to monitor and target specific facets of an operation or follow the movement of surgeon's hand around certain domains of a surgical area, giving better overview during operation. As a result, surgeons are able to effortlessly target important areas of focus.

The innovative design of this surgical light is able to reduce unnecessary human communicative errors; provide more stable illumination to specific areas of surgical interests; reduce heat generation that could affect surgical outcome; and achieve sustainability. This design solution should lead to more promising surgical results, and open up opportunities for more challenging surgical procedures.

Halo

Surgical Light





"Halo" Conceptual Surgical Light



With a friendly and approachable form, 'Cell' is an innovative yet unconventional way to advertise and provide information to users in a public environment.



Cell fully resolved



Industrial Design

Scenario



Overall Dimensions (mm)
2306 x 839 x 492

Material
HDPE, Steel

Manufacturing
Rotational Moulded



Kappou

Automated Cooking System

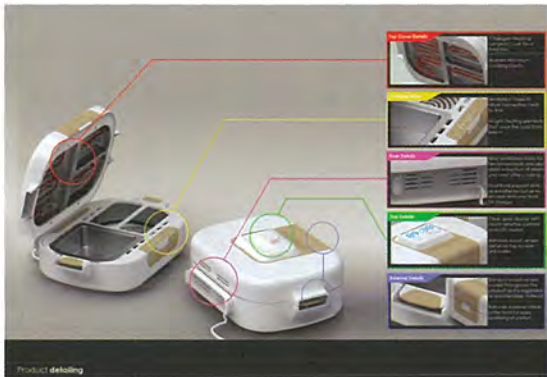
'Kappou' is a Japanese phrase that translates into the term "cooking and cuisine" indicating the function of the product.

With many people being too busy to find the time to prepare daily meals, the demand for convenient while appetising food is increasing. 'Kappou' is the solution to this problem particularly associated with time poor young professionals.

This product introduces a change in the way convenience foods are cooked without compromising taste, texture and nutritional value. The 'Kappou' cooker uses four different types of heating power; steam, infrared, conduction and convection to cook food to perfection.

The 'Kappou' system consists of an automated cooker in combination with specially designed food packages available through local supermarkets and convenience stores. Barcode information on the packaging is read by a built-in scanner. With the data captured, the cooker will specify the heating source, temperature and time required to cook the food. An intuitive touch screen interface provides information and allows control to the user.

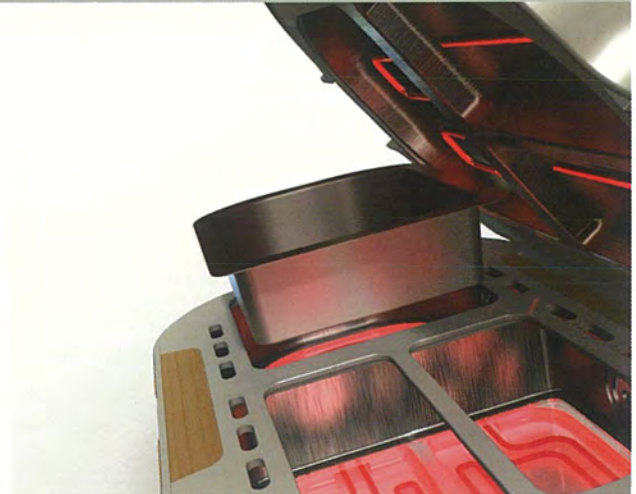
'Kappou' ultimately enables individuals to prepare gourmet cuisines efficiently in the home or office.





Overall Dimensions (mm)
400 x 275 x 174

Material
PP, Bamboo, Aluminium, Acrylic glass



Manufacturing
Injection Moulding
Over Mould Decoration
Sheet metal pressing

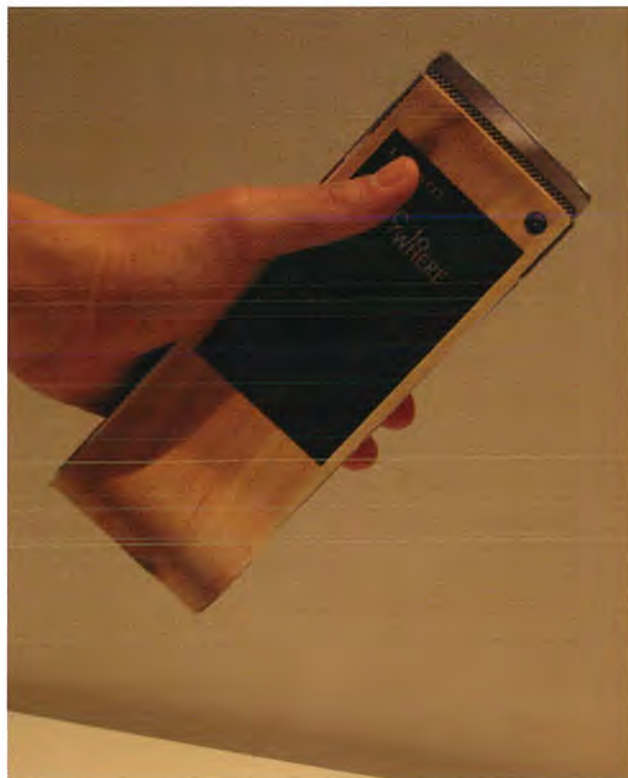
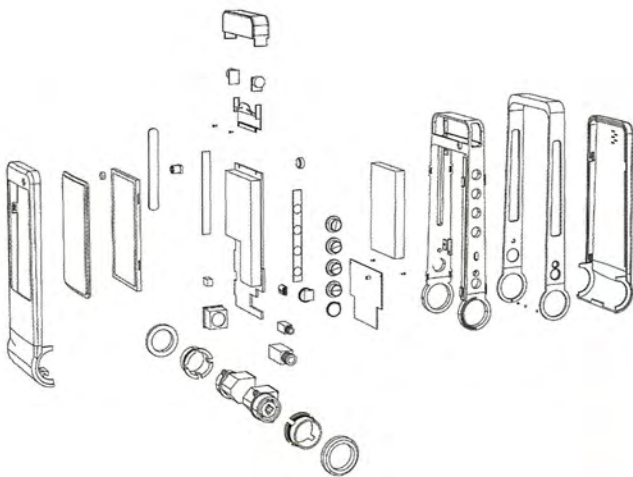


Legato

The design of Legato makes use of improving internet speed and fast data transmitting technology. It also verifies the possibility of net-jamming, which is already a hot and expected topic. Legato provides musicians with an alternative way to perform and rehearse music, in a space without physical or geographical boundaries. It also enhances the convenience in music sharing, as well as playing music along any musician from all around the globe.

Smartly designed, Legato is a fun, portable, and functional music studio, with high compatibility that enables analogue and digital transmissions, suiting all kinds of instruments from electrical to acoustic. A built-in mono microphone enables quick capture of the fullness of vocal and acoustic sounds. A built-in camera enables users to reach and interact with musicians on the other end. This device has a 60GB internal memory, as well as fast wireless connections via Bluetooth and WIFI networks. It also has full touch-screen utility and functional hot keys.

Legato comes with an easy snap-on case which allows users to replace and stylize anytime. It also comes with a swinging arm which protects the body and acts as a stand





Overall Dimensions (mm)
400 x 275 x 174

Material
PP, Bamboo, Aluminium, Acrylic glass

Manufacturing
Injection Moulding
Over Mould Decoration
Sheet metal pressing



Sentry SmartGate

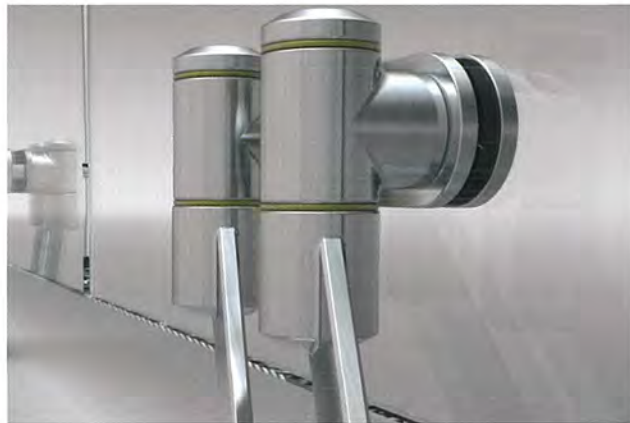
21st Century Pool Protection

The swimming pool is an integral part of Australian family and social culture. Over the past 12 months Australians have become more complacent as the national drowning death toll has risen noticeably. Particularly at risk are 1 – 4 year olds, 19 of whom have drowned in swimming pools during 2009.

The 'Sentry SmartGate' is a fencing system for the 21st century, combining mechanical reliability with modern technology. Two key areas were targeted in the design process: ground mounting the hinge to increase strength and durability; and creating a truly childproof, yet irritation-free opening method for the user. Using a combination of active proximity sensors and image processing, the gate distinguishes whether the approaching user is an adult or a child and allows access accordingly. The ground mounted hinges are driven by an electric motor allowing hands free opening to the user and ensuring the gate fully closes every time.

There are also a number of adjustable settings and overriding timers that allow the user to hold the gate open but in doing so taking responsibility for their actions. 'SmartGate' doesn't force behavioural change, rather, it encourages safe behaviour and educates on basic pool security.

The 'SmartGate' was designed to have a very architectural aesthetic, manufactured from high quality materials, such as stainless steel and toughened glass, allowing for longevity and durability to last for many years in the harsh Australian conditions.





Overall Dimensions (mm)
Plinth: 150x1250x150
Hinge: 205x292x125

Material
Plinth: anti-reflective acrylic, stainless steel
Hinge: toughened glass, stainless steel

Manufacturing
Plinth: Extrusion, Pressing, Injection Moulding
Hinge: Casting, Pressing, Stamping

People who suffer from lower leg injuries have a limited choice in the mobility aids available on the market in which to help them get back to their daily activities.

Crutches are versatile in tackling many urban environments but users develop pain and soreness from prolonged use typically in the hands, wrists and underarm areas.

Current knee scooters provide the user with easy mobility reducing energy usage expenditure, but are cumbersome and are unable to traverse stairs.

From a focus group and interviews with users of crutches, it was observed that the average walking speed was significantly reduced compared to speed prior to injury. Other issues noted were the soreness in the areas under the arms and wrists, being unable to use your hands as they are used to support your weight, and the tiredness felt from using crutches on long commutes. Research shows that crutches require around twice the amount of energy expenditure to use compared to walking.

'Stryder' gives users the mobility and efficiency of a knee scooter with the versatility and accessibility of a crutch to tackle obstacles the users may find commuting in an urban environment.

Stryder

Hybrid crutch + knee scooter



Target market



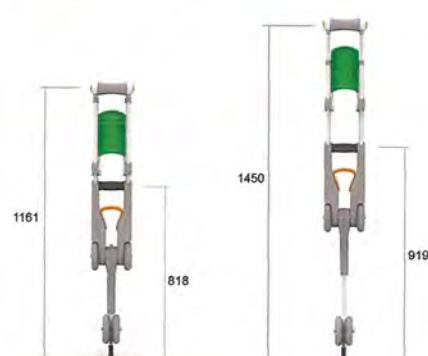
Mock-up model made from aluminium extrusions



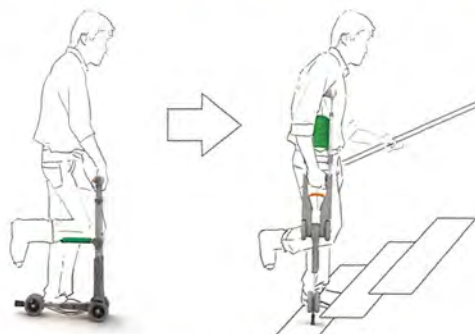
Testing the mock-up model in crutch mode and scooter mode



Exploded view of components modelled in Solidworks



Parts are adjustable to accommodate different heights



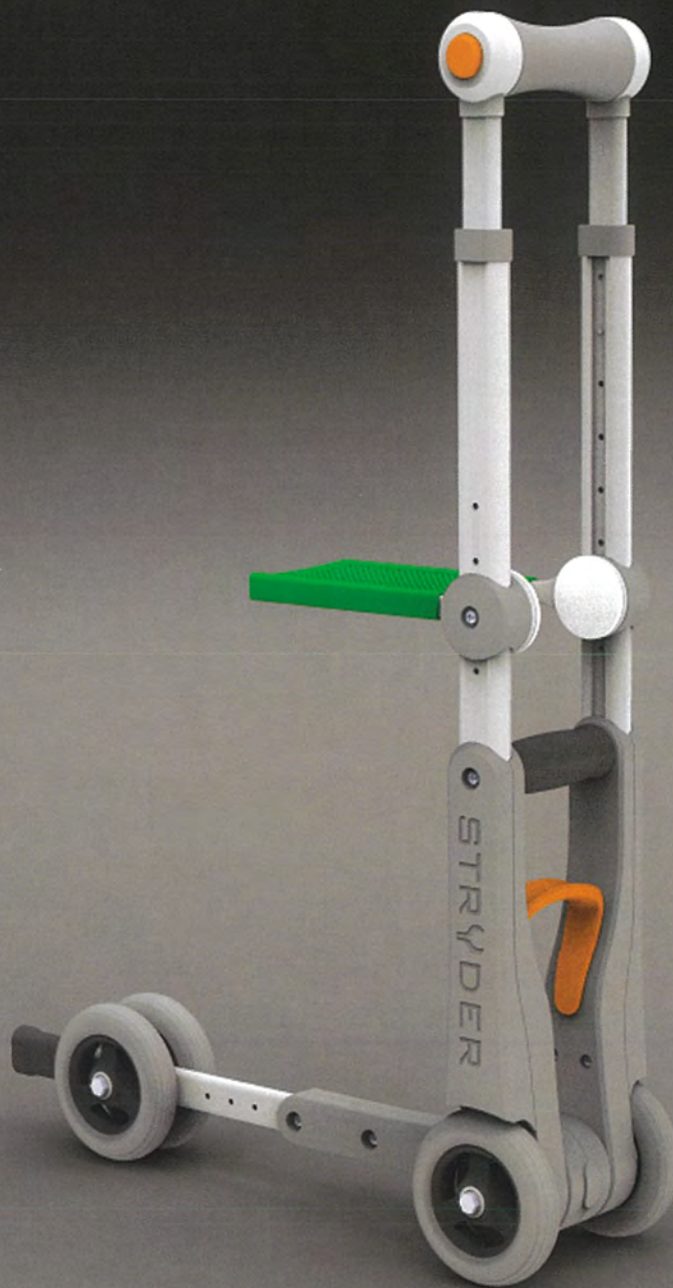
Stryder quickly and easily transforms from a knee scooter to a crutch

STRYDER

HYBRID CRUTCH + KNEE SCOOTER

Major Project

Industrial Design



Overall Dimensions (mm)
1337 x 184 x 125
(crutch mode)

Material
Aluminium, Steel, ABS

Manufacturing
Extrusion, Machining, Injection Moulding



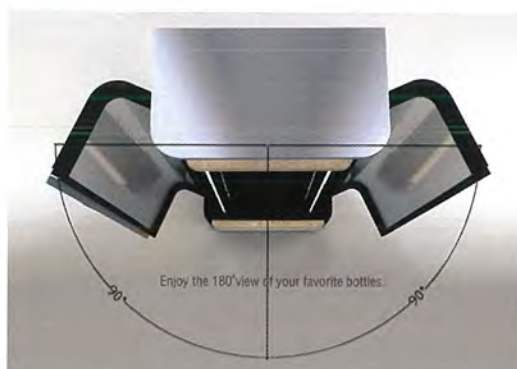
The Chinese import wine market is rapidly increasing, thanks mainly to its growing GDP. The market has more than doubled over the last ten years and by 2011, China is expected to be the eighth largest market for wine in the world.

'Black Ice' is the perfect way to store your favourite wine. Designed to celebrate the beauty of wine bottles, the unique design racking system and glass doors guarantee 100% visibility of the labels on each bottle. With a holding capacity of 28 bottles, it is perfect for any luxury wine connoisseur. The product contains 2 storage chambers protected by a security program providing the owner, individual temperature adjustment.

'Black Ice' is designed specifically for the Chinese luxury market. The coexistence of traditional wooden furniture and modern electric appliances fully reflect their cultural essence as well as their desire of improving living condition. With its wooden panels and high polish details, the 'Black Ice' should blend right in to the ever-transforming home of the upwardly mobile and cultural elite.

Black Ice

Wine Chiller Storage







Markets, exhibitions and festivals are events that connect people together into one place, as popularity increases around the world, there are demands to create a better experience for consumers, and especially stallholders as they are the one that make these events happen.

The idea of HUB is to make life easier for stallholders during events such as markets, exhibitions and festivals. It is a storage system that include everything essential during these events, a table and chair set, a container and a display panel. This allow user to carry everything in one move without consuming too much time or creating a huge mess. The bright use of colours and stylish design also help to attract consumer to their stall.

HUB

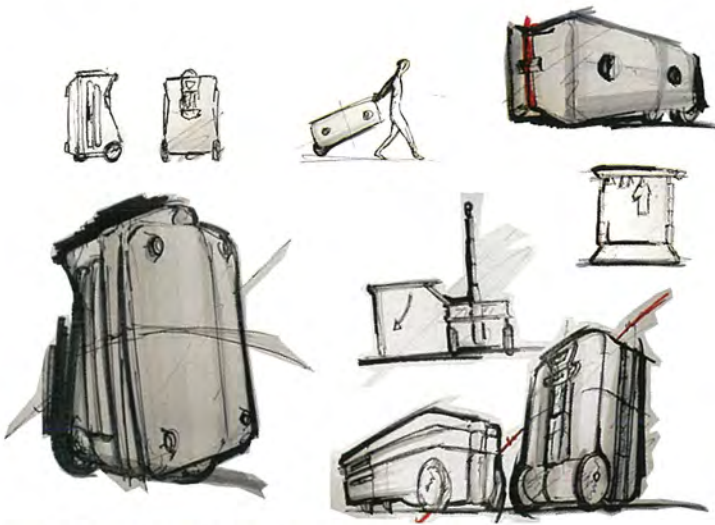
Mobile Stall System for stallholders during Temporary Events



Foam model layered by printed patterns



A back view of the design, and all items that are required during setup



Sketches and marker rendering during concept generation





A fully setup scenario for a stallholder during an event



Overall Dimensions (mm)
912 x 440 x 515

Material
Polyethylene, Fibreglass, ABS, Aluminium

Manufacturing
Pressure Forming, Injection Moulding, Extrusion



RapidCharge

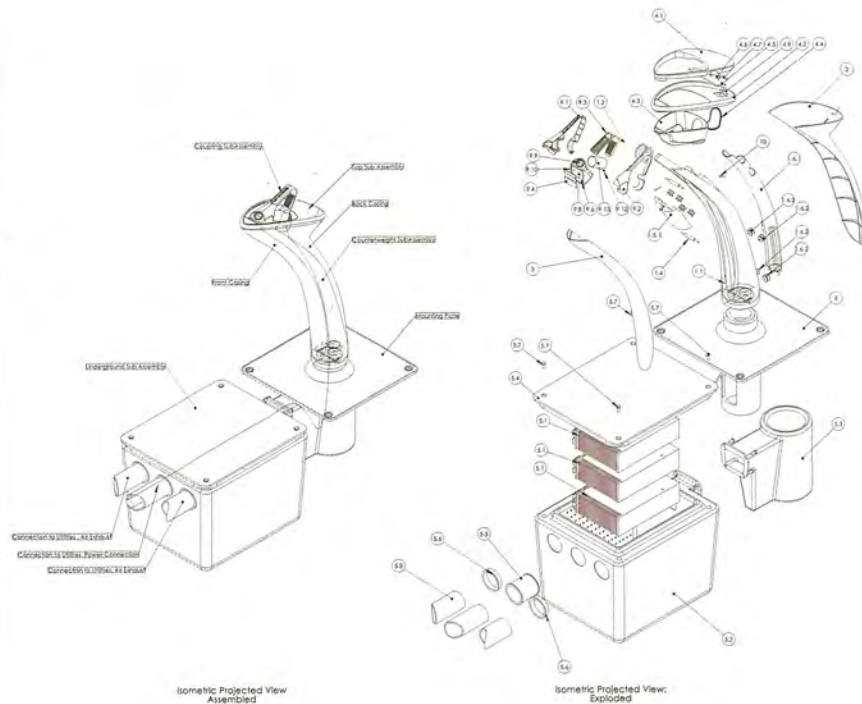
'RapidCharge' is a charging point for electric vehicles, capable of delivering the power required for an 80% battery charge in less than ten minutes. The system is flexible and modular, designed to be implemented in service stations, specialty charging stations and as an add-on for public enterprises (such as shopping centre car parks).

A convergence of consumer environmental interest and technology developments has created a rapidly growing global market for electric vehicles. 'RapidCharge' meets these consumer needs, overcoming the "range anxiety" that has prevented mass market adoption of battery vehicles with a paradigm on par with traditional vehicle refuelling.

The 'RapidCharge' system features a universal coupling that identifies the vehicle it is connected to, and applies the correct charge curve. The hefty, high power cable required (20kg+) is managed with an extending, counter-weighted and swivelling beam, which eliminates manual handling issues. Power management components are located separately in a rotationally moulded casing.

The design addresses grid and power management, fail-safe safety for users and vehicles, streamlined installation processes, minimisation of material input per service, design for rapid assembly and end of life disassembly, simplified maintenance procedures, and enterprise marketing potential.

The RapidCharge system was created with extensive industry consultation, research, development and user testing.







Cycling in Australia is an activity continually increasing in popularity, particular for commuting. The most common incidents involving cyclists come from the result of a rider not being recognized by traffic resulting in serious injury or death. This product aims at improving the safety of riders whilst riding on the road. The light is designed to provide illumination and to encourage commuters to travel by bicycle by providing a greater sense of safety though increased visibility and awareness of the rider.

'Firefly' uses a passive infrared sensor mounted in the rear of the unit that detects approaching traffic from up to 200 meters. This then illuminates the riders back increasing their visibility to the approaching traffic.

Due to the nature of the product the need for additional safety vests and apparel, which are consider unfashionable by some, is made redundant. This also limits the amount of additional equipment and apparel required by the rider.

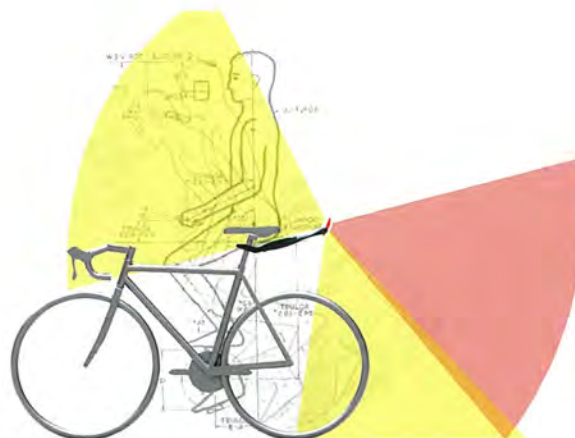
The light also projects onto the ground under the bicycle to create a pool of light around the base of the rider. This gives approaching traffic a perception of depth not attained by the standard red light.

'Firefly' is attached via a universal seat post mounting unit that allows for quick and easy removal from the bike, without additional tools. The product's design also accommodates backpacks, saddle bags, panniers and even mudguards for all bike types. The unit is completely water sealed to ensure the safety of the rider in any riding conditions, while allowing easy access and removal of the rechargeable lithium-ion battery.

The 'Firefly' light is a unique bike light that will vastly improve rider safety, creating greater visibility, a stronger road presence and an all round improved awareness of the rider, which in turn will help create a greater acceptance for cyclists riding on the road enticing more people to participate in the activity.



Technical details



Light spread projection





Squiddle

Swimming is an important life skill which most individuals will use throughout their lifetime. In Australia, learning to swim is a skill that will most commonly become useful during life, especially with the Australian climate and landscape. In today's society, obesity is common among the younger generations; as such the importance to exercise is number one priority for parents and carers. The 21st century parent is highly aware of the need to keep their child active as well as to get them swimming from the early years. Creating avenues and products to engage and enhance the child's learning experience is perhaps one of the greatest tools for a parent.

Swimming lessons like most things have evolved with time. Laurie Lawrence created a trend with his water safety message and the importance of learning to swim. This project is all about learning while you play, interaction with friends, family, or at swim class. Long gone are the days where you were thrown in the pool. New teaching methods see children responding to encouragement and positive cues. 'Squiddle' is the child's pool friend. A positive reinforcement toy which engages the child through games and activities, 'Squiddle' allows them to practise the different strokes of swimming. This new Gen Z child thinks differently, acts differently and is a completely tech-savvy individual. Squiddle encompasses all these avenues and uses visual cues to prompt the child through the games they want to play.

Using new technology, such as FlexiScreen to provide a digital display, and e-coupled inductive charging to recharge the device, 'Squiddle' uses lights, sound, and visual cues to guide and respond to the child's actions. RFID technology embedded into ergonomically designed swimming fins allows the device to register movement and each child who plays in a game. The game continues out of water by removing the game card and downloading the information to the home computer. By going to the child safe website Squiddle World every child can upload their scores and compete against each other. 'Squiddle' grows with their level of skill and provides an encouraging avenue to keep track of their progress.







Pulse

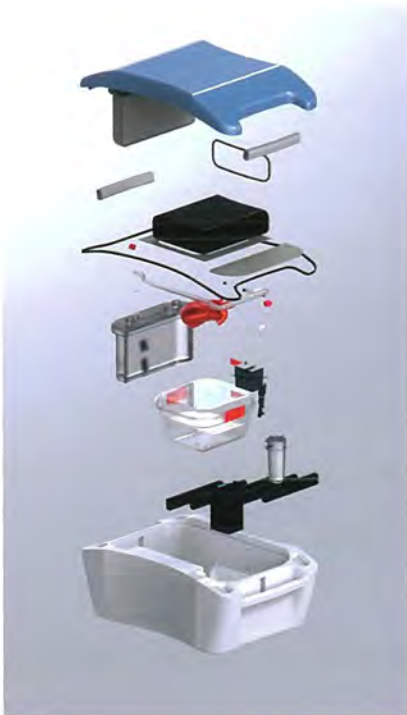
Long Distance Heart Transportation System

The 'Pulse' Heart Transportation System is the result of a detailed research document into the procurement methods of human organs for the purpose of transplantation in Australia. Pulse represents the future of organ transportation and aims to extend the critical ischemic period for the human heart in transit.

Since the arrival of organ transplantations, the foundation of the preservation of organs has been cold packaging in non task specific containers such as ice boxes most commonly used for the storage of beverages. Current methods of organ transportation aim to preserve the heart in transit; 'Pulse', actually sustains the life of the heart, in turn achieving improved patient outcomes, increasing the donor pool via a national donor register, boosting the amount of viable hearts available for transplantation and ultimately reducing waiting times for those patients in need of a new heart. Integral to the 'Pulse' system is the perfusion method of sustaining the life of the heart in its normal functioning state.

The donors blood is used to pump through the donated heart while the 'Pulse' monitoring system calculates heart rate, temperature, transit time and flow pressure, allowing intensive care staff to assess the viability of the heart on arrival and in transit.

In July 2008 the Australian Government announced a total funding package of over \$150 million in a national plan to boost organ donation levels and meet the ever increasing waiting lists for organ transplantation. With the anticipation of a successful campaign we need to be prepared to meet the increased numbers of organ transplantations with improved methods of organ handling in transit. The 'Pulse' Heart Transportation System is an important development in the way we handle organs in the transportation phase of organ transplantation.





Overall Dimensions (mm)
690 x 460 x 310

Material
Polysulfone, Polycarbonate

Manufacturing
Rotational moulding, Injection moulding



pivotpro

Sports Injury Prevention

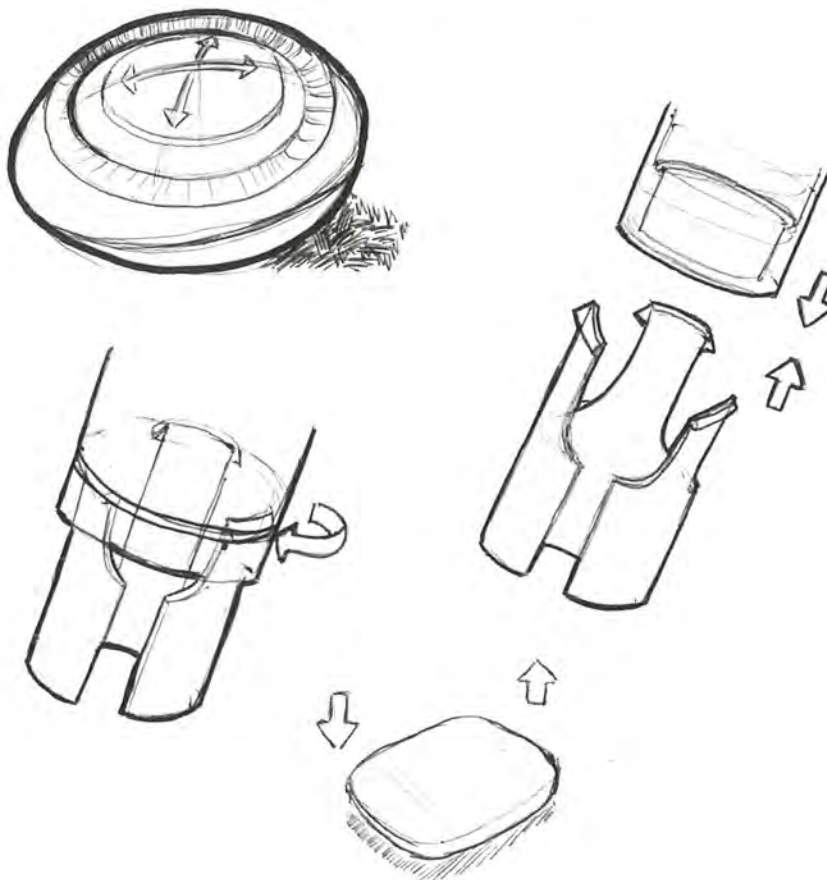
Description: The anterior cruciate ligament (ACL) and the posterior cruciate ligament (PCL) are the major ligaments of the knee which stabilise its movement. Research shows that most ACL injuries often occur without contact, and the majority of ACL sufferers are women. In the past decade, at least 100,000 female American college athletes have torn their ACLs, a 200% increase over 10 years. Hamstring and quadriceps strength have been identified as one of the key contributing factors in ACL injuries.

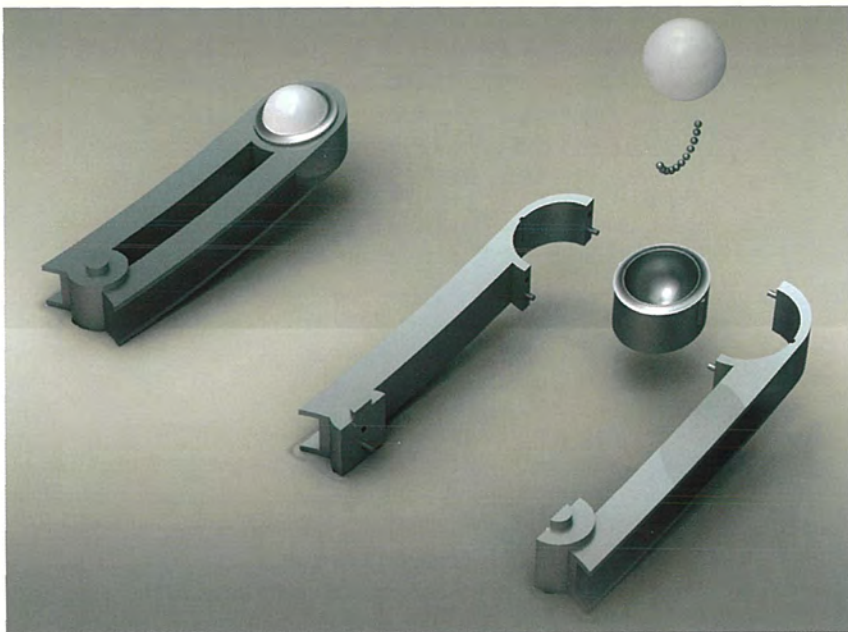
'pivotpro' is a sports exercise tool designed to reduce the likelihood of injuries in athletes by utilising the basic concept of combining strengthening exercises with balance as the most effective means of increasing explosive quadriceps and hamstring strength.

The base component allows the wobble board to oscillate along five polyacetal roller balls allowing complete range of motion. It also allows the user to adjust the range of movement of the plane from 10-45 degrees axial tilt.

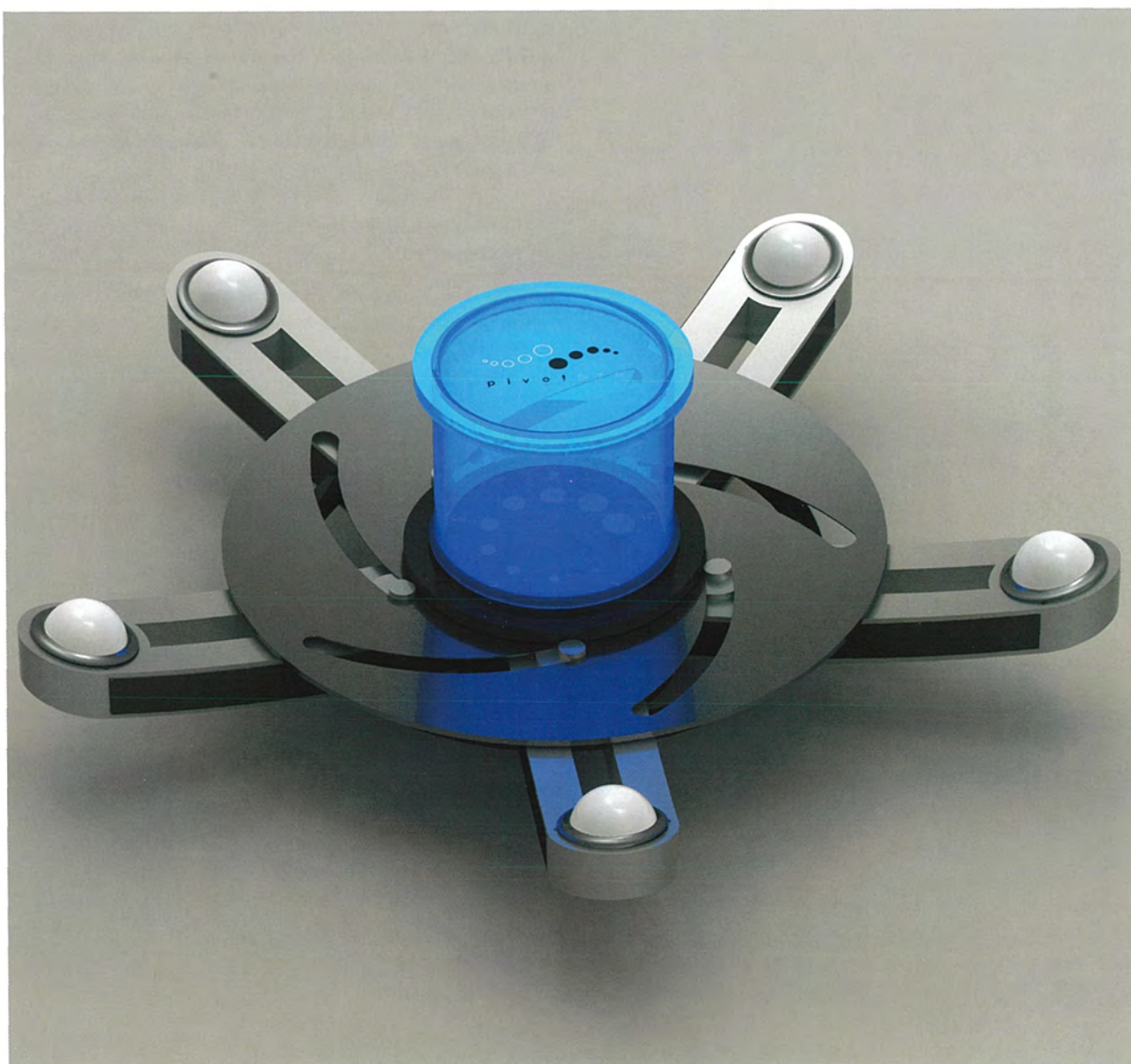
The board unit contains an orientation tracker which measures the directions of gravity and magnetic north to provide a stable reference, analyzing the board's oscillations. 'pivotpro' is equipt with a timer and proprioception score display screen as well as an equilibrium led strip. This information can quantify the user's balance and proprioception level, allowing the assessment of their development before and after rehabilitation or training.

'pivotpro' incorporates visual and numerical data feedback to allow the user to assess their performance during and after their session.





Industrial Design



Overall Dimensions (mm)
520 x 520 x 80

Material
Polyacetal, Polyethylene, Polycarbonate

Manufacturing
Injection Moulding



'Spinovo' has been designed to help relieve pain for chronic back pain sufferers. In contrast to other back pain products, 'Spinovo' offers a holistic approach to back pain by providing therapeutic heating, cooling and transcutaneous electrical nerve stimulation (TENS) as well as preventing back pain through biofeedback.

A flexible film bend sensor and muscle tension sensors have been integrated into the garment to measure both the movement and position of the spine and the activity of the back muscles respectively. Visual and aural feedback is provided to the user through backlit LEDs and a miniature speaker within the remote control.

Heating and cooling are provided through Peltier thermoelectric modules, which are held between two layers of thermally conductive polymer pads that distribute the heating and cooling. The modules work by heating one surface whilst cooling the other surface, which allows both heating and cooling therapies to be offered and reversed at the flick of a switch.

The TENS therapy relieves muscle and nerve pain with a mild electrical current that is delivered to the nerves via contact with the user's skin surface. The four reusable electrode pads are coated with an adhesive for bonding to the skin and can be reused up to 300 times. Their larger size prevents the electrical energy from being dispersed deep under the skin and provides a more comfortable stimulation than smaller electrodes. The cables extend from the electrode pads to the remote control and can be removed to allow replacement of the electrode pads.

Polymer lithium ion batteries are located in the front pockets, which allow the garment to be heated for up to two and a half hours. All electronic components are removable, allowing easy cleaning of the garment.



Colour variations for the garment and remote



The electrical stimulation packs and bend sensor clipped into the garment



The removable heat and cooling packs and circuitry packs are clipped into the garment, with each describing its function graphically



A front view of the garment with the battery pack pockets and holding the remote



A front and back view of the interface showing the location of the muscle fatigued areas

Industrial Design



The SpinoVo garment and remote control helps relieve back pain through modular heat/cool and electrical stimulation packs

The remote sits on the user's desktop to visually display postural feedback



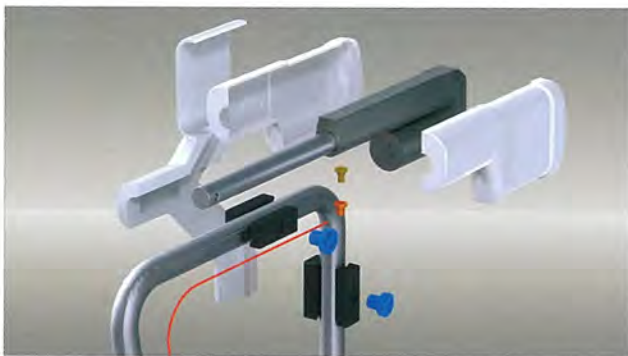
Overall Dimensions (mm)
855 x 415 x 10

Material
Polyester knit, Thermally conductive thermoplastic elastomer, Silicone, ABS

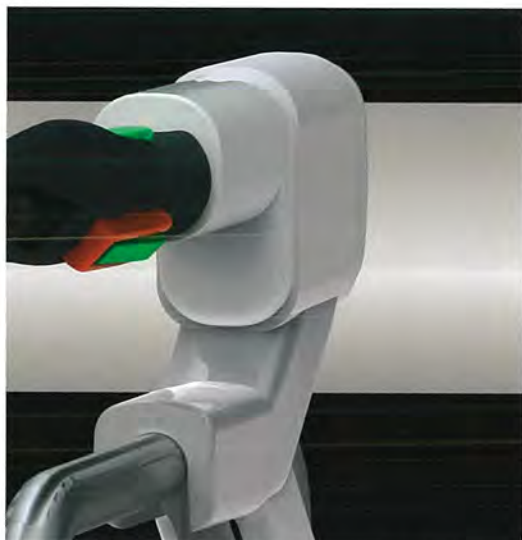
Manufacturing
Pattern-making, Thermoforming, Machine Sewing, Injection Moulding



Bipod



Exploded view of handle casing (white), internal linear actuator (grey with extended drive rod), positioning clamps (dark grey) and electrical connection (red). Electrical components connected by wire run through the hollow frame. Male/female connection sockets (shown in orange) allowing assembly/disassembly.



Closed view of handle attached to linear actuator. Forward motion is engaged by pushing both the green thumb button and trigger clicker

Current stability assistive devices are economically and functionally unviable for addressing the varied and fluctuating physical health situation faced by the elderly on a daily basis.

The baby boomers have always been trend setters, independent and upwardly mobile. As this generation ages the health system will be looking for alternate methods such as the 'age in place' scheme to support such a large percentage of the population.

Generally as the elderly age they move out of cities and into suburbs away from transport and immediate health support networks and hence require the demographic to be upwardly mobile resulting in many individuals becoming imprisoned in their home not confident enough to venture outside unaccompanied.

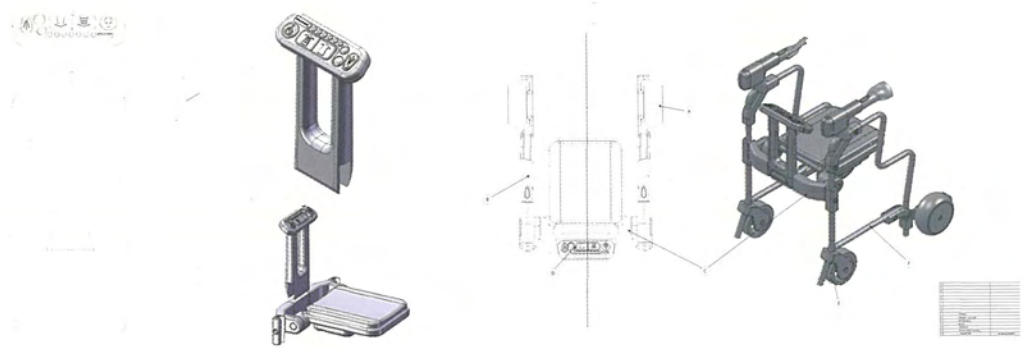
'Bipod' is designed to promote usage of available ambulatory devices primarily in the exterior environment by the elderly. The modular attachments enhance existing walking frame design to physically enable the elderly, develop exercise motivation and independence. 'Bipod' does not require the user to lift or push the walker for forwards movement, but instead maintains consistent level stability providing two assisted walking modes.

The first intermittent or leapfrog setting for those less able and confident is where the wheel and handle motors work in tandem opposite directions. The motorised walker advances away from the user the distance of one step creating a space, while the handles are projected backwards at the same rate for motionless stability. Next the wheel motors brake allowing the handle motors to drag the user forward to provide a controlled step into the space and so the process continues.

The second continuous setting means the more able can ambulate with ease, no pushing required the handles stay in an extended orientation, reducing the energy levels and bodily strains on the user, making the whole usage experience one of ease, confidence, simplicity and safety.



User interface. Three step interaction for forward motion: Turn on bipod (left red button), Select movement type (intermittent - blue or continuous - green) dependent on user's physical condition, and handle buttons for ignition. LED array displaying battery life and light button (yellow) for night use



Overall Dimensions (mm)
880H x 550W x 770L

Material
Magnesium/aluminium Alloy, ABS, PVC, Polyamide, Rubber, Silicone

Manufacturing
Injection Moulding, Resin Injection Moulding (Structural cross bar), Extrusion (Frame), Cold fixings

There is current focus on building smarter healthcare systems. This starts by moving away from paper records in order to reduce medical errors and increase effectiveness.

'Oculus' is an instrument that allows healthcare professionals to automatically capture accurate, real-time information that can be shared seamlessly and efficiently. It is lightweight, ergonomically designed and incorporates power management for long battery life so that staff can carry it with them around the hospital.

'Oculus' allows patient records to be set up and updated on the spot using its QWERTY keyboard or built-in handwriting recognition which interprets the user's handwriting into computer-readable text. Photos of the patient can also be taken using the onboard camera. Each patient is allocated a barcode wristband that is tagged to the patient record. The RFID scanner and scanning software enables access to patient records for updated patient status and to cross check data to ensure correct administration of medication - right patient, right drug, right time, right dose, and right administration route.

'Oculus' has a projector so that doctors can view x-rays and other charts in 1:1 size at high resolution anywhere, anytime. A patient's bedside monitor feeds critical messages on fluctuating vital signs directly to the wireless enabled unit so that nurses have direct line of sight to all patient rooms.



Oculus

Portable Device for seamless and efficient sharing of patient information by medical professionals





Overall Dimensions (mm)
230 x 190 x 20

Material
ABS, Neoprene

Manufacturing
Injection moulding, Double Shot injection Moulding



Oris

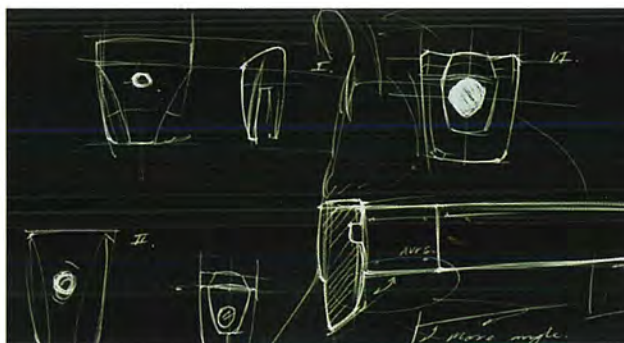
Vision Prosthetic

There are currently over 50,000 Australian's suffering from profound to complete blindness. In Australia alone, burdening vision loss accounts for a social cost in excess of 2.5 billion per annum. Presently, no vision prosthesis exists despite obvious need and the availability of the necessary technology. In conjunction with the Australian Vision Prosthesis Group, 'Oris' is dedicated to exploring the design, construction and marketable release of the first ever Eye Prosthesis scheduled for 2011.

'Oris' is a platform product for synthetic vision designed to afford the user precision and tactility in the endeavor to restore some visual percepts to people suffering from vision impairment. The multi disciplinary biomedical device exists in harmony with the user's daily activities as a lifestyle aid promoting greater independence, mobility and consequently improved quality of life.

To return some visual percepts, 'Oris', filters captured live stream data to stimulate the visual cortex via a neuroprosthetic electrode array surgically implanted within the walls of the retina adjacent to the optic nerve. The article offers unique and semantic device architecture for interaction and orientation in a reliable, intrinsic and robust article. Haptic and auditory function and feedback grant ease of operation for a visually impaired ageing population utilising the user's unique skill set to enrich the product experience.

'Oris' affords the user 8-10 hours of peak performance via a rechargeable lithium-ion battery pack. Interaction with the article is customized to the user's demands offering auditory and tactile mediums of command and feedback. High voltage spark corroding finishes on the processing unit wear from the user's unique architectural mapping of use. 'Oris' lends itself to rapid manufacture and mass market tooling offering flexibility and efficiency as the production moves from institutional clinical trial batches to global commercialisation satisfying a holistic first-to-market approach.





The threat of climate change and our dependency upon electrical energy is increasingly a social concern for today's energy consumers. Zephyr is a response to this concern and seeks to harness energy in a more efficient and environmentally responsive way.

Following my research during the course of my degree, it has become apparent that there is significant potential in the market that is not being satisfied by existing products; namely, for an electric generating product within the built environment.

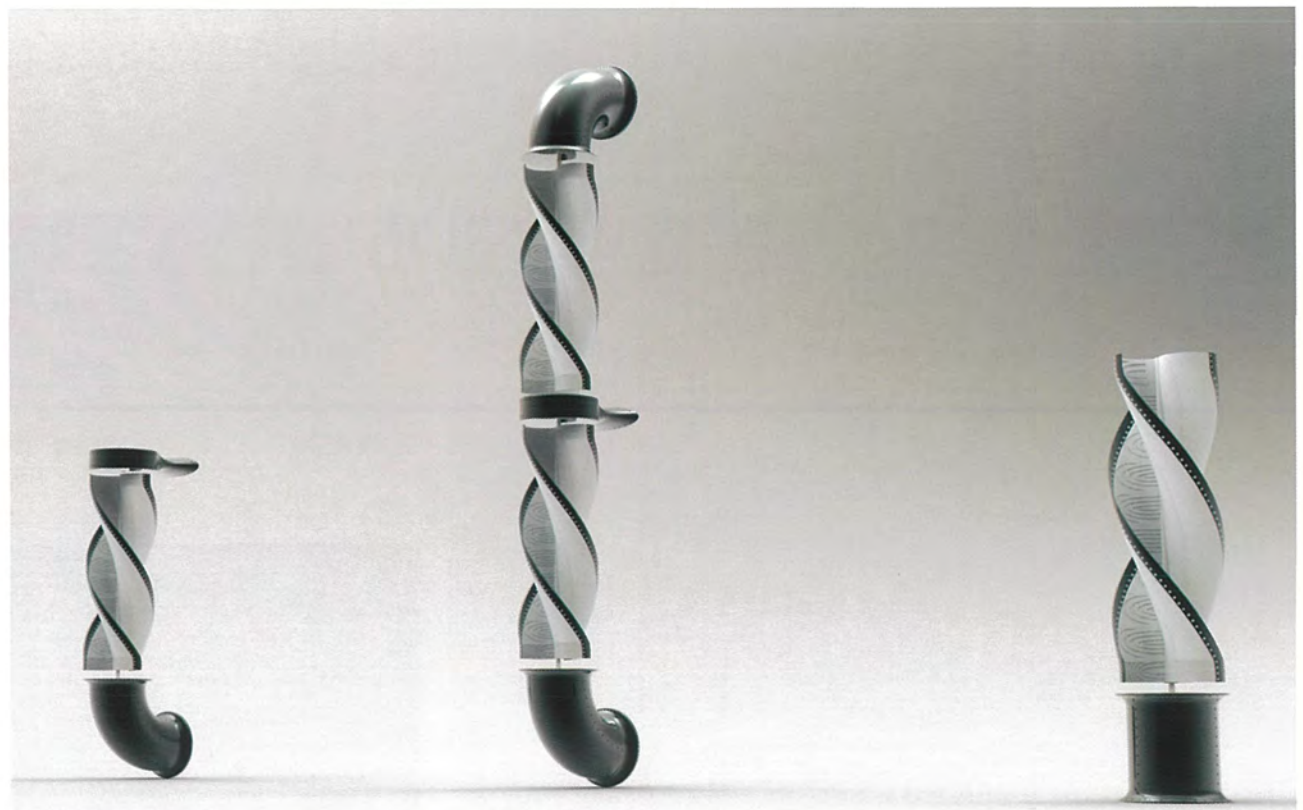
Traditional products are unable to harness energy with the same efficiency as the 'Zephyr', as traditional wind turbines can only exploit wind energy from a relatively steady stream of wind travelling in a single direction. This is not a common occurrence within the built environments. Buildings and other objects disturb the air flow and create turbulence, disrupting regular wind turbines efficiencies. The same limitations are overcome by the 'Zephyr's' blade design.

'Zephyr' is more efficient than photovoltaic cells per square meter on the horizontal axis. Moreover, it is a modular system, and can be varied to suit the electrical needs of the consumer by varying the blade height. It also can be created with a two tiered platform with two independent generators doubling the electrical output of the system. As a two tiered system the 'Zephyr' can create one kilowatt of electricity which is just below the average two person household usage. Since the 'Zephyr's' blade design is continuous and unbroken it is able to capture very low wind speeds therefore able to create electricity where other wind turbines cannot.

Zephyr

A modular wind turbine system for built environments





Overall Dimensions (mm)
l750 x w500 x h1600/300

Material
Blade: Acrylic
Anchors: Cast steel
Shrouding: Acrylic

Manufacturing
Injection molding/Casting



360°

Advanced construction awareness

Construction related injuries cost Australia nearly \$96 million annually and from these injuries, pedestrian workers being struck by mobile machinery accounts for 22%. The problem is not that the hazards and risks are unknown; it is that they are very difficult to control in a constantly changing work environment.

Construction sites involve high pedestrian worker activity coupled with various types of mobile machinery such as steamrollers, forklifts and bobcats.

The objective of '360°' is to indicate potential hazards to the user that they are unaware of beyond the natural vicinity of hearing and vision.

Conventional earmuffs reduce sound source identification and depth perception, increasing the risk of injury. '360°' harnesses the benefits of ultrasonic detection, surround sound and active noise control technologies to indicate the possible threats that are outside the users peripheral vision.

'360°' is easily adjustable to fit all construction helmets used in Australia, and provides a consistent and improved method for helmet attachment as opposed to cap mounted ear muffs. Bimodal switches ensure the ear cups either seal over the ear, or alternatively hang off the ear for free movement and storage on the crown of the helmet.

When not attached to the helmet, 360° folds up for protection during storage and to reduce the product footprint. Lithium Ion Batteries are balanced under the ear to reduce the impact of added weight, and are removable for recharging.







Eden mist

Bringing the tropical rainforest experience into your home

In recent years there has been a significant growth in the awareness of domestic water usage and its affect on the environment. Despite this, bathroom water consumption remains to be a main contributing factor of indoor water usage.

With today's busy lifestyle the bathroom has become a sanctuary that provides a relaxing escape from the real world. Trends reveal bathrooms have evolved in size, features and are no longer a simple utilitarian space. Considering showers play a large role in domestic bathroom water consumption 'eden mist' transforms your showering experience into an oasis of comfort and pleasure while saving water.

'eden mist' is a luxury steam shower unit which can be installed in your own customised enclosure adding to the comfort of your own personal space. The unit saves water by using existing aerated technology giving an enjoyable full flow performance whilst saving up to two thirds of the water used in a conventional showerhead. Additionally, cold water is wasted when the conventional shower is initially turned on; the instant hot water function of the 'eden mist' makes this a thing of the past.

The unique steam function allows for guilt free pampering, as this is a further water saving function of the 'eden mist' only consuming 1 litre per minute in comparison to conventional shower heads which consume 9 litres per minute. The steam shower also relieves muscle tension and joint fatigue whilst reducing stress and cleansing skin impurities. The thermostatic mixer and wireless interface allows the user to control their personal settings and enjoy their experience on a built in seat.

'eden mist's simple sliding shower head allows each user to adjust the height of the shower head to their own ideal setting to enjoy the rainfall and waterfall shower setting. Other features such as lighting and essence pods for aroma therapy assist in making 'eden mist' a truly relaxing experience.



Industrial Design



Overall Dimensions (mm)
 Front Panel: 1910 x 420 x 50
 Back Panel: 1400 x 380 x 150

Material
 Stainless Steel, Bamboo, Powder coated Aluminium,
 Acrylic

Manufacturing
 Welding, Casting, Machined Press, Fabrication, Thermoforming





Adder

Utility Box

The Adder Utility Box is a modular storage system, designed specifically for the tradesmen who needs to remove his tools off his Ute or Van quickly and easily at the end of the day for security reasons or for that extra space if required,

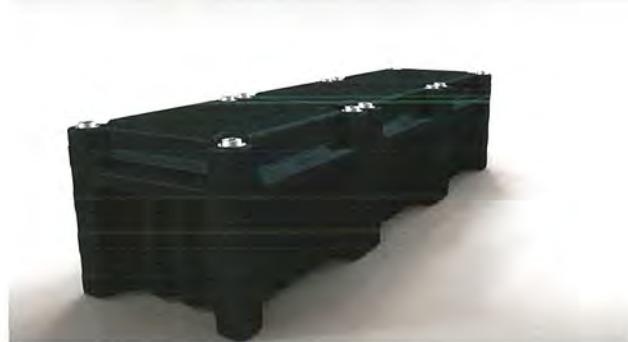
The modularity of the toolboxes means that tools storage can be configured horizontally when on the Ute tray or vertically when being transported too and from different jobs by hand.

The recycled HDPE rotational moulded casing gives the Utility box a strong and rigid form, while still having excellent UV resistance, water/dust proofing and the ability to neatly house the stainless steel locking pins in a inclosed compartment so no water/dust can enter the storage compartment, The locking pins allow the boxes to be locked down to the tray as well as themselves, through a simple, proven cam lock system, this system minimizes internal moving component thus allowing the lock to be self draining and cleaning while still remaining to function with little to no maintenance required.

The Adder Utility Box offers greater security, through its ability to be easily removed by the owner, and stored in the security of a locked garage or building, while their vehicle is parked on the street.

The stacking ability makes moving tools and equipment quicker and easier from job to job, upstairs and through doorways as well as off the back of the Ute.

Overall the Adder Utility Boxes offer a wide range of options for storage and security of tools and equipment.



Industrial Design



Overall Dimensions (mm)
670 x 550 x 470

Material
Recycled HDPE, 304 Stainless Steel

Manufacturing
Rotational Moulded, Casting, Machining



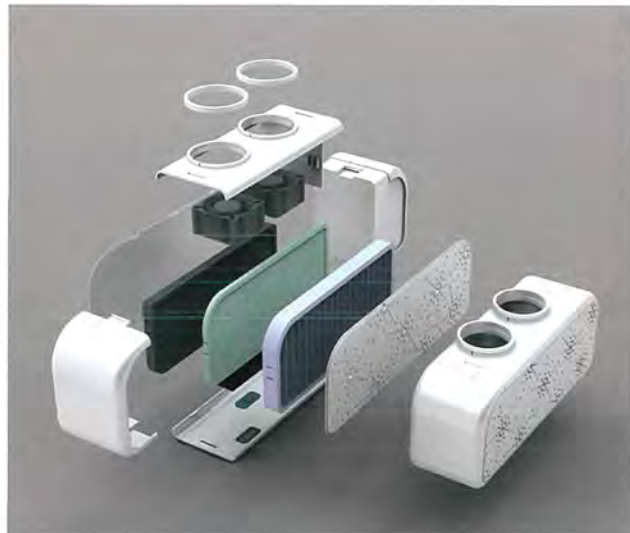
Babyblu

Babyblu is a portable air purifier designed to be attached to baby strollers. It supply's toddlers with a constant flow of clean air, anywhere. Research has shown that if children under 5 are constantly exposed to polluted air, the chance of stimulating and developing respiratory diseases is much higher.

Babyblu utilises advanced air purifying technology comprising of HEPA filters, Nano-silver filters and active carbon filter. It's boosted by two ultra quiet fans, which delivers a constant flow of air directly to a toddler while the baby is sitting or sleeping in the baby stroller. The filter system is powered by a lithium ion battery pack that lasts up to five hours per charge. The parents will enjoy outdoor travel without the worrying about their child being exposed to airborne pollutants.

The upholstery cushion is replaceable. A wide range of styles and colours are available to suit every lifestyle.

The cushion is covered with soft breathable fabric to ensure an uninterrupted airflow. The cushion is ergonomically designed to cradle the baby's head in a safe and comfortable position.





Overall Dimensions (mm)
328 x 260 x 200

Air Purifier (mm)
278 x 110 x 80

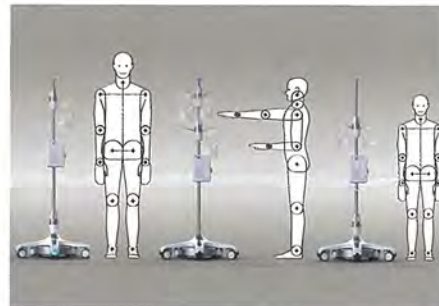
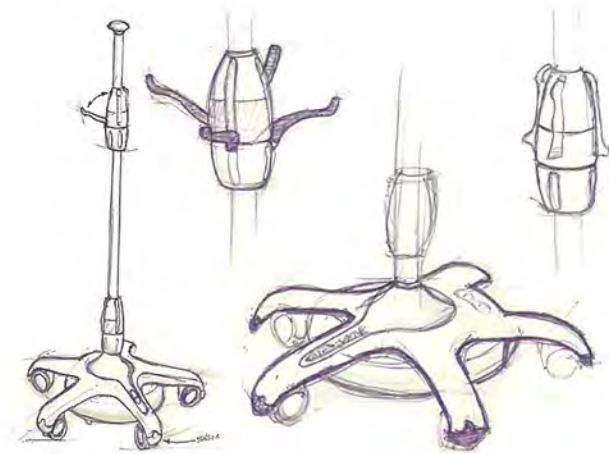
Power
Twin Lithium Ion battery

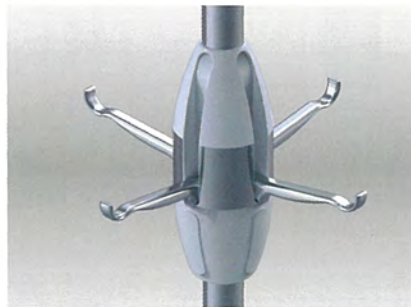


The 'ivy' is a support structure for intravenous delivery for hospital patients. It is designed as a companion for recovering patients to aid in alleviating the stress and pain of convalescence. Ambulation or walking is the most effective way to encourage a positive recovery after surgery to stimulate muscle movement, revive circulation and regain physical ability. However, patients are often in pain and lack energy post surgery, which can make ambulation difficult especially when attached to fluids, medications and devices.

'ivy' automatically follows the patient as they walk through the hospital, leaving them to ambulate independently and uninhibited by the need to drag or push attachments. The patient wears a small badge with an imbedded ultrasonic sensor that sends a continuous pulse to the receiver base of the product to determine the position of the product relative to the patient; 'ivy' then uses the data to stay at a set distance from the patient through their every movement, hence follows them. Two other sets of ultrasonic sensors are used, one set is used to create a buffer zone around the unit to prevent collisions, and the other is at the edges of the base to prevent the unit from approaching steps. The sensor signals are processed and transformed into movement of the driving wheels to achieve the desired result. A manual setting turns off follower mode and lifts the driven wheels from the floor allowing handling.

'ivy' is also intended as a companion that is located at the patient's bedside throughout their recovery and as they become mobile. The hubs contain four retractable hooks that can be moved along the pole to the specified height, and hooks may become exposed or retracted as desired. The evolving nature of the hooks reflect the progression of the patients recovery and provides a visible aid to encourage recuperation on an emotional level.





Overall Dimensions (mm)
680 x 680 x 1700

Material
Polycarbonate, Stainless Steel



Manufacturing
Injection moulding, Die casting, Metal pressing, extrusion

Having undertaken the four years the industrial design course has given me an opportunity to participate in a range of studio projects and develop my understanding of the design process. The course not only provided me a platform to demonstrate a range of skills sets such as conceptual freehand sketching, product illustration, model making and product rendering, but also helped me to gain industry knowledge about different materials, develop a discipline of design process, time management and to deliver a high level of completed and resolved solutions in a specific time frame.

This program has expanded and strengthened my skill sets of technical detail resolution in product presentation by techniques in graphic design, visual communication and brand identity.

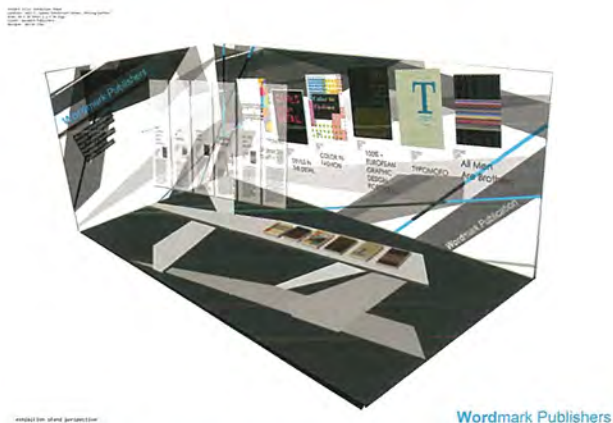
My selected projects presented in this catalogue are from the product categories of domestic, home/office, sports, packaging and commercial exhibition design.



Chronograph - Adidas x Stella McCartney: 1 week design project



Cormack Packaging Design Award Entry - Fabric Softener Bottle



Exhibition Design - Wordmark Publication 6000 x 3000 x 2400 Hall Space



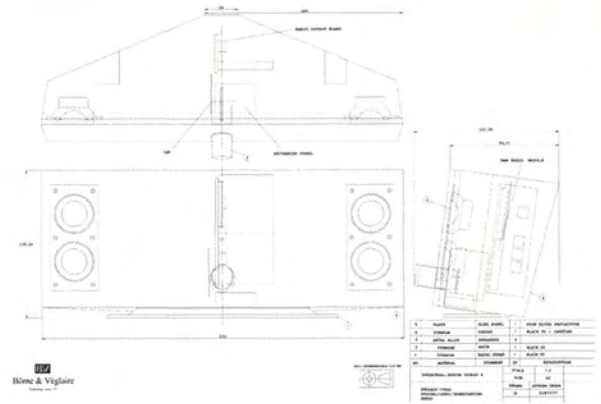
Go-digital: Disposable Digital Camera: Concept Design



Target market



Product elevations



Technical detail

Industrial Design



Overall Dimensions (mm)
330 x 135 x 131

Material
Polycarbonate, Titanium, Vapourized Liquid Metal, Wood



Throughout my years studying a Bachelor of Industrial Design, I have developed a wide range of skills which range from product design through to visual communication, graphic design, digital media, project management, marketing and brand management. Skills and techniques I have learnt from my degree include but are not limited to hand illustrations, 2D computing software, 3D modelling programs, model making, technical resolution and communication skills. I thoroughly enjoyed this degree where I was constantly growing and learning.

The following are a few examples of projects which I have completed during my degree that reflect the skills I have learnt and developed throughout the course.

The main image is a digital audio broadcasting radio. The brief for the DAB radio was to design a radio for luxury brand Borne and Veglaire. A sense of luxury is conveyed through the colours, form, materials, manufacturing process and finish. The DAB radio resembles both the shape of an ear and an acoustic instrument, one is used for listening to and appreciating sound and the other is where beautiful sound escapes. The radio turns on and off through motion sensors. The screen is a black glass LCD panel where controls appear once the power is on. The design is very clean and minimal.



Chronograph - students were required to design a luxury sports watch. Students were not allowed to use 3D programs for this project



Cormack Packaging - Designed for Cormack Packaging Awards aimed at improving existing packaging. This instant coffee sachet is re-sealable and includes a stirrer



Digital Camera - students were required to design a disposable digital camera for family oriented retirees 65 years and above who enjoy travelling



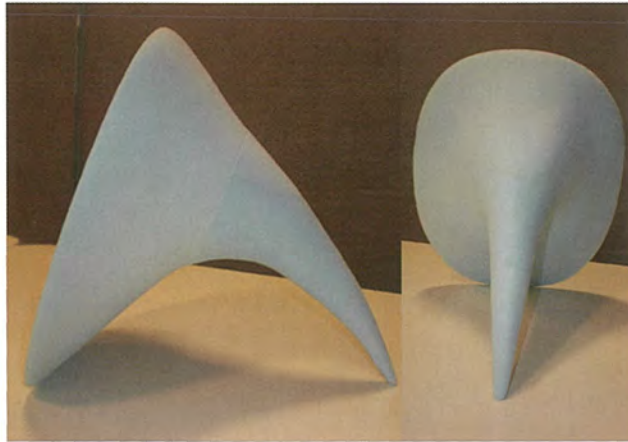
Digital Camera - This is a variation of the same project featuring a flash which also doubles as a torch for improved night time photos



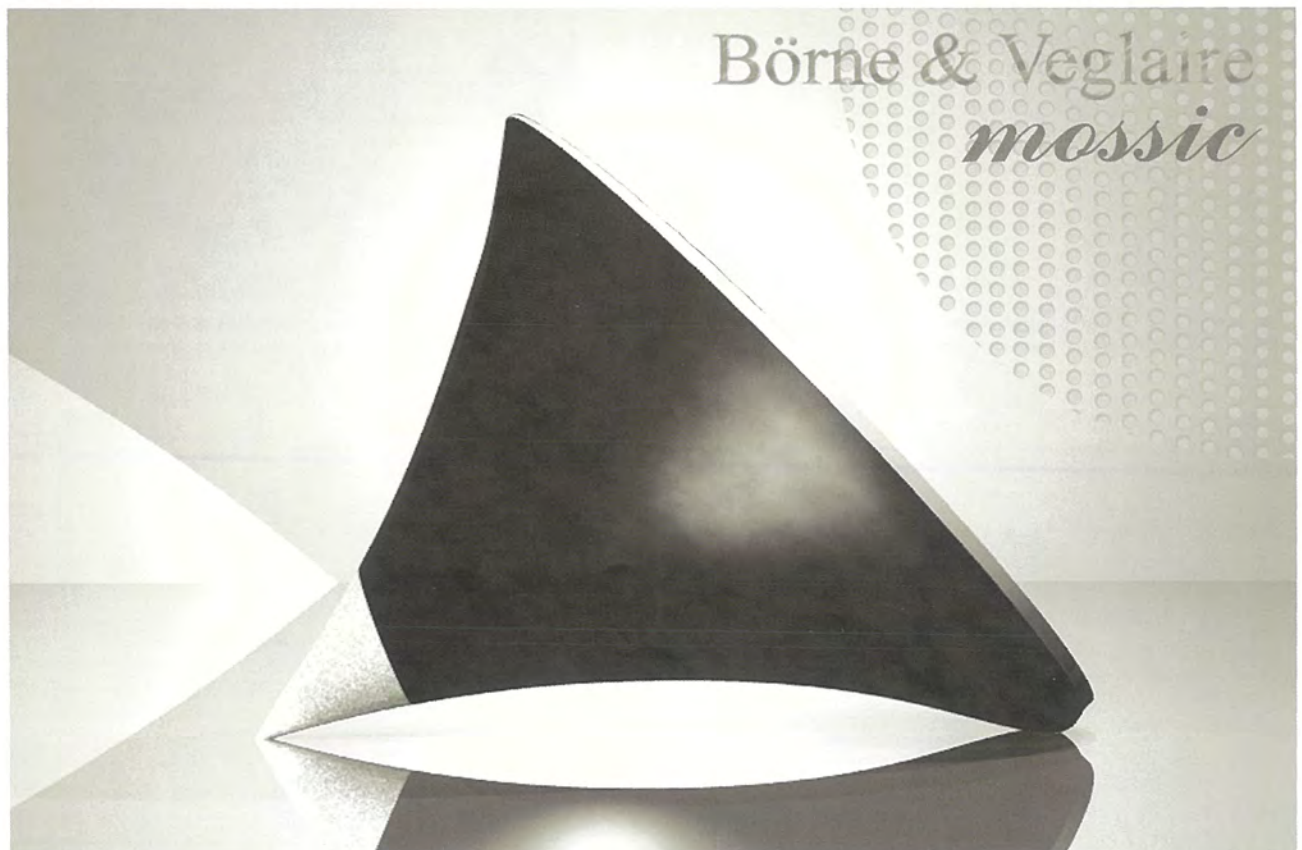
This project was to design a DAB radio for luxury brand Borne & Veglaire



Exploded view, features motion sensitive LCD touch screen. Discreetly hidden power output



Blue foam mock-ups of speaker concepts



Overall Dimensions (mm)
280 x 275 x 210

Material
Aluminium, Alcantara, Birchwood

My past four years of undertaking Industrial Design at UNSW has been and will remain a special chapter in my life journey, as it has given me the opportunity to acquire not only academic knowledge and expertise but has also molded me in character which will shape my behavior, and perspective of life throughout the chapters to come in my life. Furthermore, the many design projects undertaken during my course of study has provided me with a number of opportunities to learn a diverse range of skills in product design, such as sketching, model making, 3D rendering and most importantly, the ability to develop ideas and turn them into tangible reality.

Presented are some examples of projects that I have developed throughout the course. The main project displayed on the following page is a Luxury Dab Radio designed for male executives. Its sharp form draws from the power and authority that this market craves whilst the brushed stainless frame offsets this with elegance.

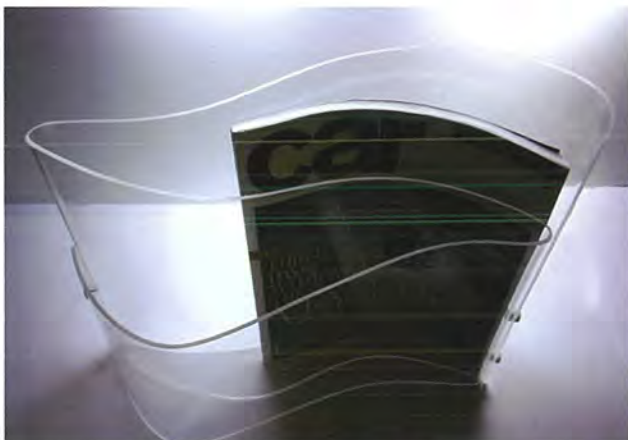
In order to provide convenience and adequate features and technology of a DAB radio, the radio is to be fully operated by touch screen instead of the usage of analogue buttons.



Multi-use furniture - Aimed to design a multi purpose piece of household furniture (Clothes hanger and Standing Light)



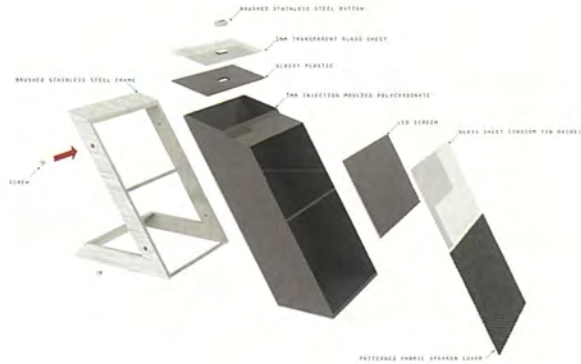
Chronograph - Designing a sport chronograph timepiece which had to suit a certain lifestyle. It was designed for males who use a watch for car racing sports



Transforming - A magazine rack made out of acrylic only. It aims to highlight the material characteristic of acrylic



Memphis - Designing a clock which was motivated by Memphis movement



Exploded view of components



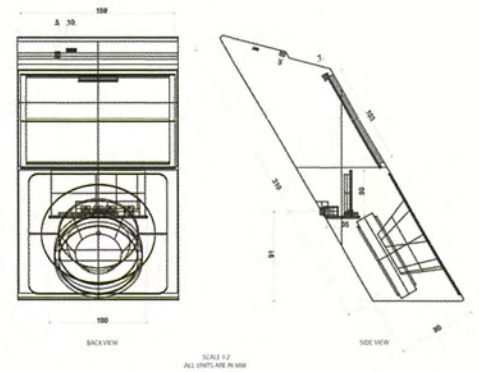
General View and features

Industrial Design



Overall Dimensions (mm)
272 x 175 x 200

Material
Brushed Stainless Steel, Polycarbonate, Glass Sheet
(Indium Tin Oxide)



Internal View and dimensions



Throughout this course I have learnt many valuable skills to help with my progression into the design world. Some of these skills include the 3d modelling program Rhinoceros, Photoshop, Illustrator, and autoCAD. The Course has given me a broad knowledge of design and production, marketing and business, resulting in a well rounded approach with which I can bring to design projects.

My passion is furniture and lighting and throughout the course we have looked at details of lighting design, ergonomics of furniture design and how we relate to the products and spaces we live in. The course has also provided me with a solid of the design process; taking a product through from a range of concepts through to a finished product with specified materials and manufacturing processes. Examples include trying finding a solution for the Malaria problem in Africa, to trying to find environmental innovations and solutions for Colleges within UNSW.

We have also developed valuable business and marketing skills which have real world applications. From manufacturing costing to marketing and business plans, the electives that I have completed have helped to broaden my horizons both in terms of my approach to the design process and the finish and styling of the resulting products.



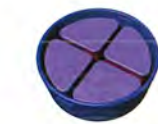
Photography, Images of Sydney - Anzac Bridge

Play Store 'n' Swim

- Highlighting the white board top surface of the table, recessed and glued into the roto moulded table top.



Height of Table - 500mm
Width of table - 600mm
Height of Chairs - 350mm
Width of Chairs - 400mm



- Showing chairs neatly packed inside table.



- Showing interiors of table and chairs.

Play Store 'n' Swim, Studio - Multi use Roto-moulded Furniture



SCALE 1:1

SPECIFICATIONS:
MOVEMENT: SWISS QUARTZ
CRYSTAL: SAPPHIRE
MEASURE MOVIE: 45x45x20mm
MATERIALS: STAINLESS STEEL
FINISHES: BRUSHED AND POLISHED
FUNCTIONS: TIME, DATE, MONTH

DESIGNED FOR: MCM

Tozser, Studio - Chronograph Watch Design

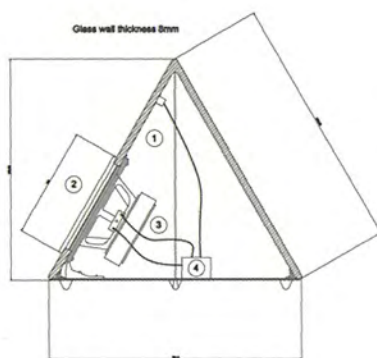


Different views of Stealth DAB System

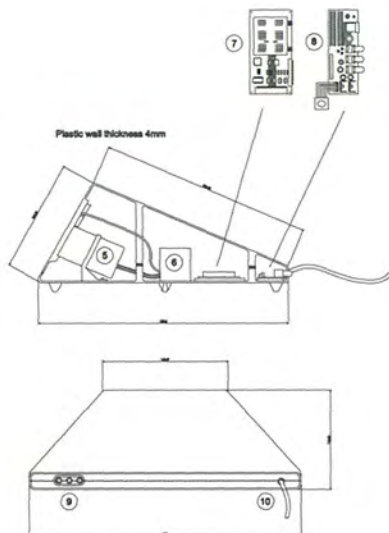


Details Stealth DAB System

Industrial Design



autoCAD Stealth DAB System



Stealth DAB Radio

Stealth DAB System

Overall Dimensions (mm)
610 x 300 x 300Material
Glass, Titanium, Polycarbonate outer,
electronic and audio specific internalsManufacturing
Injection Moulding, Sand Casting



"Good design can change our life."

From the past 4 year of being an Industrial Design student, I have developed various skills and knowledge in different areas. Through each progressive and challenging project, I have learned not just design based skills like 2D rendering, 3D rendering and 3D model making, but also project planning, marketing research, problem solving, time management, presentation and being able to think outside the box.

The course has really helped me in understanding what design is really about. Good design is not just about good looking; it is about how good you understand the target market and the users, the functionality of the product, and how it can be achieved by the use of technology, material and manufacturing process. There are challenges and obstacles in every step, and my job is to solve the problems and develop a finest solution to the final design.

Presented are a few projects that I have done in my studio courses, this include the Go-Digital design, Cormack packaging design, Portable Vacuum Cleaner design, Luxury Sport Chronograph design and Luxury DAB Radio design. Although those projects are time intensive and heavy work loaded, I enjoyed working on them as I believe every great design comes from passion, creativity and hard working.

Overall, I do not regret that I have taken this course, because I have grown and gained some much valuable experience from it, the skills and knowledge I learned will be very useful for my future life not just as an designer, but as a professional.

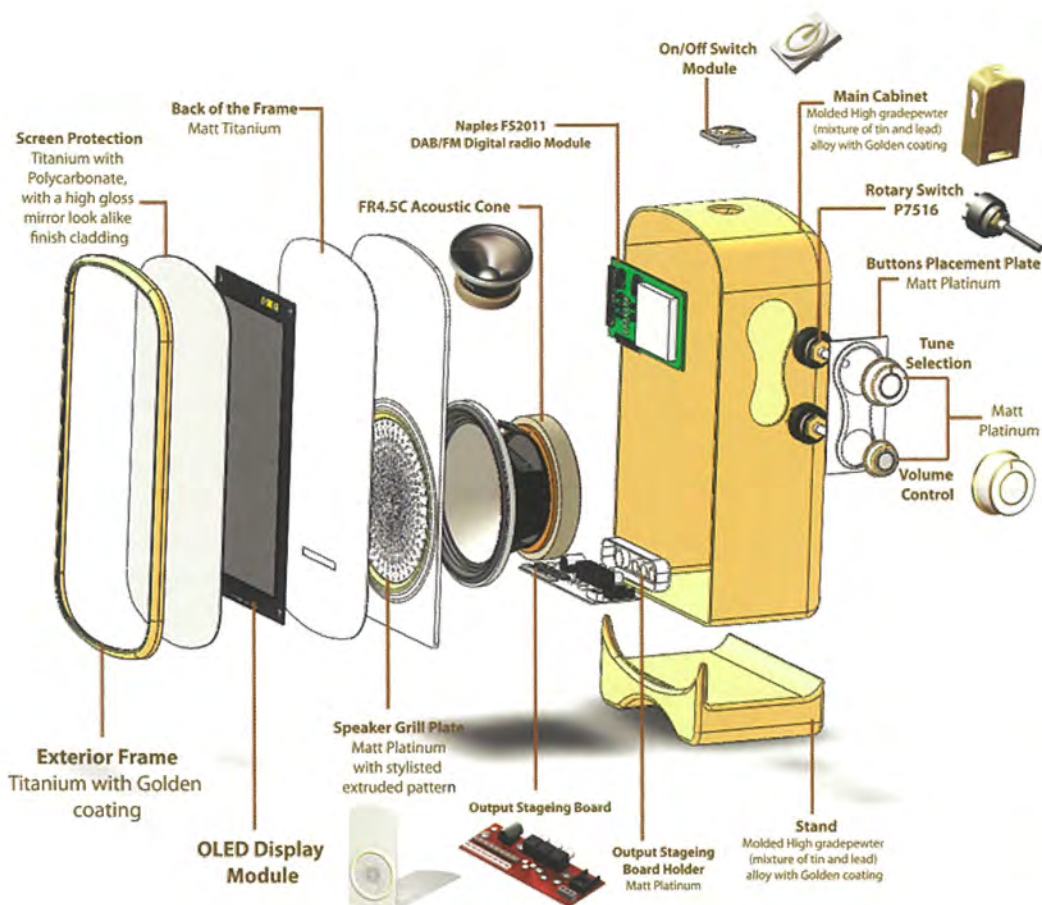


A rechargeable and portable cordless vacuum cleaner with extension nozzle is designed for the brand BOSCH



Cormack Packaging - H4u provides psyllium fibre powder in 7 single dose packs. The product comes with the bottle cap moulded with the powder containing packs and the bottle with minimum liquid level indication. The packaging design simplifies the dose taking process and avoid overdose.

Industrial Design



Top View



Front View



Side View



Back View



Go-Digital - The goGreen One-Time-Use travel camera that is made of 100% recyclable foil paper and is designed for the age group of 60 plus



The chronograph is designed for Luxury men who like the sport golf. The luxurious design is brought by the Rose Gold and White Gold combination made tourbillon that is spotted at the outer circumference of the case

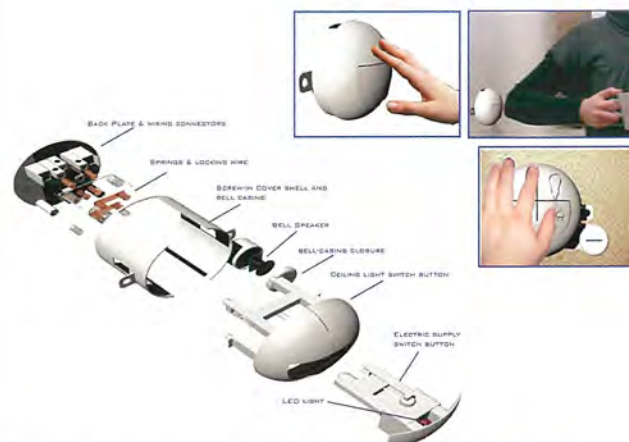
During my study, I learnt various new skills such as free-hand drawing, 3D drawing, Ergonomic study, and market research. The students were also given a wide variety of design projects which was very helpful for us to learn to apply our design skills on many different products or problems.

The course that I found particularly exciting was project research. The topic for my research was to develop a product for photojournalists in remote/conflict areas. I enjoyed talking to the photojournalists in order to find out what the problems they are having and what kind of product which they needed the most.

My Major area of study has been in marketing and communication, the key components of which were Market Analysis, Marketing Communication management, and New Product and New service development. I also learn to use the SPSS program which helps to analyse the data in the market research process.



This project is an Adobe Illustrator exercise. We were asked to propose a watch concept, which is drawn by Illustrator, for a selected target market



This electric switch reminds users to turn off the electricity before they leave the room. It is to be used in dormitory/colleges



Elective Studio

Industrial Design

The concept is a DAB radio using an omnidirectional speaker



DAB radio concept for luxury market

Material
Aluminium shell, Marlan(R) Synthetic
body, Wood veneer cover

Manufacturing
Investment casting, resin casting,
3D molding for the wood cover



I chose Industrial Design because of the wide variety of skills it offered through the countless projects from a variety of design related subjects, undertaken over four incredible years. Product design is only the tip of the iceberg here, as the program has led me to gain skills and knowledge in graphic manipulation, CAD, 3D rendering, marketing, visual communication, presentation, design management, among many others – including the odd few such as mathematics and statistics.

Having been bombarded with a seemingly endless supply of assignments and projects from all directions over the entire course of the program, I can now look back and say it was an amazing experience. Sure, it did hone my confidence in expressing my design ideas, boldly exploring new concepts, and improve my presentation skills and such, but being able to experience the many great friendships I've made along the way is simply invaluable. My industrial design friends have played a massive role in helping me get by these four indescribable years!

The program has truly opened my eyes to design in general, and has equipped me with the knowledge, skill and confidence to continue striving for a better design.

These two pages showcase a couple of designs I have produced over the past year or two, with the featured product being my roto-moulded Book Bus concept for the ARMA Australian Student Design Awards.



B&V Digital Radio - Design for a digital radio for the high-class luxury market



B&V Digital Radio - The digital radio is made up of premium components, from the casing (titanium) to the state-of-the-art digital technology



Jellyfish Stool - This stool was designed for a furniture design elective. I opted for a fun, literal approach for my stool



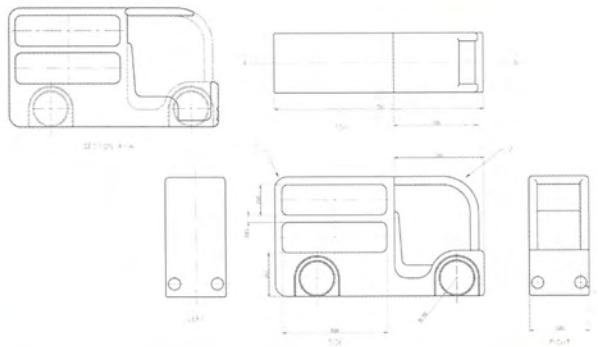
'Dreamension Studios' logo design, implemented on assorted media for a corporate identity design elective



The Book Bus is designed to encourage reading by incorporating reading time and play time in one



The Book Bus creates the atmosphere that allows the reader to be in a more intimate relationship with their books



It is made up of only 2 tough, rotomoulded LDPE parts, which eases manufacture cost and assembly

Industrial Design



Overall Dimension (mm)
500 x 1000 x 1750

Material
LDPE

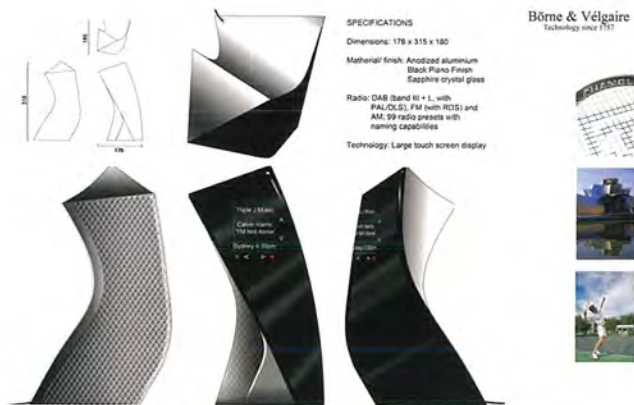
Manufacturing
Rotation-moulding



The UNSW Industrial Design Degree has enhanced my perception and understanding of the design industry. Each project pushed me to explore new avenues to further develop my ideas and to achieve a more refined outcome.

The Bosch DinoDuster- vacuum cleaner, on the following page is one of the projects that I most enjoyed working on. This project was to design a portable vacuum cleaner using a 12v Bosch battery as a power supply. I was able to use a wide variety of skills such as, Solidworks, concepts drawing (painting), Technical drawing, model making in blue foam, and packaging design. It was a challenge to create such an organic shape in Solidworks but this challenge only served to improve my skills and understanding of all the different facets of the project.

This ergonomically designed product would be used indoors to reach both top/bottom shelves without creating any fatigue for the user. The clear section allows the user to identify when the product is full and ready to be emptied.



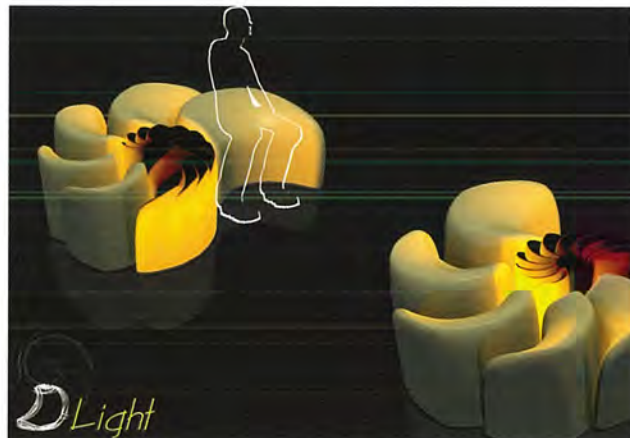
A Concept for DAB Radio, designed using movement of musical feelings as inspiration



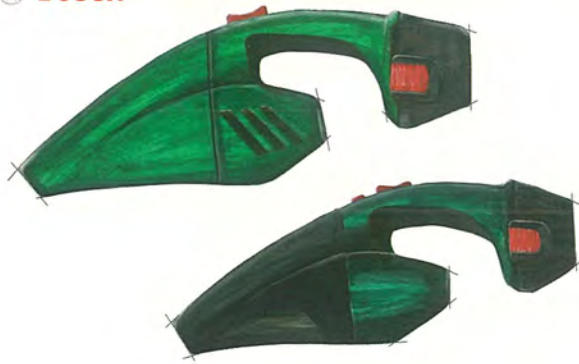
Noire watch was designed for those who are involved in sports using photoshop



'Foot print your water' was designed to reduce the water lost in a bathroom sink, as the sustainable foot pedal would allow a constant flow



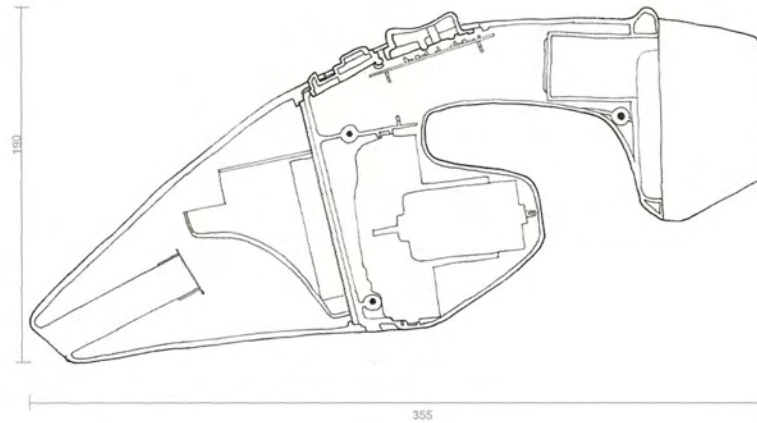
Dlight is a rotatorially moulded lighting/ furniture to be used in doors



Initial concepts of the DinoDuster using paint to see a more final coloured product



A blue foam model and the final packaging of the of the vacuum cleaner



A close up of the Technical/ assembly details of the DinoDuster vacuum



DinoDuster
Cordless vacuum

Overall Dimension (mm)
190 x 355 x 140

Material
ABS body
PP rubber grips

Manufacturing
Injection moulding
Extruding



Throughout my degree I have developed a strong understanding of designing products that are marketable, manufacturable, usable and socially responsible. In my studies I have enjoyed subjects ranging from Design Studio, Design Theory and Process, Technology, Marketing, Ergonomics to Exhibition and Graphic Design. In these classes I have obtained an understanding of the importance of careful consideration of materials, production processes, functionality and styling.

The projects I have done in Design Studio have given me the opportunity to create products from beginning to end. 'The Millennium Development Design Project' focused on creating products to help aid the developing world. This project instilled the importance of sustainable design and forced me to think innovatively in order to create a product that was both cost effective and economically sustainable for the end user. My solution to this was to create Mia Mate water filter that enabled a micro business for the user, while also providing safe drinking water.

Each subject has helped perfect my skills in Industrial Design as well as broadened my knowledge in other fields. Marketing helped me to understand the consumer and develop products focused on their needs. Courses such as Exhibition and Graphic Design widened my design scope and allowed me to understand other design disciplines. It is courses such as these and others throughout my degree that have developed a good working knowledge of 2D and 3D drawing programs such as AutoCAD, Rhinoceros, Solidworks, Adobe suite and Sketchup.

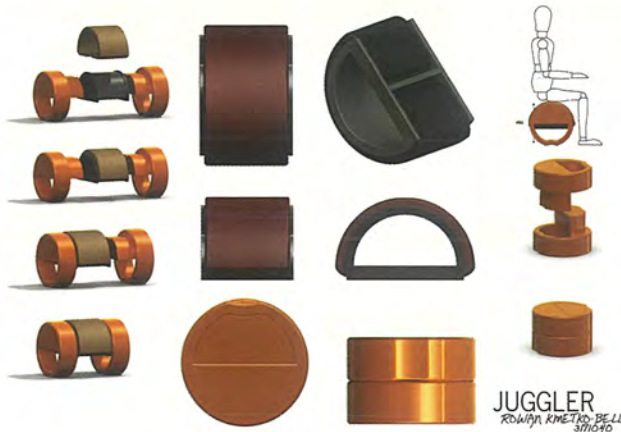
It is with these skills, along with my passion for design that have led me to work in the design industry while still undertaking my degree. With the knowledge gained through university studies and compounded with real working experience, I have learnt the importance of having a practical hands-on approach. I am confident that my enthusiasm combined with my knowledge and experiences have prepared me for undertaking any design project and completing them to a high standard.



Portable vacuum was designed for the DIY market with rechargeable battery and workman styling



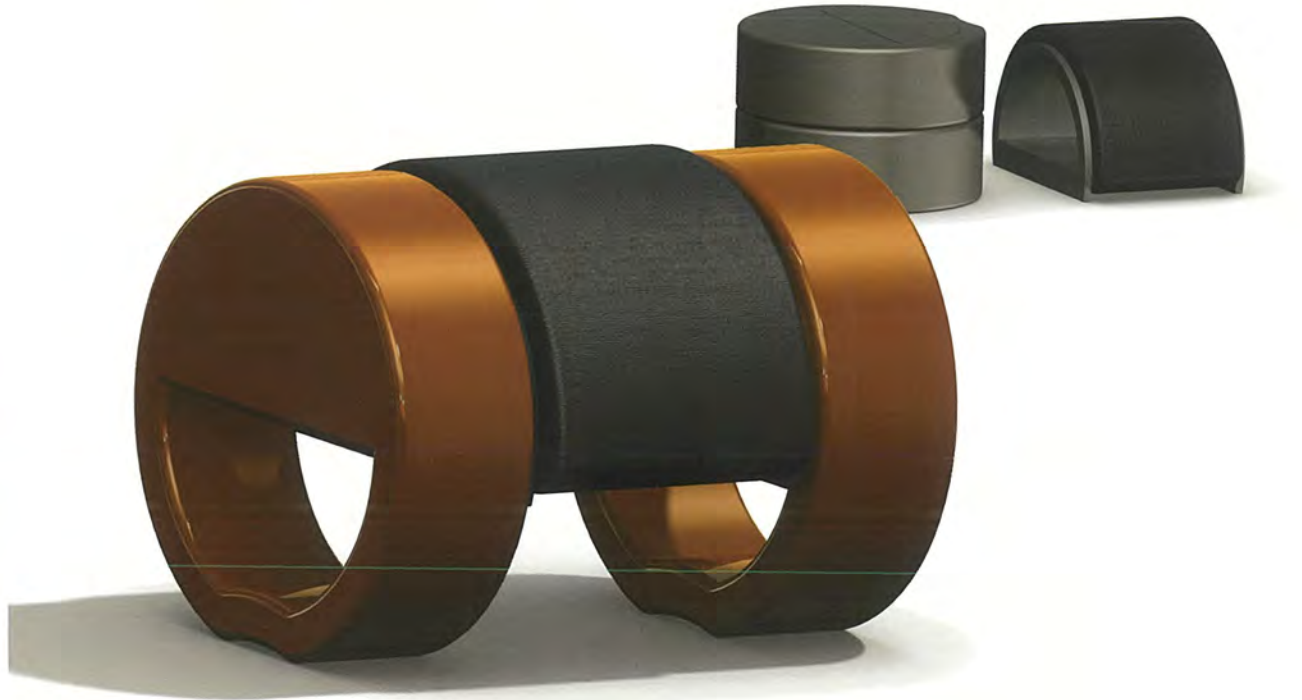
Mia mate uses natural materials to create water filters that can be sold and used to produce safe drinking water



How to assembly, the components and anthropometric data



Products different uses



Overall Dimensions
w610 x h440

Material
Polyethylene

Manufacturing
Rotomolded



This radio was designed for the luxury market and incorporated digital radio



The ritual bowl is a stylish ceramic bowl that provides an inbuilt plate to hold dipping bread



During the course of my degree I have worked on a number of projects which have provided me with a variety of skills and strengths applicable to many areas within design including visual communication and presentation skills, 2D and 3D applications and model making.

This array of skills have helped me develop the confidence and knowledge necessary for many areas within the design discipline whether it is in exhibition and web design or graphics.

Presented are a few of my favourite projects which I believe have been most successfully executed.

It was interesting to experience the design process that was particular to each project completed under different time constraints. The chronograph watch for example was a one-week project compared to the auto-vac which was a four-week project. These projects helped me to determine my strengths and most importantly my weaknesses.

The main project I thoroughly enjoyed was conceptualising for a travelling exhibition 'Smart Stuff'. 'Smart Stuff' was about exploring sustainability with products that increase awareness and improvements to the home. The project was broad in the sense that it allowed us to explore our own products and customise the research making each project unique.

My final design is a cutaway of a home that incorporates each product into context which the viewers can relate to and allows visitors to experience first-hand the products within the home thereby enhancing their understanding and learning. Thus, the products were chosen according to their ability to educate and change the public.

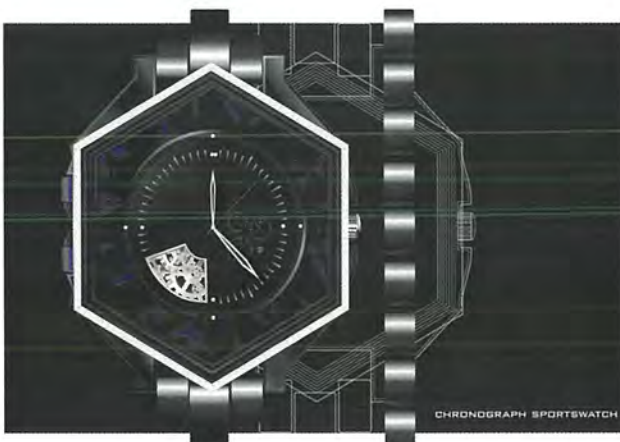
Also, the exhibit was not created as an enclosed home, rather in consideration of labour and transport difficulties and to portray the idea of baring all, that is, showing the public what issues lie behind the comfort of our homes.



The Pivot 5.0 carvac was designed for a luxury motor vehicle that embodies the language particular to that brand



Wave is a magazine stand made from sheet aluminium. It was inspired by the unravelling of magazines and newspapers



The chronograph sports watch Venice was a one-week project to design for luxury



Onson was the solution for an easy-to-use, aesthetically pleasing digital disposable camera for travellers



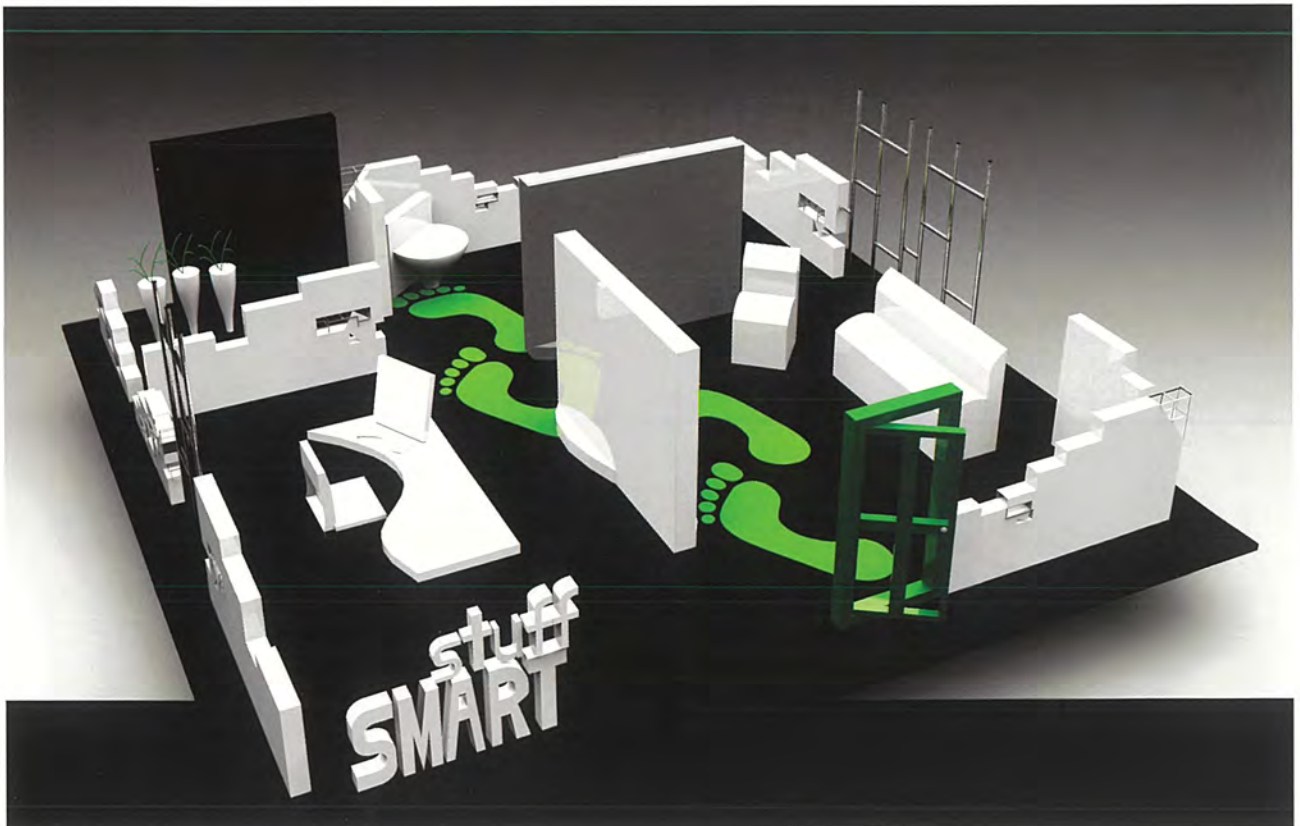
Designed for a travelling exhibition Smart Stuff which exhibits green products for the home



Top View- Final design was executed with the idea of a cutaway home



Placing products in the context of the home allows for better understanding of the concept green



Overall Dimension (mm)
8020 x 7680 x 2400

Material
Foam Board, Steel Pipes



Being part of the industrial design course for three and half year has helped me gained skills and knowledge in a very diverse areas. This made me realise that industrial design is more than just creating beautiful physical appearance of a product, but the magic behind a successful product.

The featured product chosen from my previous projects is the food packaging for fresh produce, in particular it is a clear plastic packaging for fresh strawberries which comes with chocolate, in the middle part of the packaging, for dipping. This packaging encourages the consumption of fruit by means of incorporating chocolate dipping, which is a popular way of consuming strawberry amongst young people today and also one of the favourite menu in cafes. The design of this packaging therefore allows convenience to have cafe style serving of strawberry on -the-go.



Dewalt - Mock up model made in blue foam, along with the design of the box to fit in the brand image



Rendered image of handheld dust buster designed for DeWalt



Watches Radial Chrome - Prestige watch design incorporating tachymetre and dynamic design



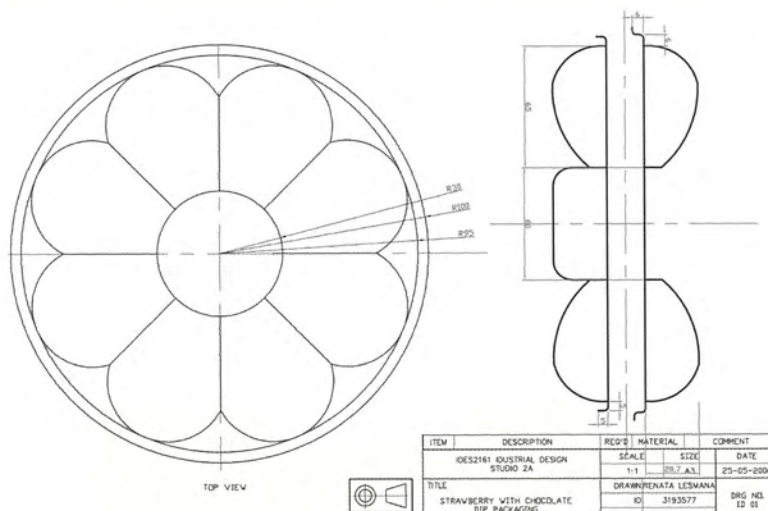
Close up views on the luxury watch design



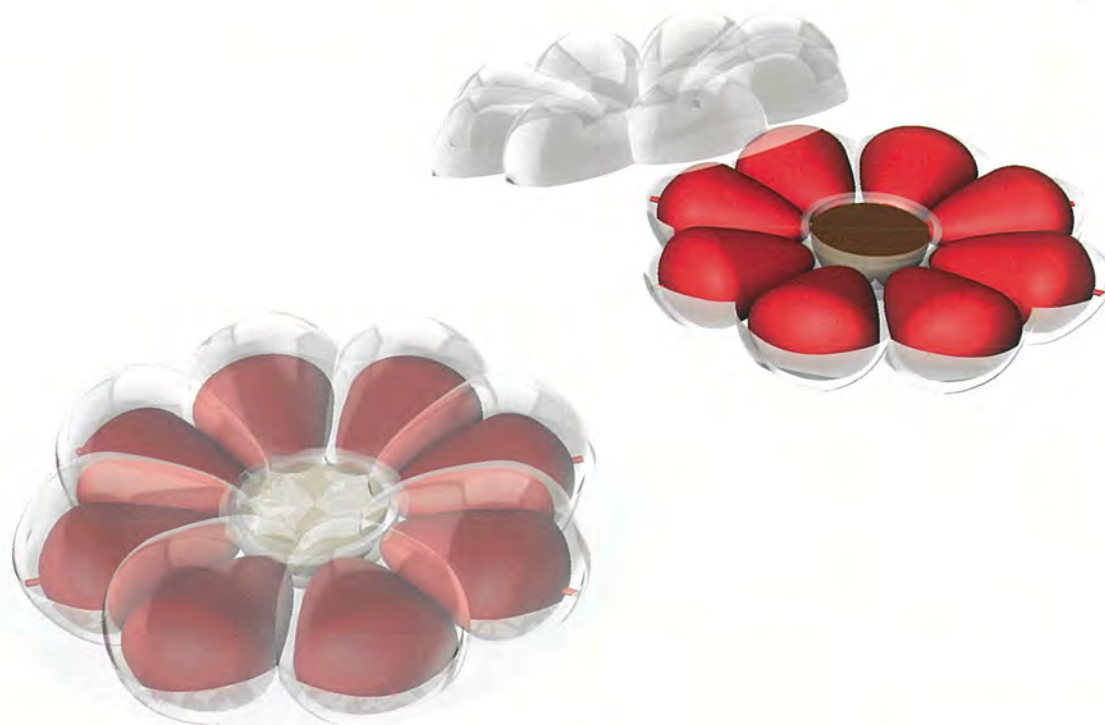
The finished model of the design, with the labels and actual food in it



The packaging design when the lid is closed and ready for distribution and consumption



The technical details of the design of the packaging



Overall Dimension (mm)
radius 100
height (with the lid closed) 57

Material
PET

Manufacturing
Extrusion to produce sheet PET and
Thermal forming of the PET sheet



8. The featured L'Oro chronograph is a project that honed skills in adopting stylistic languages through all aspects of a design. Luxury is perhaps the most important stylistic language, as it has the potential to add value to a product. Drawing inspiration from the clean, sharp and quite geometric lines from the Land Rover, the eye is drawn in by the clear lines and then attention is retained by the minute finer details. The L'Oro brand was derived from Italian, and it references time, as in the hour, and the precious metal, gold.

Below are a glimpse of other projects, including the entry to the Cormack Innovation Award 2008. This design incorporated innovative injection moulded caps to accurately portion the 1:1 ratio needed for creme bleach. An inaccurate mix can result in unsightly rashes or ineffective results. It was an absolute credit to be chosen as a finalist in this prestigious packaging competition.



Bair for hair that's barely there



for hair that's barely there **Bair**



L'ORO
Luxury Sportswatch



L'ORO

Elective Studio

Industrial Design



Overall Dimensions (mm)
46 x 40 x 8

Material
Titanium, Glass, Aluminium

Manufacturing
Laser etching, Anodising

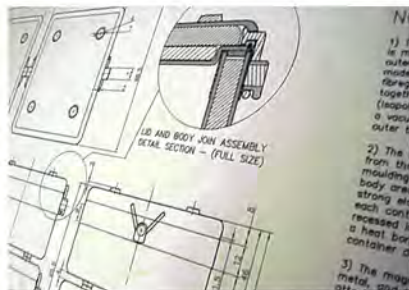


My 'Cool Containers' design allowed me to showcase my skill in technical drawing and 3D CAD. The modular cooler, comprised of different sized mini cooling boxes with snap-on lids, locks together magnetically for easy carrying. Put together, they form a uniform structure and are made of a sturdy, yet lightweight material. Designed as an alternative to the single box Eski, the Cool Containers presented challenges in dimensioning, materials use and cooler function. Wall thickness and tolerance had to be precise or the boxes would not keep items cool.

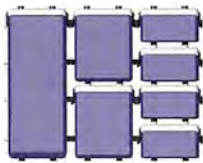
The 'Ascender' sports watch was an interesting project in 2D graphic design. Choosing a rare and challenging sport – ballooning – meant that it took several concepts to reach the final design. Developed for use by balloonists when their on-board navigation or triangulation tech gear fails, the watch had to be precise and have high visibility. The Ascender utilises a bright, reinforced parachute material band, a hollow, lightweight aluminium construction, high definition hands, luminous dials, high contrast details and balloon iconography.

Given the task of designing a 12V hand-held vacuum cleaner for an established tool company, the project offered an enjoyable, yet challenging, opportunity to design in 3D.

Understanding the philosophy of the established brand was a key element in design. Product use, the company's own graphics imagery (how it markets itself), language and style were taken into account. The 'Ryobi 12V Portable Suction Device', designed for use on home bench tops and floors, reflects Ryobi's 'home-use, tough and bulked around the important parts' philosophy. The resilient polycarbonate-based design of the Portable Suction Device produces more suction and greater holding capacity than other similar products. Juggling these attributes along with the component layout was a challenging aspect of designing with the Solidworks technical package.



A Portable modular cooler system: magnetically joined individual containers for different foods or drinks



The Tech-package: everything fits together perfectly!



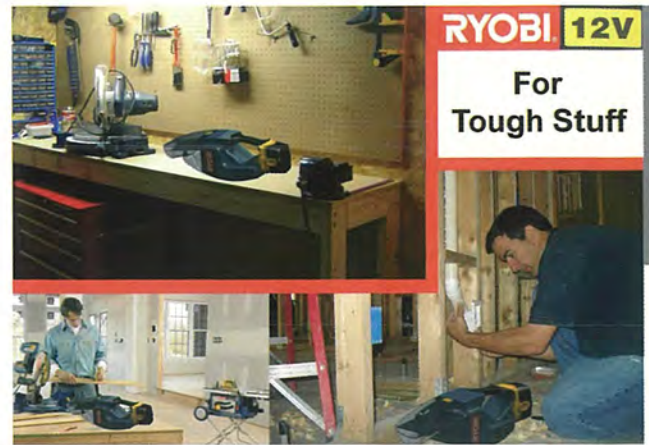
Chronograph for Balloonists: Precision at a mile up!



Concept Progression: a light, tough and precise watch!



Preliminary Modeling: Useful for understanding form and dimension



Moodboard: Users and area of use: Home renovation, workshop, workbench

Industrial Design

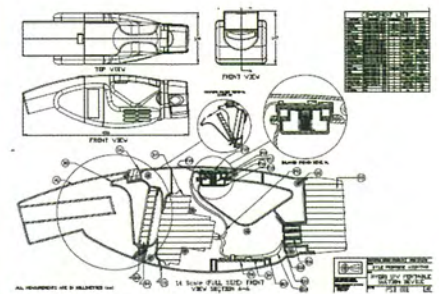
RYOBI

12V

- **50% MORE** collection space than previous model
- **CONTROL TRIGGER** 25% more battery power
- **Easily Mobile, Maximum Power, Tough Construction**

Powered by our **COMPACT and LONG-LASTING 12V** rechargeable battery.

Superior mobile dust and chip removal.



AutoCAD drafting of final component assembly

12V Portable Suction Device

Overall Dimension (mm)
(without battery pack)
380 x 160 x 200

Material
Polycarbonate shell,
Silicone grip

Manufacturing
Injection Moulding, Overmoulding,
Machining



Through the duration of studying Industrial design at UNSW, many new ideas were instilled into my methods of thinking about design philosophy. In exploring the industrial design profession it was clear that the focus of designing a product does not lie in producing more visually appealing products for consumers but lies in each and every designer's expression of their unique ethos by delivering a product that effectively embodies the balance of beauty and functionality. The designer holds a great responsibility to influence society by the ideas delivered through their design.

It is rewarding to see that the past projects have taught me to rethink about design thinking from studying the key elements in industrial design I have found to be: materials, mood, aesthetics, ergonomics, technology, manufacturing methods, cultures, sustainability, and enrichment in the quality of life.

I have acquired many valuable skills from my time on exchange committed to the study and graduation of this degree. I have drawn important values from this course that will help me in my future career prospects.



Jeno-V Shampoo bottle - Design of integrated pack and closure device for Cosmetics and personal product that enables the sustainable usage through measured portions



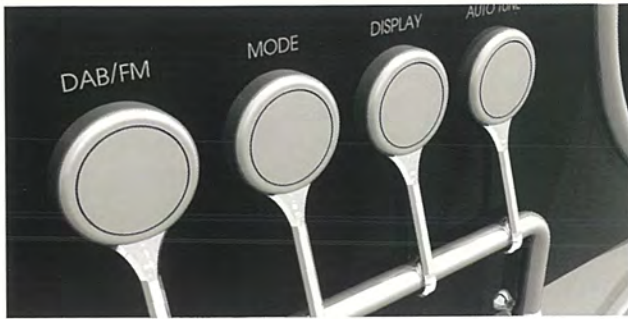
Quantum PowerVac - Portable vacuum cleaner designed for a power tool brand. for commercial usage



Binome Coffee table - Coffee table design that effectively embraces the modern manufacturing method of rotomoulding



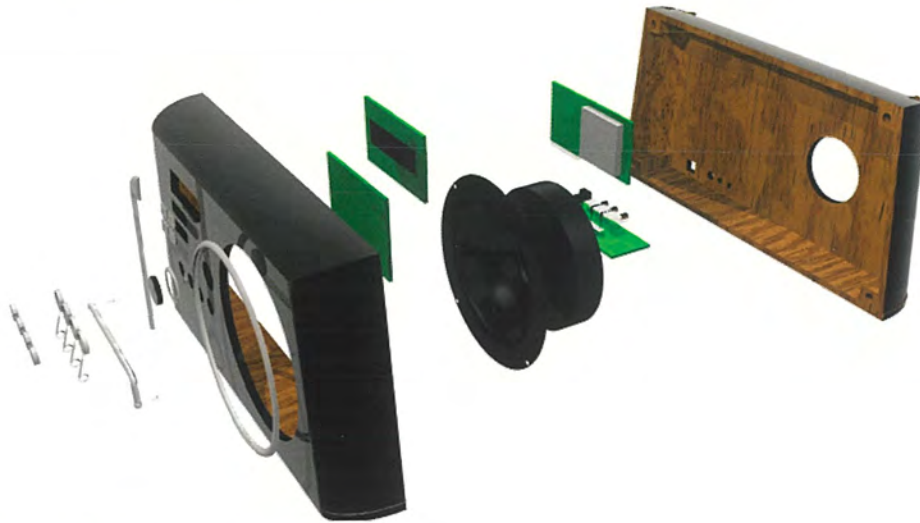
Scuda Chronograph - Performance/Rugged sports chronograph series designed for recreational scuba diving



Decorative Silver keywork. Interface keys made from stamped silver



Rear view of Geneva Radio



Exploded view showing internal components



Overall Dimension (mm)
280 x 80 x 145

Material
Body Casing in "African Blackwood"
Surface finish in "Glossy Black Piano
Lacquer

Manufacturing
Body manufactured through precision
machining (CNC Routing) and assembled
with internal components fitted by hand



Over these four years of studying Industrial Design I've come across various projects which have allowed me to develop and improve new skills such as model making, 3D rendering and 2D illustration. These skills not only helped me with studio projects and other coursework, but also trained me to have an eye for detail and communicate my ideas effectively.

No doubt studio work has been intensive, but it provided an excellent opportunity to push ourselves beyond what we think we've got. I always hold a belief that good design will bring happiness to people who appreciate it.



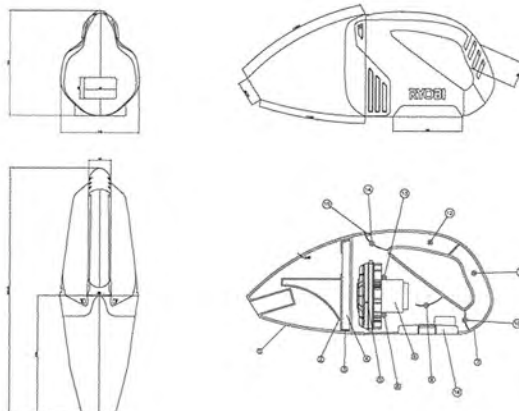
The 'G-sports' watch features a touch sensitive system attached to the side of the watches right interface. It will allow user to scroll up and down to chose the desired menu and settings

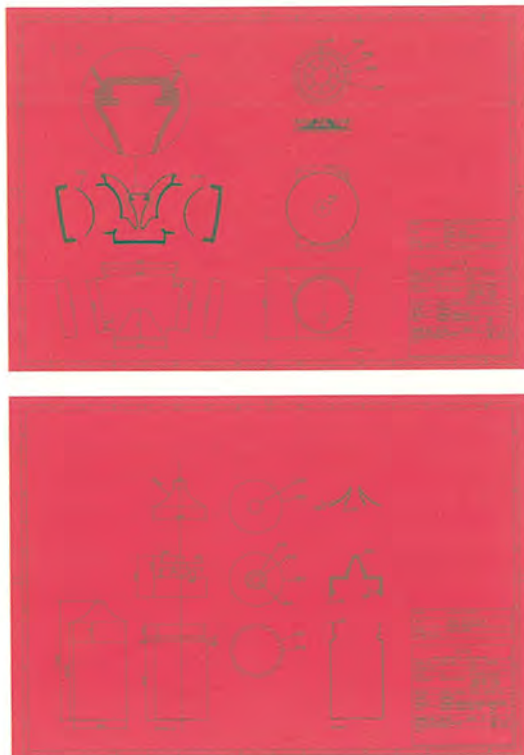


This is a concept of a digital audio boardcasting radio for a luxury brand Borne & Vegliare. This concept conveys its luxury sense mainly by its material, form and technology used

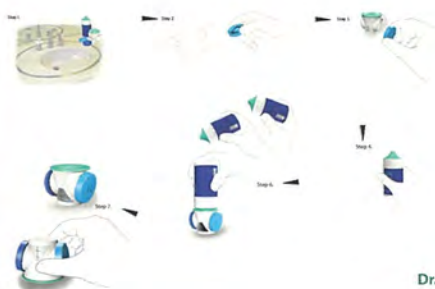


This is a restyling project for Ryobi. A portable vaccum cleaner that has an extra length towards its handle





Purify.



Dr. Martin says "they need to be fitted by an optometrist and cleansed properly or they can cause serious problems."



Purify.



This "Purify" solution and "Tipping" case set is designed to allow consumers to accurately apply solutions for their contact lenses. The advantage to have an accurate dose of solution is that no solution would be wasted but enough to permeate the lenses.

The bottle uses a twist top motion to control its closure for convenience.

The contact lenses "Tipping" case functions by applying solutions on the top of the case with both side cover closed with contact lenses positioned, then tipped upside down for the solutions to travel into both sides and permeate both contact lenses.

The manufacturing process involved into making this packaging is injection molding, the material used in the set includes High-Density Polyethylin as well as silicon for the case.

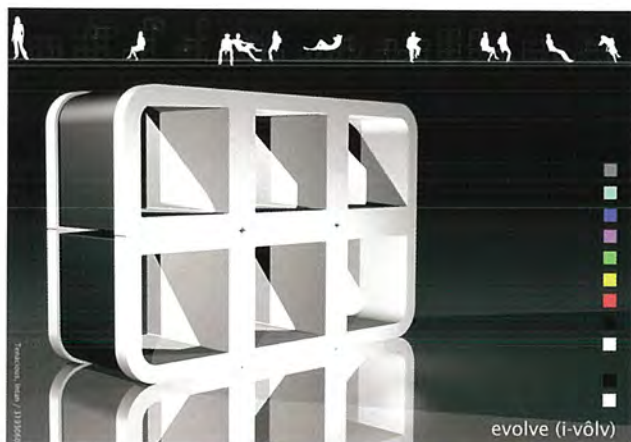


Erica Tao (3190201)

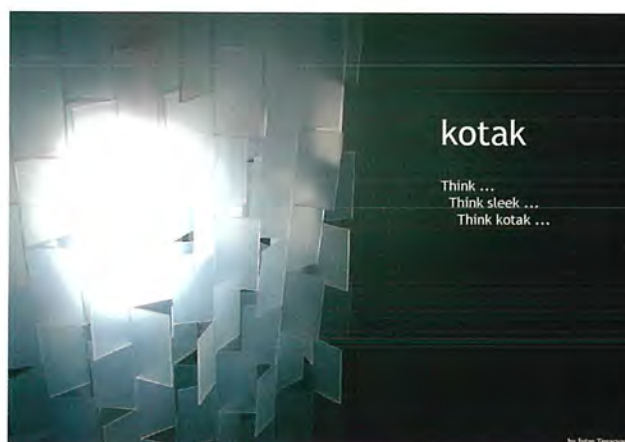
Intan Tenacious

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the_3rd_avenue@hotmail.com

I would describe my projects as the result of massive tension and pressure = blood, sweat and tears !!! But at the end I am amazed that I actually in love with the journey that I went through.



It is a multifunction object, it can be used as a bookcase (with many different arrangements), 6 individual chairs or couch



It is a lamp shade that was made with Polypropylene and it is inspired by ice cube



The watch called Roue for women who is active and yet still maintain her shopistication



Z pen is a convenient product for the Millenium project that aims to help reducing the spread of HIV



The detail view of the DAB. The idea came from a music instrument called bongo



Ohm's remote control



The poster shows the from and top view of the radio. The radio could tell the audience what they are listening to



The output source of the radio



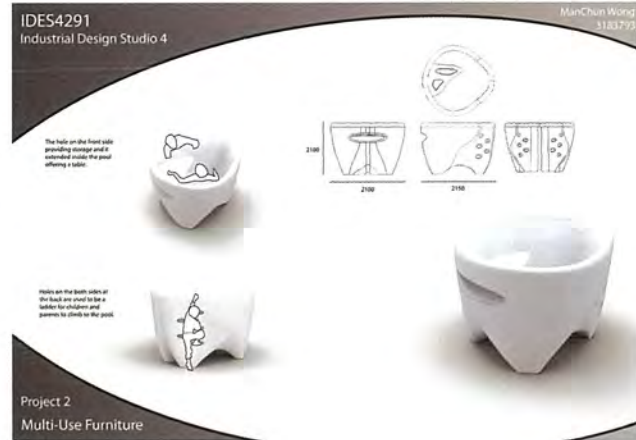
The next generation of DAB radio. The picture shows the remote control and the top view of the radio

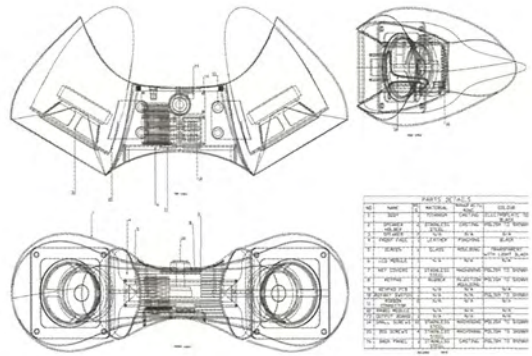
During the four years of my Industrial Design degree I have gained and developed a range of skills and knowledge. Through the past projects, I have developed my own design process, theory and visual language.

By working on each studio project, I have had the opportunity to develop, practise and improve my skills of research, marketing, product planning and presentation. Organisational skills and time management have developed my design discipline and over the course duration has improved my work efficiency.

My featured works illustrate my different competencies in marketing, brand development; cultural identity and problem solving have allowed me to strengthen my logical/technical thinking, creativity, 2D/3D presentation and modelling skills.

Design is a combination of every aspect in our lives such as culture, technology, economy, society and even religion. By exploring each consumer component, we discover what people need and what is good for them. As it is said that technology is based on improving people's lives, design would be the form that connects people and technology together.





Overall Dimensions (mm)
185 x 526 x 245

Material
Titanium, Aluminium, Stainless steel,
Glass

Manufacturing
Pinching, Injection Moulding,
Die-casting



Throughout the years I have been studying Industrial Design, the school has given me many opportunities to explore my abilities and creativity and at the same time learn lifelong skills. I started off as a student without any basic knowledge in design, everything seemed new and challenging to me. Design studios were tough and intensive, yet they have undoubtedly built my experience in various fields such as conceptual hand sketching, model making, technical resolution, 3D modelling, graphic design and marketing. By looking through projects that I have done in the past four years, my design-based knowledge and skills have noticeably increased in all aspects.

Presented in the following are a few of my projects completed in the course, which interested me the most and demonstrated different skills I have developed: model making, concept generation, Photoshop rendering and 3D modelling.

The featured project is my final project for the last design studio in the IDES course. We are required to design a luxury Digital Audio Broadcasting Radio for the brand Børne & Véglairé.

The design inspiration came from the surfaces of a diamond, showing reflections from different directions, which is also the idea for the design of the front and sides surfaces. The form of the product is developed from simple geometric shapes, with a focus on detailing on the appearance for the location of the speakers. Material chosen for the main body is Sycamore, which would significantly improve the quality of sound assisted by Titanium plates on the sides. Black-tinted glasses are used on the front, with the touch-sensible LCD screen at the upper triangular surface.



Bosch Cordless Vacuum Cleaner : Designed for Bosch to match with their series of household power tools



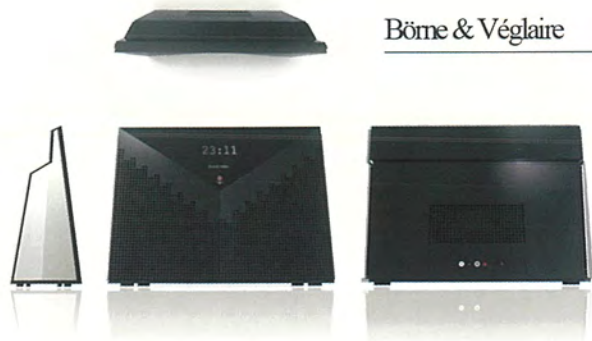
Multi-Purpose Coffee Table : Concept generation of a coffee table / lighting for the Multi-Purpose Furniture project, targeting at teenagers



The [e] game : Portable board game pack developed for Oxfam to aid in promoting gender equality in Ethiopia

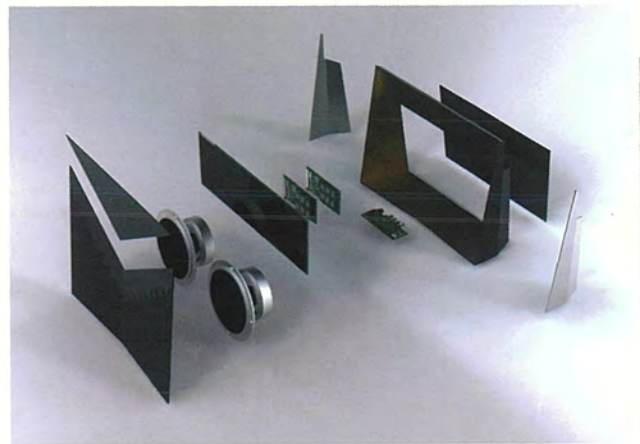


TwistLight : Hanging light designed for restaurants using only Polypropylene sheets

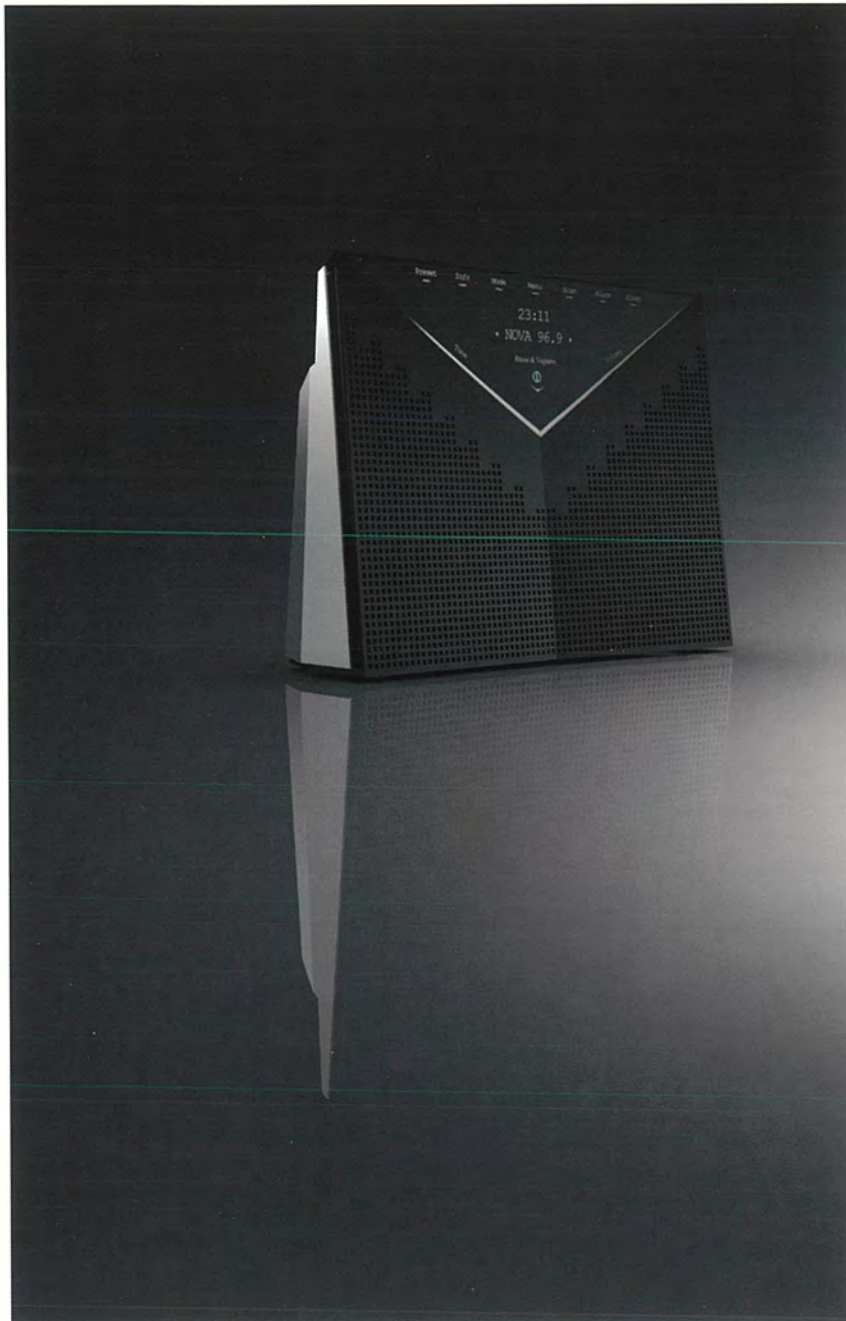


Borne & Véglairé

Product elevations



Exploded view showing all components



Scene showing where the radio would be used

Overall Dimension (mm)
343 x 254 x 110

Material
Black Lacquered Sycamore, Dark
Tinted Glass, Polished Titanium

Manufacturing
Laminating, Lacquering, Sheet-metal
forming, Water-jet cutting

During the four years of my Industrial Design degree I have found myself challenged and given the opportunity to learn a range of skills and develop my design knowledge.

My Industrial design skills have been a vehicle to learning the design process of detail design, through developing my knowledge and experiences the course assisted me in expanding my design strengths such as hand drawing, technical resolution, 3D virtual modelling, solid model making and my graphic design skills.

Presented are a few examples of my favourite projects I have produced through the duration of the course and therefore have been chosen as my most memorable.

The design of the DAB radio is for a market consisting of male bachelors aged 40 years old and over. The final concept is based on the initiative of this incredibly innovative group who believe that creating is living.

The technology of this new DAB radio seeks to become a major product category leader. The integration of several entertainment sources into one unit, and the idea of the aesthetic, materials, surface finish, shape and the feel are about "words", which is not only aesthetically pleasing but also essentially functional and easy to use.

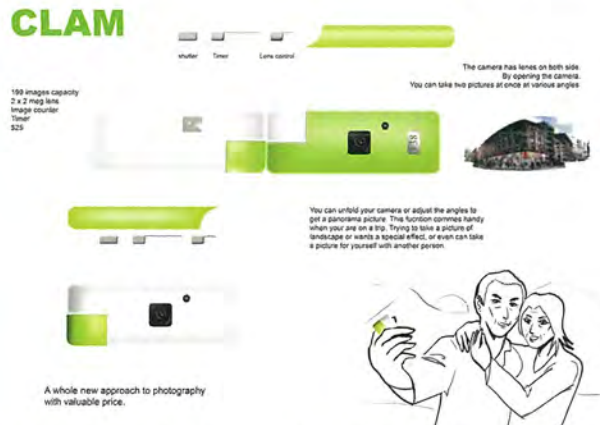
I believe that design is not only about thinking logically but also about being creative towards achieving a goal. Overall, this course has facilitated my design skills as well as given me the design experience so that I can continue my future design career.



Bosch vacuum cleaner - The new powerful electronic cordless vacuum cleaner deliver great capacity dust suction with 3-stage filtration system



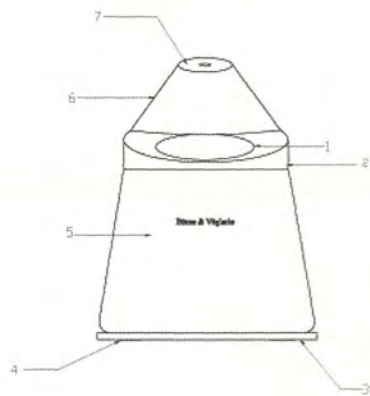
Cormack packaging design - The Olivia oil bottle simply used a smart closure, which contains a measured dispenser with a hole and a small metal ball is locating on the top of the hole



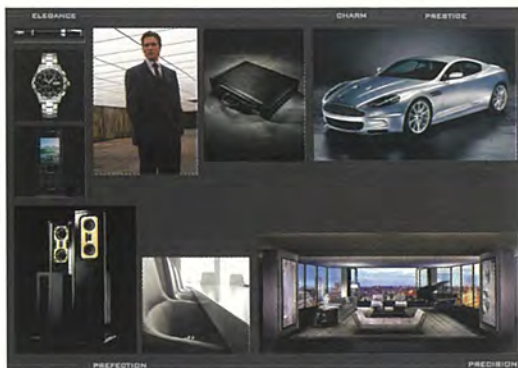
Go Digital Disposable digital camera - A whole new approach to photography with valuable price, which also can take two pictures at once at various angles



Chronograph Sports timepiece - A new luxury chrome sports timepiece that suits for over 40 years old man



ITEM	DESCRIPTION	REV	MATERIAL	COMMENT
1	SCREEN TOP	1	GLASS	50% THICKNESS
2	SCREEN CASING	1	ALUMINIUM	50% THICKNESS
3	BODY BASE	1	ALUMINIUM	50% THICKNESS
4	PADS	4	FELT	50% THICKNESS
5	FABRIC COVER	1	ACUSTIC	50% THICKNESS
6	BODY TOP	1	ALUMINIUM	50% THICKNESS
7	CHANGE CONTROL	1	ALUMINIUM	50% THICKNESS
8	MAIN BODY	1	ALUMINIUM	50% THICKNESS



The market consists of male bachelors aged of 40 year old and over



B & V DAB fits anywhere in the house complimented by its user-friendly remote

Börne & Véglarie



The B & V brings the luxury music you never have. Let the experience follow you!

Overall Dimensions (mm)
250 x 150 x 100

Material
Aluminium, Acoustic cloth,
Felt, Glass

Manufacturing
Die-casting, Injection Moulding

Program Team



**rina
bernabei**
Senior Lecturer

BDes UTS



**oya
demirbilek**
Associate Professor

BID (InDes), Msc (Blg Sc), PhD (Int Arch &
Env Des), PhD (InDes), Grad. Cert. (L&T)



**andrew
fowkes**
Lecturer

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ward**
Lecturer

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Photo: [illegible]