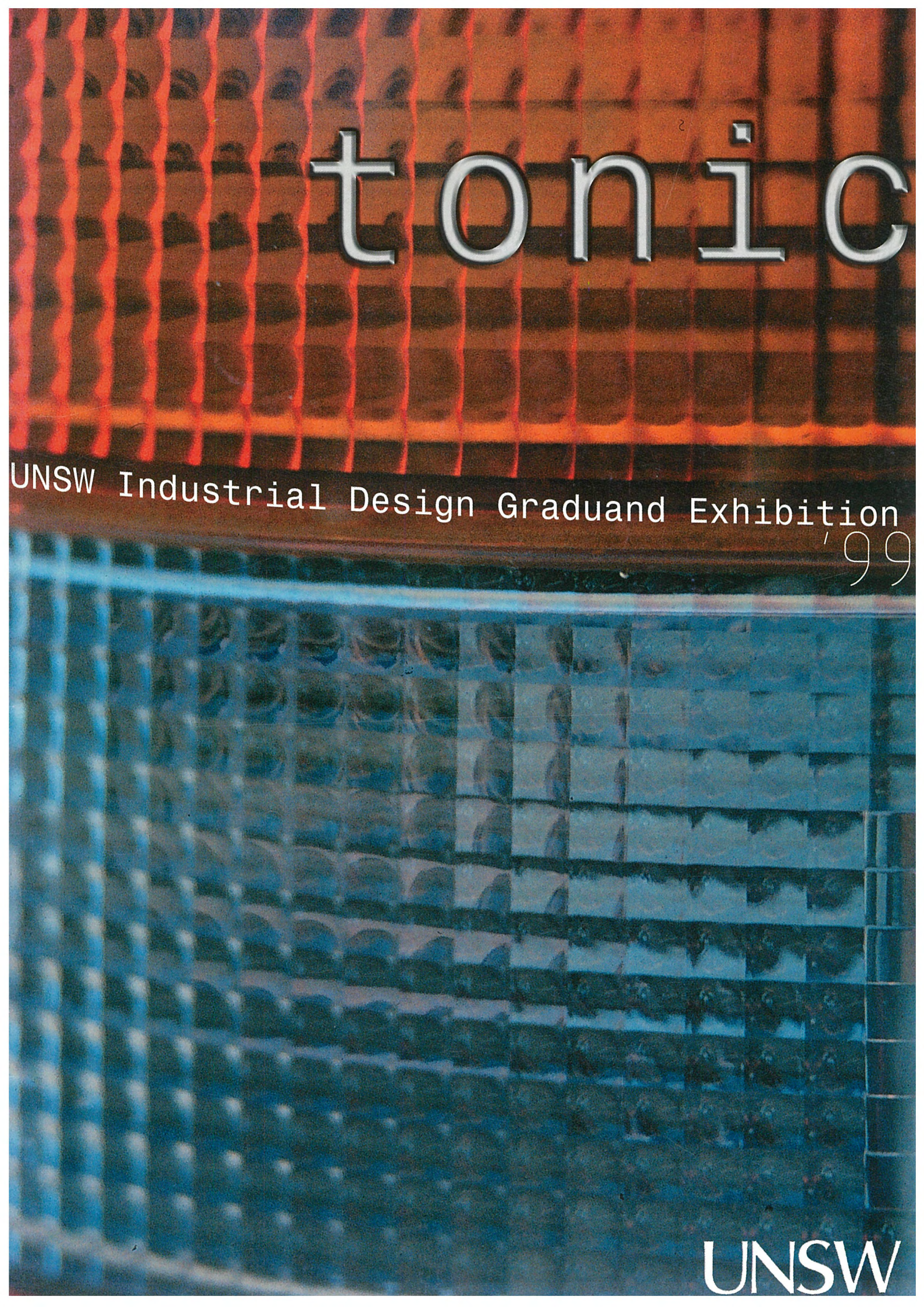




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UNSW Industrial Design Graduated Exhibition '99

UNSW

foreword

Professor Chung-Tong Wu, CArch Calif. Berkeley, MSc Columbia, PhD Calif. Los Angeles, MRAPL,
Dean of the Faculty of the Built Environment

Industrial design is so much a part of our daily life that most people have to be reminded that many items we use everyday are in fact designed. When these items fail, we curse the "designers". When they work well, we tend to take them for granted. Indeed, nothing should be taken for granted. All the items we encounter in our industrial society contribute or detract from our quality of life and, much more importantly, enhance or destroy our environment. In the Faculty of the Built Environment we are keenly aware that we are educating the next generation of custodians of the environment and excellence in industrial design is an integral part of that stewardship.

In the last few years, student numbers in the faculty have expanded. Industrial Design is one of the programs that has experienced significant increases. The Program is also attracting international students from a broader range of countries. We are fortunate to have dedicated staff members who have succeeded remarkably well even under tremendous pressures. Universities in several other countries are also keen to develop links with us in order to develop their own programs, to further research links and to develop exchanges. These alliances expand our horizons, enhance our own program and create a wider network for our students and graduates.

All the courses in the Faculty have a close relationship with the relevant profession and industry and Industrial Design is no exception. Our staff members all have professional links with industry either as consultants or as active participants. We also have a number of active industrial designers who are part time teachers in the program. Through such involvement, we ensure that our students are in touch with those who are on the cutting edge of industrial design and are involved with the industry. The annual exhibition of the graduating class demonstrates well the benefits of these links.

On behalf of the Faculty, I want to thank the staff for their contributions. To the students, congratulations for an excellent job in mounting the exhibition and best wishes for the future.



introduction

Lance Green BE NSWIT, MDes UTS, MHEd UNSW, FIEAust., CPEng, MDIA, FRSA
Head of the Program of Industrial Design

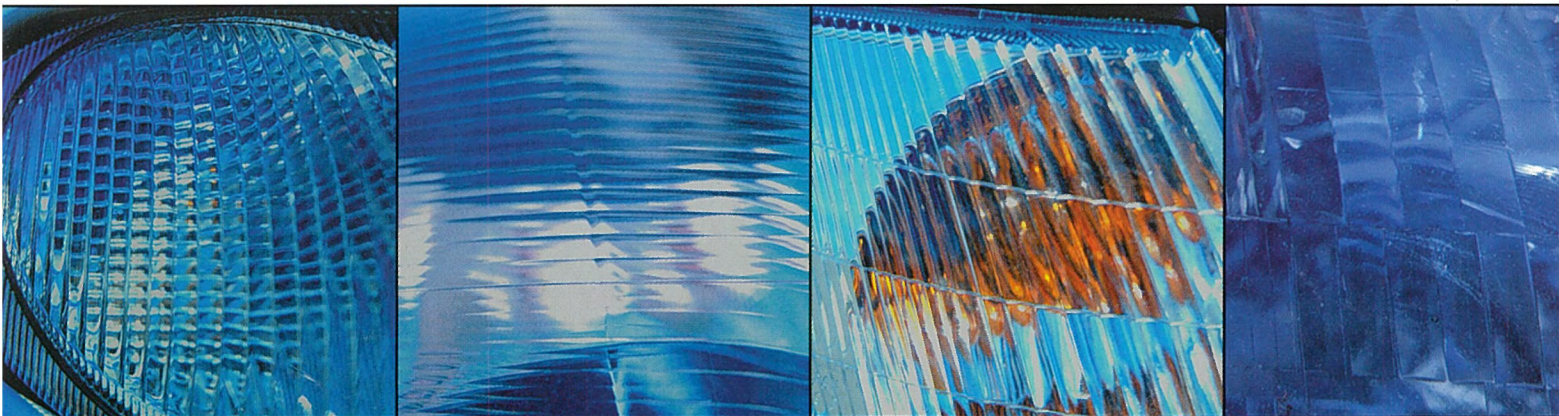
The final-year students whose major projects are included in this catalogue have completed a unique degree which integrates marketing, science and engineering, manufacturing and business planning with industrial design. They have studied these disciplines across the University engaging with students, staff and professionals acquiring knowledge that enables them to effectively link design and product development with the overall commercial objectives of organisations.

The projects in this catalogue have been developed in conjunction with clients from industry and research organisations. Each graduate has undertaken a major research study reviewing the product background and current state of the art, production requirements, marketing possibilities and commercial potential. The design study has normally included a value analysis, conceptual studies, evaluation program, product research, detail design development, production planning and business evaluation. The final design is documented with CAD engineering drawings, renderings and computer illustrations, presentation model, all accompanied by final research studies incorporating a business plan.

On behalf of the permanent and casual staff of the Program of Industrial Design I would like to congratulate the graduates on their efforts in staging this exhibition and on their completion of the course. Their knowledge and potential is very important to this country and we know that they will make a fine contribution to the world competitiveness of Australia's manufacturing industry.



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Head of Department

Lance Green

BE NSWIT, MDes UTS, MHed UNSW, FIEAust., CPEng, MDIA, FRSA

Project Supervisors

Michael Hort

BSc (Eng) Hons, MDes RCA, MSc UNSW, MDIA

Rina Bernabei

BDes (Ind. Design) UTS

Design Advisors

Berto Pandolfo

BA (Ind. Design) Canberra, MA (Ind. Design) Domus Academy

Miles Park

BSc (Ind. Design) UTS

Project Advisor

Jonathon Talbot

BSc (IndArts), DipEd UNSW

Workshop Supervisor

Tony Yarham

Project Management

Richard Evenden

Nita Robinson

Graphic Design

Ian Berrell

Matt Schwab

Sponsorship

Ashleigh Bahn

Youn-Young Chang

Annie Lo

Oscar Randell

Mara Rungis

Christine Shim

Peter Ward

May Rew

Julia Park

Young-Kyung Jung

Exhibition Design

Emma Huber

Carter Leung

Bronson Lau

Greg Upston

Catalogue Printing

Lachlan Goldspink

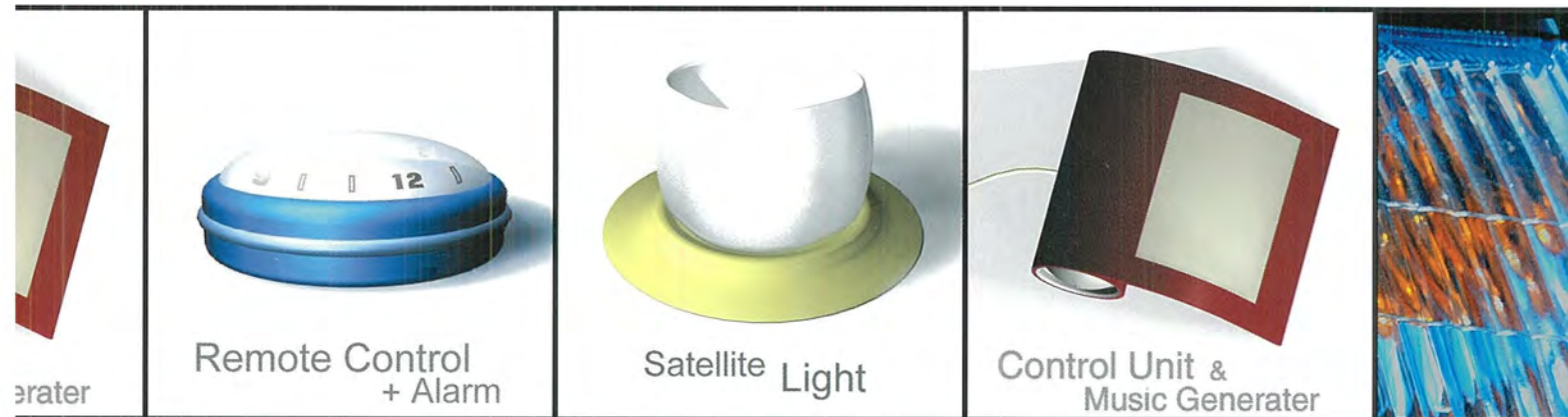
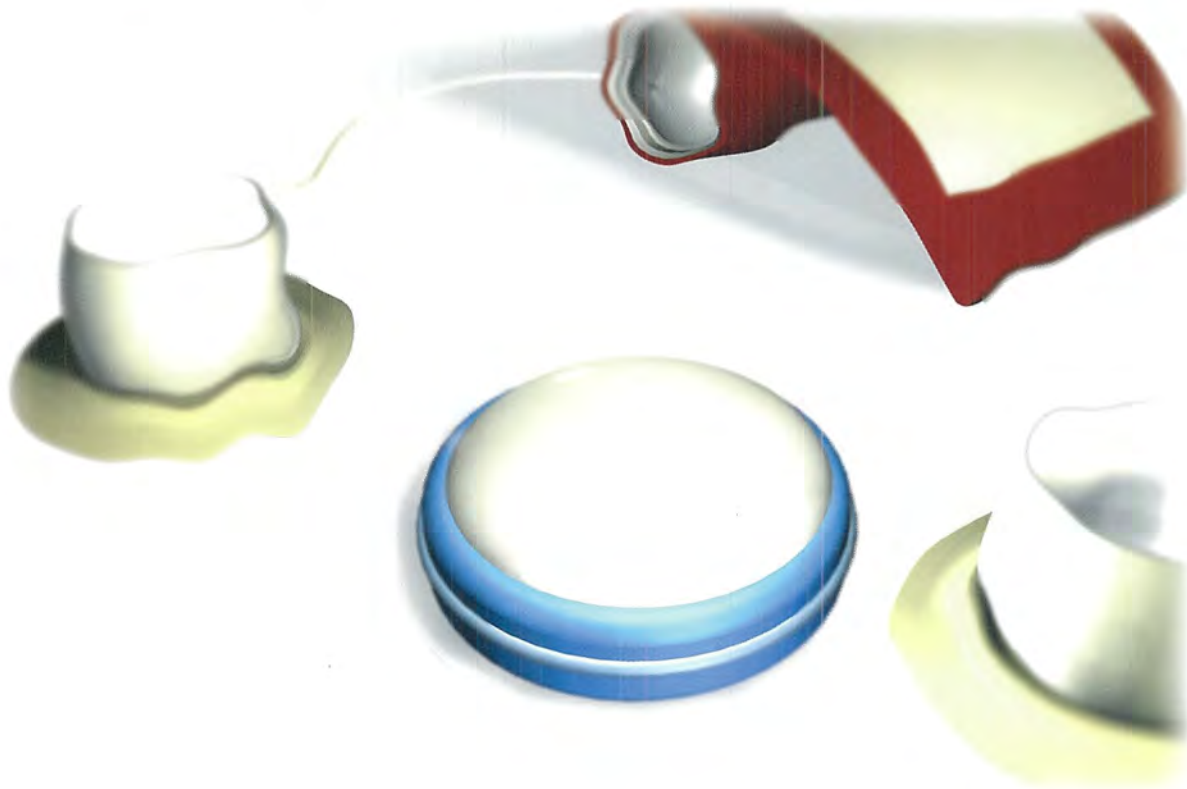
Special Thanks

Douglas Buckle

Alex Sharp

Craig Norman

Jackie Chan



Zzz is a product aimed at improving the quality of our sleep cycles. According to many recent studies, over 30% of the population have sleep problems.

Researchers have found a correlation between the pre-sleep mood and the content of dreams. Therefore creating a calm and relaxing pre-sleep mood is highly desirable as it will minimise the chance of having disturbing dreams.

According to the psychology of lighting, a high contrast environment is more pleasant than an ambient environment. Placing discrete light sources around a bedroom will assist in creating a calm and relaxing mood.

Soft natural music, as recommended by sleep researchers, assists in achieving a refreshing state of sleep - slow-wave-sleep (SWS). SWS is vital for the rejuvenation of every body cell, particularly the brain and the nervous system. However the majority of adults rarely experience SWS.

By using appropriate light and music, Zzz provides the user with an optimum environment for refreshing sleep as well as improving the sleep cycle of the sleeper.

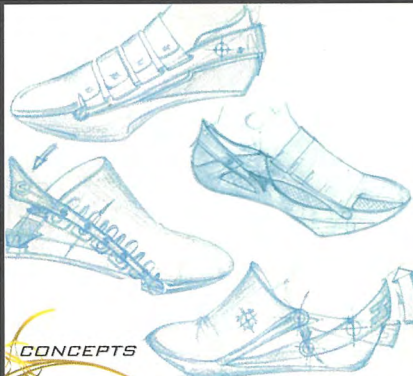
In the morning, bright light is emitted to speed up the frequency of delta brain wave thus physiologically waking the sleeper. People who wake up early and sleep early report better mental health and are more energetic.



Ian Berrell - 'Frontman' Triathlon Cycle Shoe



SHOE HELD IN OPEN POSITION
VIA SPRING LOADED ARMS



CONCEPTS



SHOE HELD IN CLOSED POSITION
VIA OVER CENTER LOCK

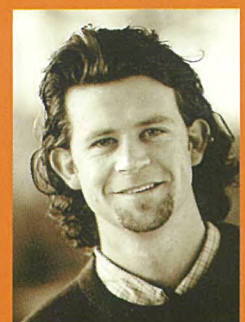


SHOE
VIA S

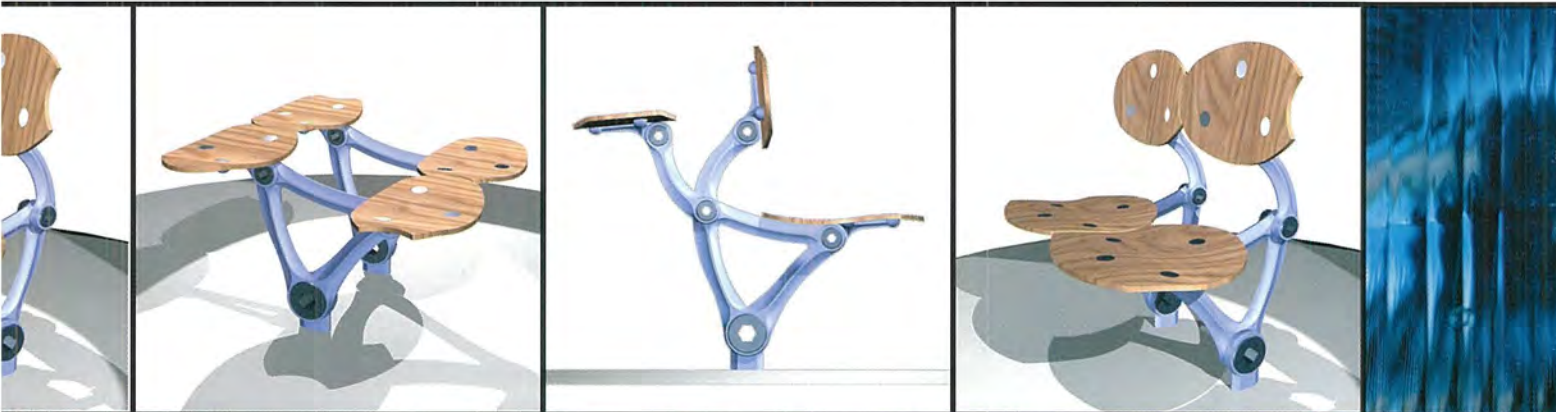
The Sphyke 'Frontman' is a cycle shoe specifically designed for the triathlete. In the swim ride run format of the triathlon the athlete must put their wet bare foot into a cycle shoe then exit the shoe at the end of the bike phase. Research shows ease of entry, drying of the foot and efficient force transfer (from tibia to crank arm) are the major market needs identified by triathletes.

The Frontman provides a unique closure system, the synthetic/leather upper is attached to two 'upper arms', spring loaded to hold the shoe in an open position. The foot enters the shoe from the rear and is located in the shoe via the toe and heel cups. Pulling the lever causes cable to pull the 'upper arms' down, thus enclosing the upper over the foot, using an over centre lock. Due to the inherent time constraints of the task, current models use only a single strap on the upper, the Frontman provides three straps ensuring a firmer hold and superior fit. These velcro straps can be pre-set by each individual athlete allowing the closing mechanism to automatically conform to their exact fit in one fast single movement. Placed at the heel the lever is located in the most accessible position whilst in the riding position.

Two air flow systems are working through the shoe, drying and cooling the toes/ball of the foot and the heel.



Oscar Randal - 'C-Surface' Urban Public Seating

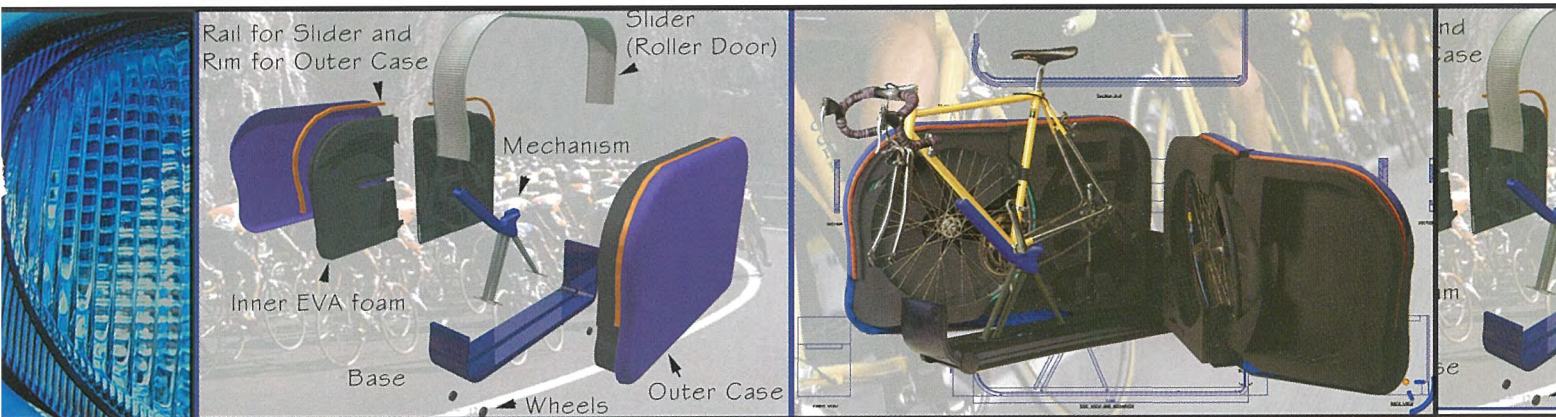


Meaningful public spaces are vital to the success of a city. Urban spaces are where public life takes place, the setting of movement and, perhaps more importantly, of gathering. Sydney's streets, parks and squares provide the backdrop for public meetings, demonstrations or celebrations; settings for relaxation; for observing, learning about or getting to know others. As such, the provision of public seating in urban spaces is critical. Seating provides the means for stopping and gathering – the seats are the implements of rest and relaxation.

The "C-Surface" public seating concept encompasses consideration of social, aesthetic, ergonomic, material and manufacturing issues in providing a highly flexible seating solution. A modular or "kit of parts" approach has been taken in order to maximise seating

configuration options and increase user choice. This not only allows the seating to be tailored to specific spaces but also maximises durability and decreases maintenance costs – individual system elements are easily replaced in the event of damage or may be removed and reused in a different space. Making use primarily of sand-cast aluminium and moulded plywood, the system can be flat-packaged for transport, offers a distinctive perch-seat configuration option and can be adapted for bus shelter use.





Interest in cycling, both recreational and competitive, is increasing on a national and international scale. Whether a road race in Germany, a relaxing tour around Scotland or a track race in Launceston, cyclists need a convenient, secure and reliable means of transporting their expensive cycles and equipment.

Vel-Aero is an innovative product designed to ease the packing of the bicycle and provide a safe and sturdy system to protect the bicycle during transportation. Incorporated within Vel-Aero is a moveable workstand providing an ergonomic means of packing the frame and a convenient system for making adjustments to the bicycle. Components such as pedals, seat and wheels have separate storage compartments. Allowance is also made for the constant change of bicycle designs. The EVA closed cell foam interior is a reasonably soft yet firm product with high impact resistance. Excess baggage weight is thus reduced and cost minimised. The use of a roller-door enables quick and easy access to the inside. The design allows the user to make optimum use of confined and busy areas encountered at airports or hotel rooms.

Aesthetically, Vel-Aero captures the essence of the cycling market with its bright colours, simple mechanics, practical nature and lightweight portability.



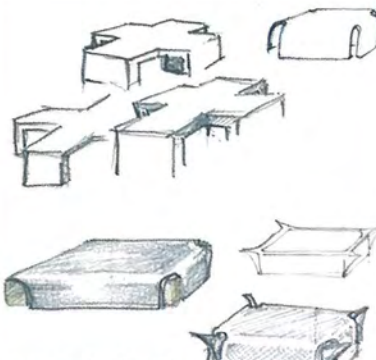
Emma Huber - 'D'eco' Environmentally Responsible Cosmetics Packaging



recycled aluminium and PET permanent packaging



deco
rate
deco
instruct
deco
inaminate
deco
impose
deco
cosmetics



concept sketches for moulded paper boxes



moulded paper temporary packaging

The colour cosmetics industry is one which expects quick turn over and a high disposal rate of its products. This project aims to produce a solution which encourages the user to combine the disposable with the permanent and to break the habit of throw away society.

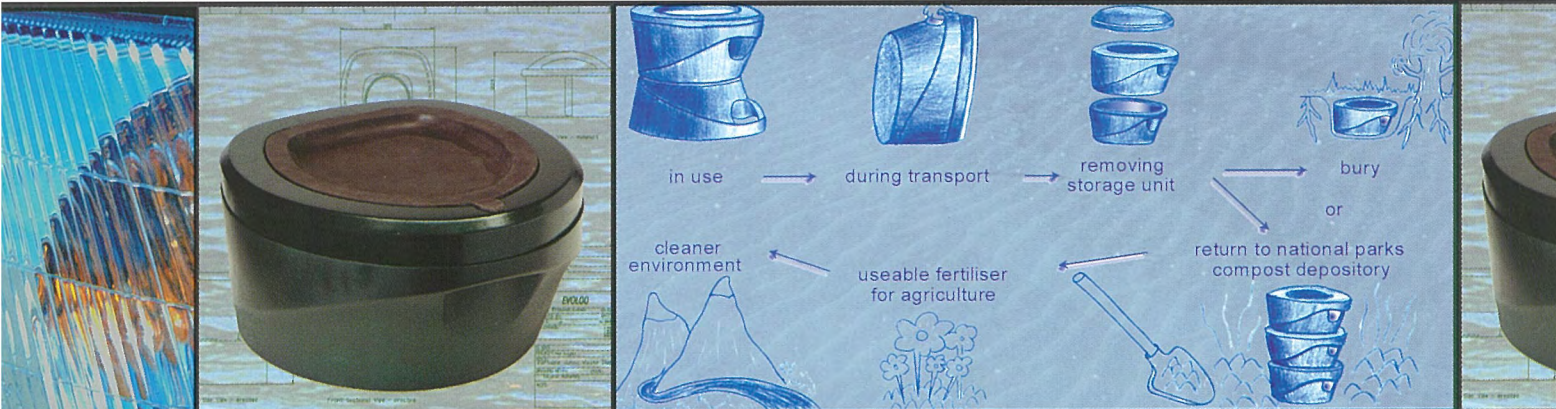
Deco is a system which has considered all aspects of the product life cycle, from extraction of materials to manufacture, distribution, use by the consumer and ultimate disposal. Recycled paper, recycled aluminium and PET are used in a thoughtful manner to produce a product designed for re-use, biodegradability and ultimately disassembly and recycling.

In addition to the environmental concerns of the product system, branding and other marketing and sales aspects have also been closely considered to create the product line with a personality. Deco is designed to appeal to the 78% of Australian women who have indicated that they are willing to spend more on a product that offers a truly environmentally responsible option.



Deco gives the consumer the freedom to participate in a system in which used cosmetics are disposed of, while the energy intensive packaging is retained and reused. The patterns of consumption were closely considered, and materials were chosen which allow the consumer to dispose of the product with in the usual council system.

Richard Evenden - 'Evoloo' Portable Bio-degradable Composting Toilet



Over the last decade, an unprecedented desire for wilderness vacations and exotic treks has exploded out of metropolitan confines. Ever increasing amounts of faecal matter are being left behind in these once pristine wilderness areas, resulting in detrimental environmental consequences. No longer can we drink from even the most remote mountain streams without the possibility of contracting one of a number of diseases, some of which can be fatal. The situation in the USA and Europe has resulted in a requirement for all human waste to be packed out of most areas and transferred to sewerage systems.

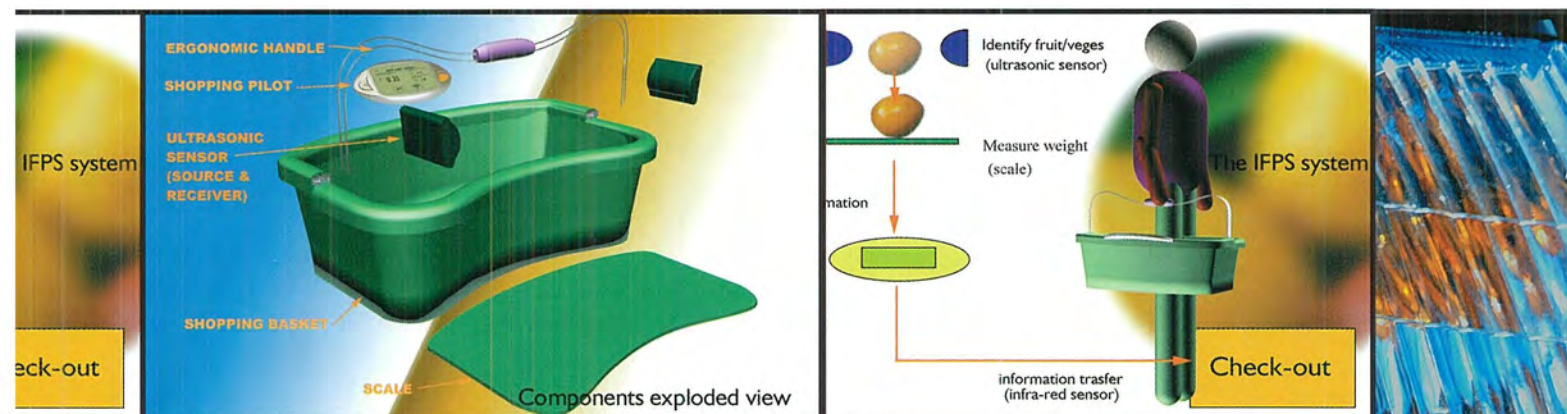
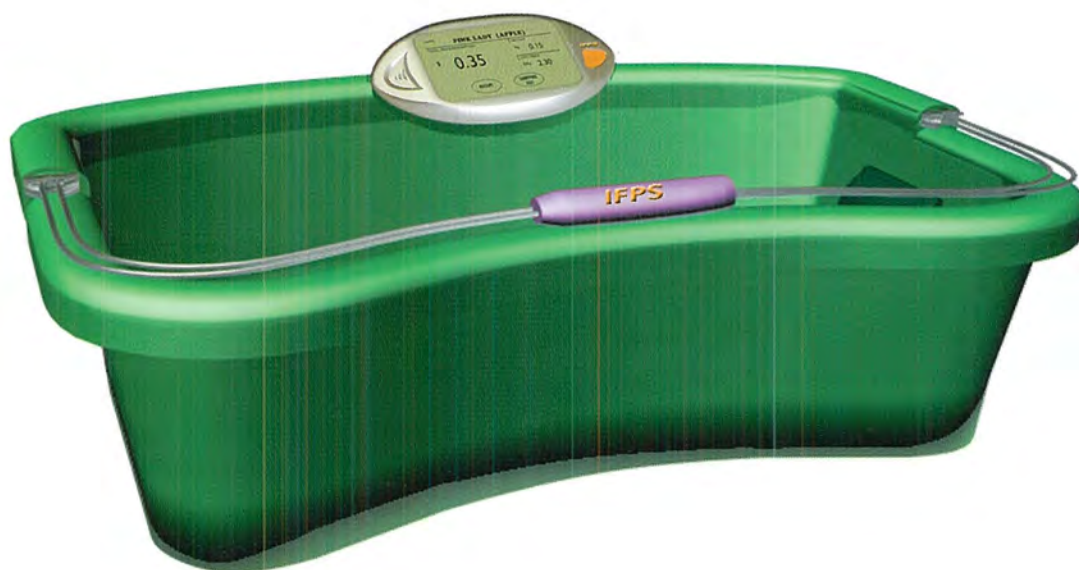
Rather than transferring the problem from one place to the next, the 'evoloo' successfully stores and converts human waste into a reusable fertiliser within its biodegradable storage unit. The storage unit holds 25 user days of waste and is blow moulded from PHA, a naturally occurring form of polyester which has been specified to degrade to carbon dioxide and water four months after exposure to soil, compost or marine sediment. The storage unit will retail for \$5.50.

Complementing the storage unit is a dual-purpose toilet seat and storage compartment for hand towels and toilet paper. A double integral hinge allows for ease and efficiency of use and cleaning. Further, an injection moulded stand raises the seat to the standard ergonomic height of 400mm when in use. During transportation, this stand is flipped over and locked onto the storage compartment.

EVOLOO



Young-Kyung Jung - 'IFPS' Interactive Fresh Produce Scale



Supermarkets and fruit/vegetable shops are the most common places where consumers purchase their fresh produce. Customers are often subjected to long waits in queues because of the time consuming nature of the weighing/pricing service performed at the checkout. This delay can very easily negate the efforts of the store to create an environment that induces customer satisfaction.

Interactive Fresh Produce Scale (IFPS) addresses this problem by proposing a dynamic new way of fresh produce shopping, which is simple and convenient and thus more able to enhance the entire food shopping experience.

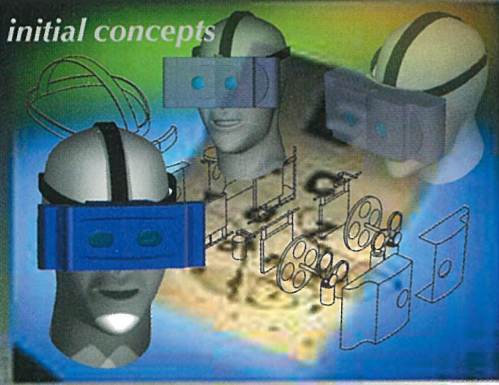
The IFPS operates firstly by identifying the kind of fruit/vegetable via an ultrasonic sensor. As soon as the fresh produce is placed in a special basket, it touches a scale and its weight is measured. The information transferred by an infra-red sensor to the 'shopping pilot', which is attached to the basket. The screen of the 'shopping pilot' displays the fresh produce's weight and price, as well as recipes and recommended groceries to complement the chosen fruit/vegetable. A complete list of the purchased produce is shown on the screen and this information is later transferred to the checkout system by an infra-red sensor. The basket is ergonomically designed for use with 15 items or less. It can be attached to a miniature trolley when it becomes too heavy to carry.



Mara Rungis - Portable Subjective Refraction Unit



initial concepts



PSR in use



People in remote areas and elderly and disabled people who cannot travel easily find it hard to visit an optometrist, and therefore often do not receive even the most basic eyecare. Through this lack of professional care, peoples' eyesight and even general health may be compromised.

The Portable Subjective Refraction unit is a convenient, compact, computerised eyetesting system with portability superior to any comparable product. Its portability makes home and rural visits a practical proposition, which will allow optometrists to care for people whose eyesight has been neglected in the past.

The unit is designed to be worn by the patient, and keeps the lenses directly in front of the eyes when viewing letter charts, ensuring accurate readings. This design approach also allows examinations to be held in a variety of situations, including cases where the patient may be bed bound or would otherwise find it difficult to sit behind a fixed instrument.

The unit can be controlled using a dedicated remote control pad, or can be connected to a suitable computer. In either case, the need for close proximity of patient and optometrist is eliminated, making the process more comfortable for both the practitioner and patient.



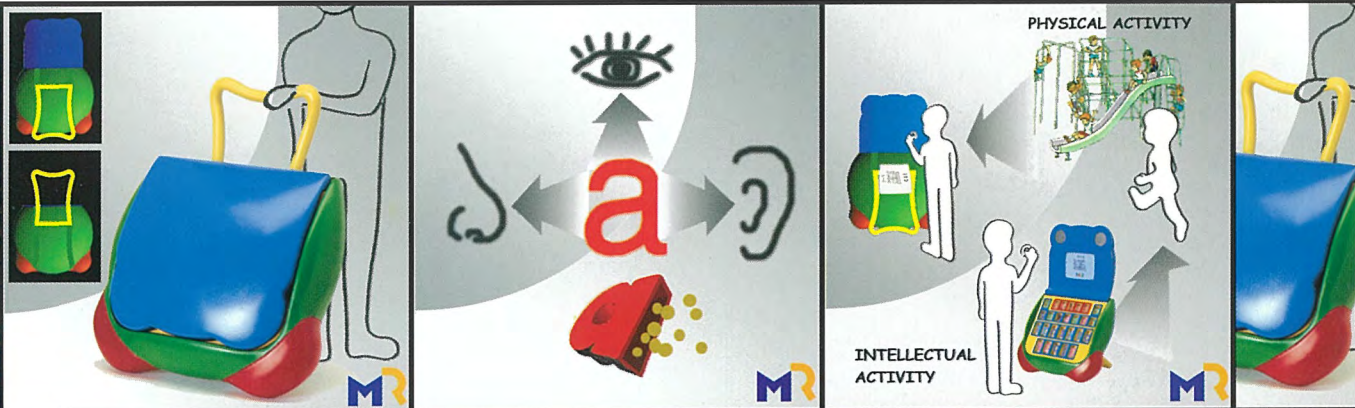


These days people, especially women, are afraid to go out at night freely without carrying some kind of protection or asking somebody to come with them. This is due to crimes like assault which regularly happen around their neighbourhoods. Suburbs in and around Sydney such as Bankstown, Fairfield, Canterbury and Liverpool are the worst affected areas as shown by Bureau of Statistics figures this year.

Through investigating various studies of the psychology of women in dangerous situations, and the possibilities of the latest telecommunication technology, the Personal Safety Device will solve problems that people face everyday.

At the moment, the only endorsed products to help protect women on the streets are personal alarms, non-toxic sprays, or just a satellite tracking system that helps police to track down the victim without an appropriate defensive system.



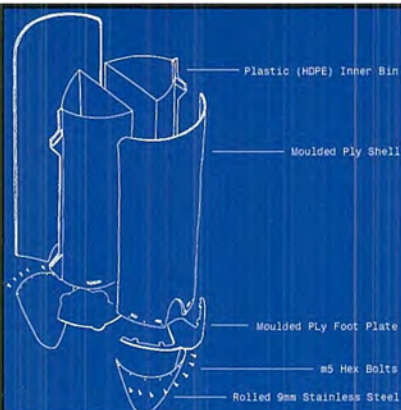


After finding their letters each child in the team matches the letter to the word printed out from the computer, until the complete word has been created.





Trash Master 2000

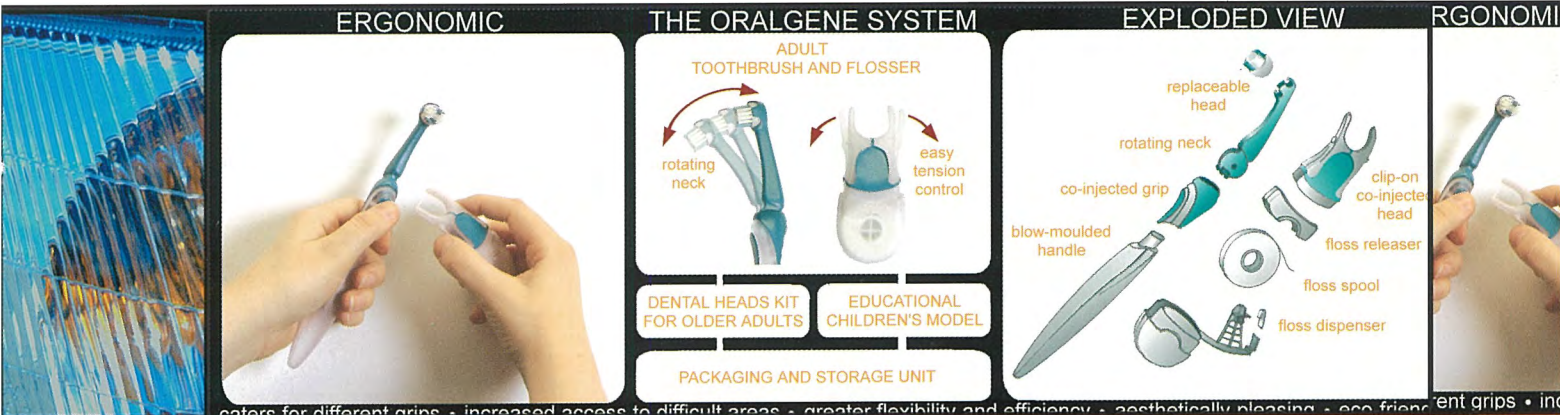


This bin is intended for the collection of waste and recyclable materials specifically on the beaches of the Eastern Suburbs of Sydney. The existing bins on these beaches are unsightly and in some cases leave permanent attachments in the sand; an undesirable intrusion in such a mutable environment. The aim was to make a bin that would enhance the already unique aesthetic of the Eastern Suburbs beaches, while also being flexible enough to be removed or repositioned when required. The two shell halves of the bin are dug into the sand alongside one another and then locked in place, sealing a volume of sand inside the bin. This readily available weight steadies the bin and deters theft. Inserted between the wooden shells are two durable plastic inner bins which are colour-coded to identify which type of waste is to be deposited.



To avoid the standardization and homogenization inherent in mass-produced products, the bins require no tooling or processes that cannot be achieved outside a general workshop. In theory, the bins for the Waverly council beaches - Bondi, Tamarama and Bronte, could be manufactured in the local council workshop using locally available materials. This gives the municipality a unique product to enhance the aesthetic, and use, of its beaches.

Ashleigh Bahn - 'Oralgene' System



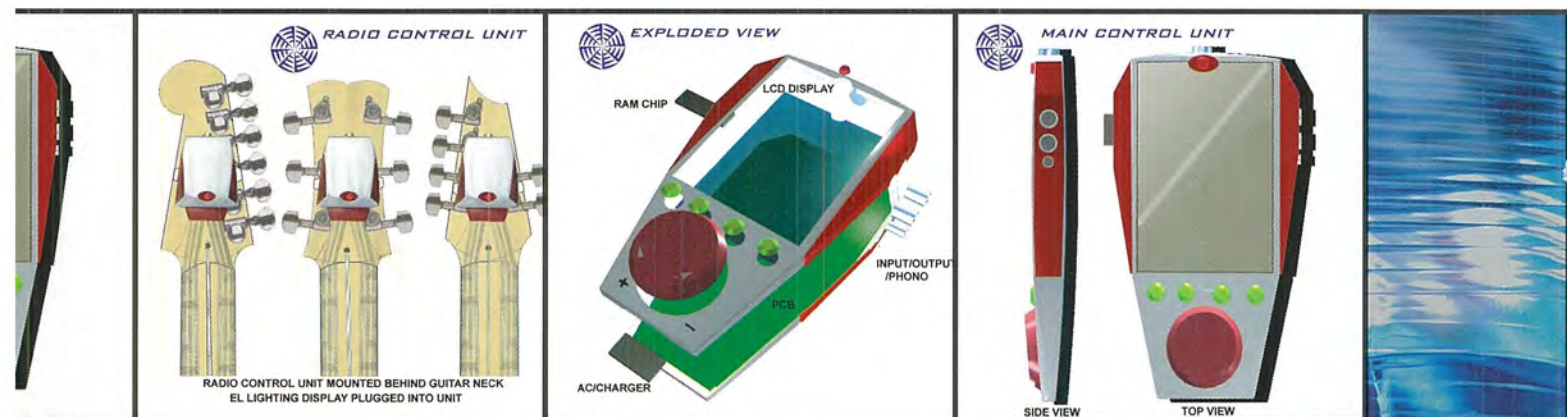
Oral hygiene is an inexpensive and effective method of preventing oral disease. Its functions include removing plaque and food debris as well as stimulating and strengthening the gums. However, many individuals fail to achieve adequate oral hygiene for a variety of reasons, such as poor motivation and insufficient cleaning duration. The architecture of the mouth requires the use of the correct technique and tools in each of several areas to achieve optimum results, making oral hygiene a laborious process.

The Oralgene System was developed to make oral hygiene simple, efficient and more pleasurable, and to encourage better cleaning practices such as flossing. The main products are the Adult Toothbrush and Flosser. The toothbrush has a rotating neck to improve access to difficult areas and an ergonomic handle that caters for all the grips employed while brushing. The manufacturing process and replaceable head reduce the use of material. Specialised heads such as interdental brushes or gum massagers can be easily attached. The Flosser clips onto a replaceable floss dispenser, encouraging people who have limited manual dexterity to floss.

The Oralgene System is designed to address the ergonomic issues usually ignored in toothbrush design whilst achieving a modern, clean aesthetic.



Peter Ward - 'GTD' Guitar Tuition Device



This product is a guitar tuition device designed to enhance the technique and theoretical knowledge of guitar players ranging from beginner to advanced levels. It also has the flexibility to teach a variety of playing styles from jazz to rock.

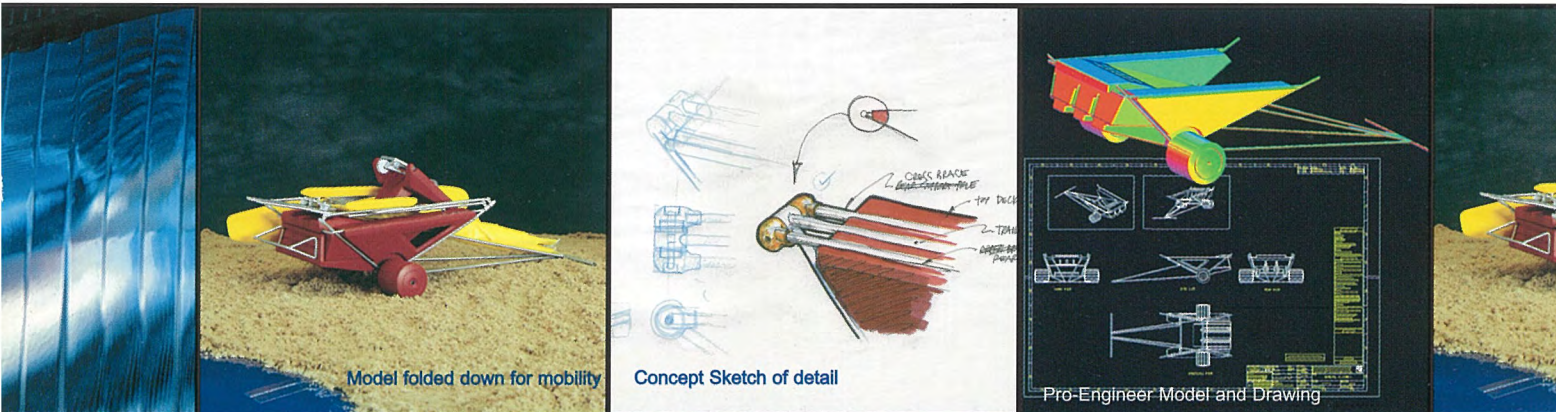
The product is made up of three major elements: an electroluminescent display, a radio control unit and a main control unit.

The electroluminescent display is constructed of thin layers of polyester, which enclose the wiring and phosphor. The phosphor glows brightly when a current is passed through it and provides a visual cue for finger placement. This provides a direct method of teaching (rather than reading music), making learning theory more accessible to the user. The ultra thin electroluminescent lights are ideal for this application as they can be placed under the guitar strings without interfering with the sound produced. The battery powered radio control unit also contains a pickup which monitors what notes are being played. This information is then relayed to the main control unit to monitor the player's technique.

The main control unit is used to select chords, scales, exercises and songs which are stored on a removable RAM chip. It also displays the level of proficiency the player attains when executing passages of music. The unit can be placed in a stand which acts as a charger, or worn on the players fretting forearm.



Greg Upston - Mobile Surf Station



The Mobile Surf Rescue Station has been developed to increase the presence of the Surf Rescue personnel on the beach. The lack of integration in current solutions limits the ability of rescue personnel to concentrate on their primary objective, which is to locate and assist beach users experiencing difficulty.

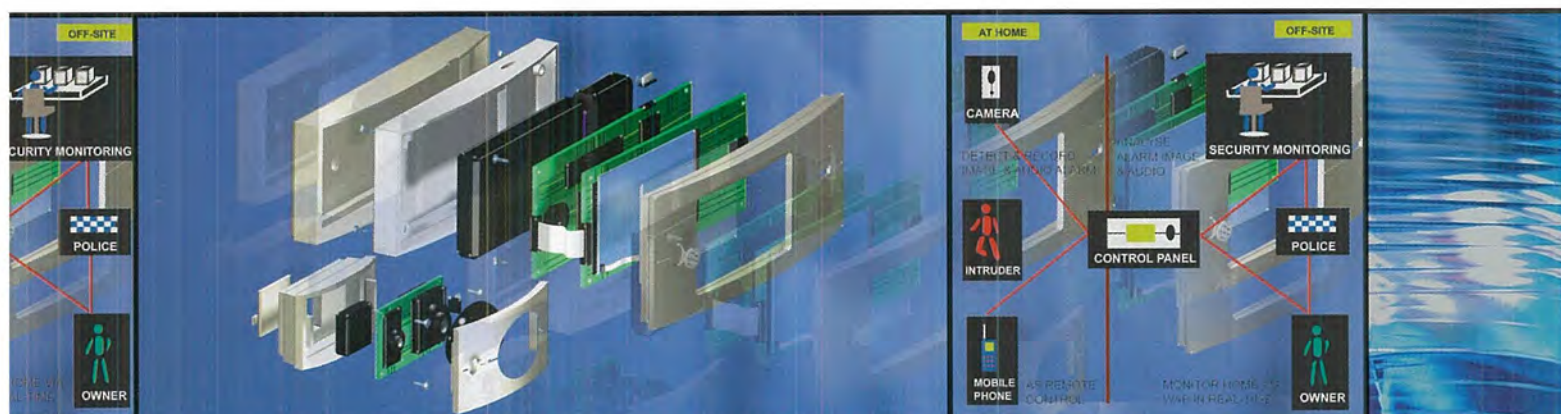
The MSRS comprises a Modular Trailer Unit which provides storage for all equipment, a folding lookout tower, collapsable shelter and information board. An education area has been included to assist the Rescue Organisations to teach beach awareness to users unfamiliar with that environment.

The MSRS is designed to minimise the work involved in transporting and setting up a Rescue Enclosure on the beach. The folding central lookout tower supports a flexible canopy, which can be tensioned to provide enclosed shelter in varying weather conditions, and can be erected by two people.

The Station meets the needs of current LifeSaving Personnel by offering an integrated unit providing mobility, shelter, stronger 'beach presence' and a clearer indication of the patrolled area and help points.



Yun-Feng Lo - 'Eye Security Device'



A solution for 'non-permanent' living, and a platform for future 'Smart Homes', the 'Eye Security System' is a portable wireless concept designed for people renting small, high density dwellings. The wireless nature of all the system components eliminates the inconvenience of installation that can be associated with conventional hardwired systems.

The main concern for most domestic users is the high rate of false alarms (the security industry estimates this to be as high as 98%). The Eye Security System's uses VMD (Video Motion Detection) technology with audio recording capabilities to replace current technology. If an alarm signal is triggered, both visual and audio data are transmitted to designated parties so the signal can be verified, monitored and reported. False alarms will be dramatically reduced thereby eliminating the associated inconvenience, fear and expense.



The Eye Security System has advanced features such as fingerprint recognition, voice command, hands-free operation and home inventory database. The user's existing mobile phone acts as a remote control in the home, while the use of WAP (Wireless Application Protocol) technology allows home monitoring and the control of system settings in real time from anywhere in the world.

The Eye Security System will be the central control for future automated 'smart-homes', acting as a home Personal Assistant, monitoring incoming calls and controlling other home electrical appliances.

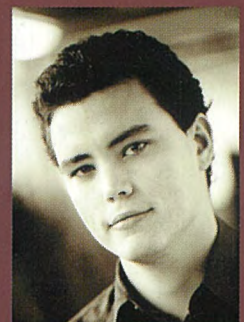
Lachlan Goldspink - 'Spine' Outdoor Event Seating



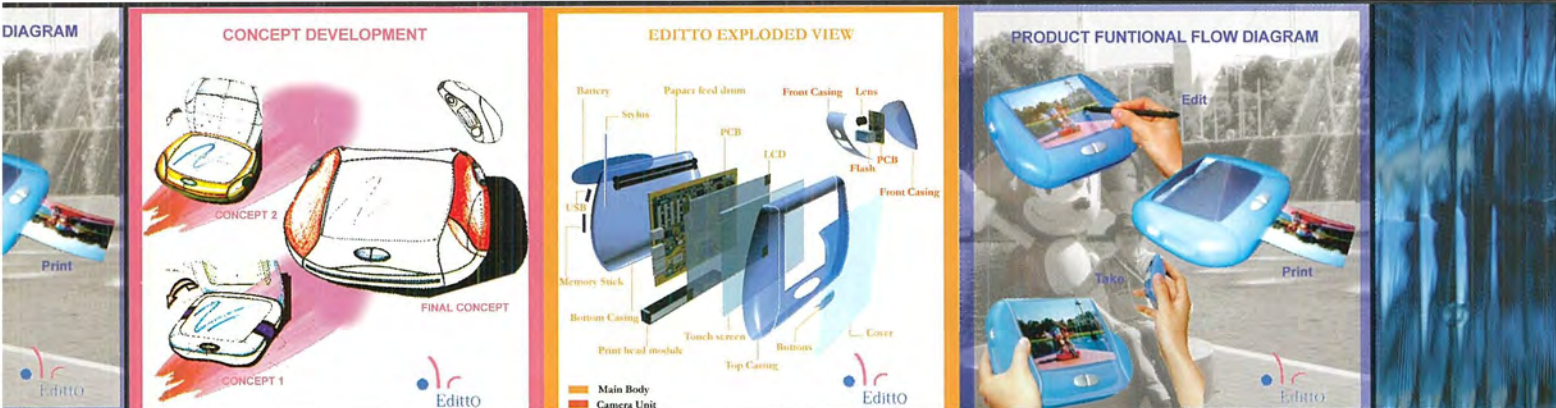
The premium hire market for outdoor seating provides large numbers of chairs for a wide range of outdoor events, anything from weddings and parties to corporate lunches. The challenge was to create a seating solution that fulfilled the requirements of size, portability, and durability with an ergonomic and aesthetic sophistication that existing folding and stacking chairs lack.

The essence of the design is its innovative folding mechanism. In its folded form the chair is highly compact, stackable, and portable. By folding the legs outward in one simple motion, the chair transforms from a rectangle of less than 60mm thickness to a high backed cantilever seat. Unlike existing folding chairs, this design combines the space efficiency of flat stacking chairs with the ergonomic benefit and sophistication of a full-backed chair with lumbar support.

The resulting aesthetic is highly versatile and is equally appropriate for use at formal or casual outdoor functions. Inspired by the human spine, I've used a cantilever design to try to create a simple yet elegant form.



Julia Park - 'Editto' Portable Photo Edit Printer



Editto is a portable instant photo printer designed for use by companies, travelling business people and general consumers. It provides easier work solutions for business use and greater control on photo print quality for general consumer use.

Editto has a built-in mini-digital camera unit, which allows photographs to be taken. Multi-purpose software and a touch screen allows for the use of a stylus which adds flexibility and aids creativity for the user to edit photos. With an in-built ink-jet printer unit, photo quality images can be produced within 30 seconds.

Editto is specifically designed to produce high quality photographs, postcards, stickers, and business cards which incorporate an individual's magic touch. The unit can be used for many different applications, and can be used in conjunction with a PC by means of a USB cable.



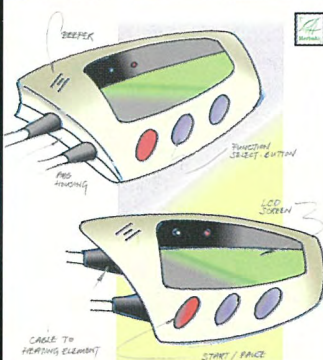
An external memory unit allows for an increase in available memory, thus alleviating current memory shortages in existing products. Various softwares are readily available for a variety of applications.

Editto is a simple yet elegant solution for the future of portable photo quality printing.

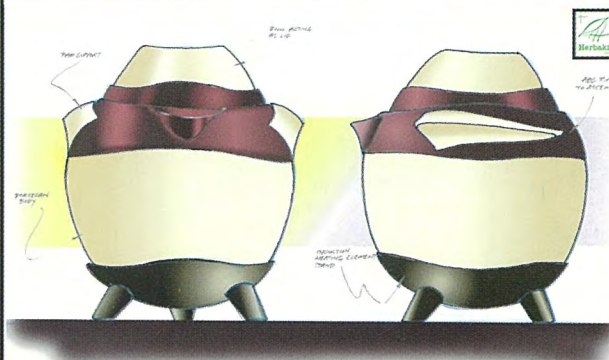
Carter Leung - 'Herbaki' Chinese Medicine Cooker



Control Panel



Elevated Views



Heating Position



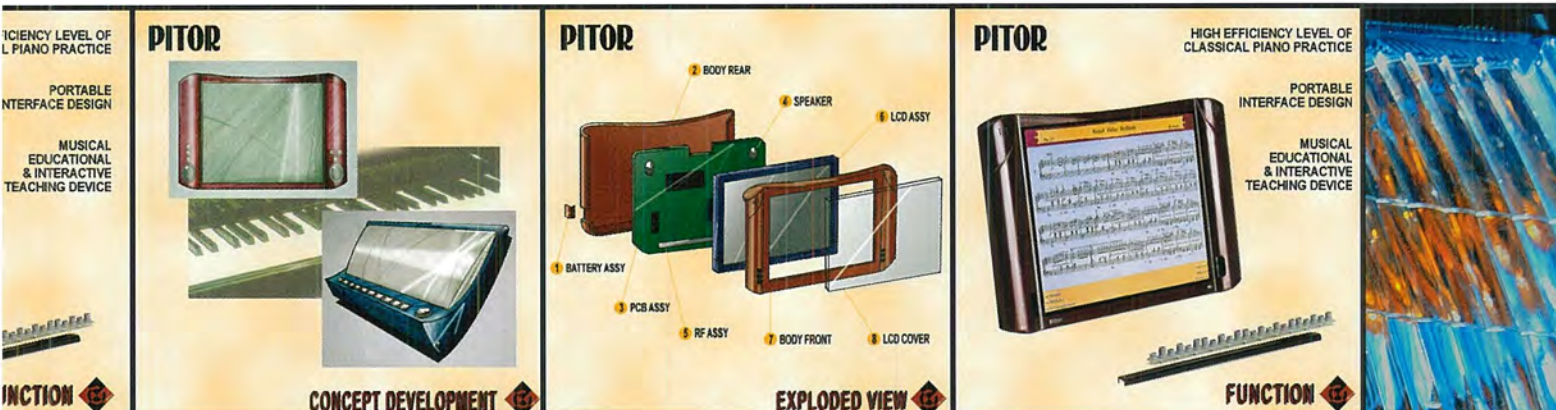
As more recognition is gained for its effectiveness in treating diseases such as cancer and asthma, Chinese medicine has gradually regained its importance after a century of silence. Chinese medicines are purchased in their raw forms and need to be cooked before they are consumed. Although the medical technology has been improved, the cooking utensil has not undergone any major changes, either aesthetically or technologically.

Herbaki provides a new way to prepare Chinese medicine. It incorporates induction heating technology, allowing more rapid and hygienic cooking methods for preparing the medicine. A porcelain insulating housing minimises heat loss via conduction, while allowing the utensil to maintain a traditional feel. An internal stainless steel vessel is used to carry out the heating, with the ingredients contained in a mesh basket. A carbon filter inside the cooker reduces the smell while cooking, eliminating one of the major problems experienced when cooking Chinese medicine.

In order to maintain a link with Chinese history, the main cooker has been designed using a traditional aesthetic, with no electronic components. The technological parts have been located on the detachable power cable, thus separating the traditional usage from the technical heating method. Herbaki provides a modern, clean and convenient way to prepare Chinese medicines, whilst maintaining the traditional touch.



Christine Shim - 'Pitor' Piano Teaching Device



'PITOR' is a teaching device that is designed to encourage and motivate students who are learning and practicing classical piano. Its main purpose is to make their learning experience more enjoyable and educational.

The design consists of two main components. An LCD display unit is placed on the piano bookstand and four silicon sensor strips are positioned on the piano keys. The sensors measure the notes and dynamics of the music played by the student. This data is transmitted by an RF system to the display unit, where it is processed and analysed according to a 'masterpiece' that is pre-programmed by the teacher or the software producer and recorded on a mini disk. 'PITOR' provides feedback at each difficulty level to indicate to the student areas in need of improvement. Various accompaniment options provide exciting experience for the student in their practice.



The display unit uses rechargeable batteries to eliminate the need for an external power source and also to provide portability and convenience.

The design was styled to achieve a conservative musical look, whilst conveying the appearance of an educational device. This was achieved by combining the flat planes in the design with soft curves and elegant, simple details.

Ashleigh Bahn
78 John St Lidcome NSW 2141
9649 7920
ashleigh_bahn@hotmail.com

Youn-Young Chang
11 Miller Ave Hornsby NSW 2077
9987 1569
0411 609 591

Ian Berrell
2 Laceter Pl. Chifley NSW 2036
9661 1589
ianberrell77@hotmail.com

Richard Evenden
5 Sunnyridge Pl. Bayview NSW 2104
99971841
evenden@hotmail.com

Lachlan Goldspink
30 Arthur St Bellevue Hill NSW 2021
P.O. Box 1755 Double Bay 1360
9362 9934
glachlan@hotmail.com

Emma Huber
Unit 13 458 Edgecliff Rd Edgecliff NSW 2027
9362 2084

Young-Kyung Jung
3001/148 Elizabeth St Sydney NSW 2000
yporsche@hotmail.com
9264 0109

Bronson Lau
83 Victoria Ave Chatswood NSW 2067
9417 3898
0416 173 898

Carter Leung
105/182 St Johns Ave Gordon NSW 2072
9499 7123
0416 280 528
ice_bahamut@hotmail.com

Annie Lo
706/148 Elizabeth St Sydney NSW 2000
9283 4906
0414 428 606
z2194915@student.unsw.edu.au

Julia Park
25 Linden Way Castlecrag NSW 2068
9958 0548
0413 112 282
popoco@hotmail.com

Oscar Randell
155 Arden St Coogee, NSW 2031
9664 1765
oscarby@hotmail.com

May Rew
220/398 Pit St Sydney NSW 2000
9211 1393
0410 715 716
witch_finger@hotmail.com

Nita Robinson
36 Creer St Randwick NSW 2031
9398 3722
0417 676 298
nitakrobo@hotmail.com

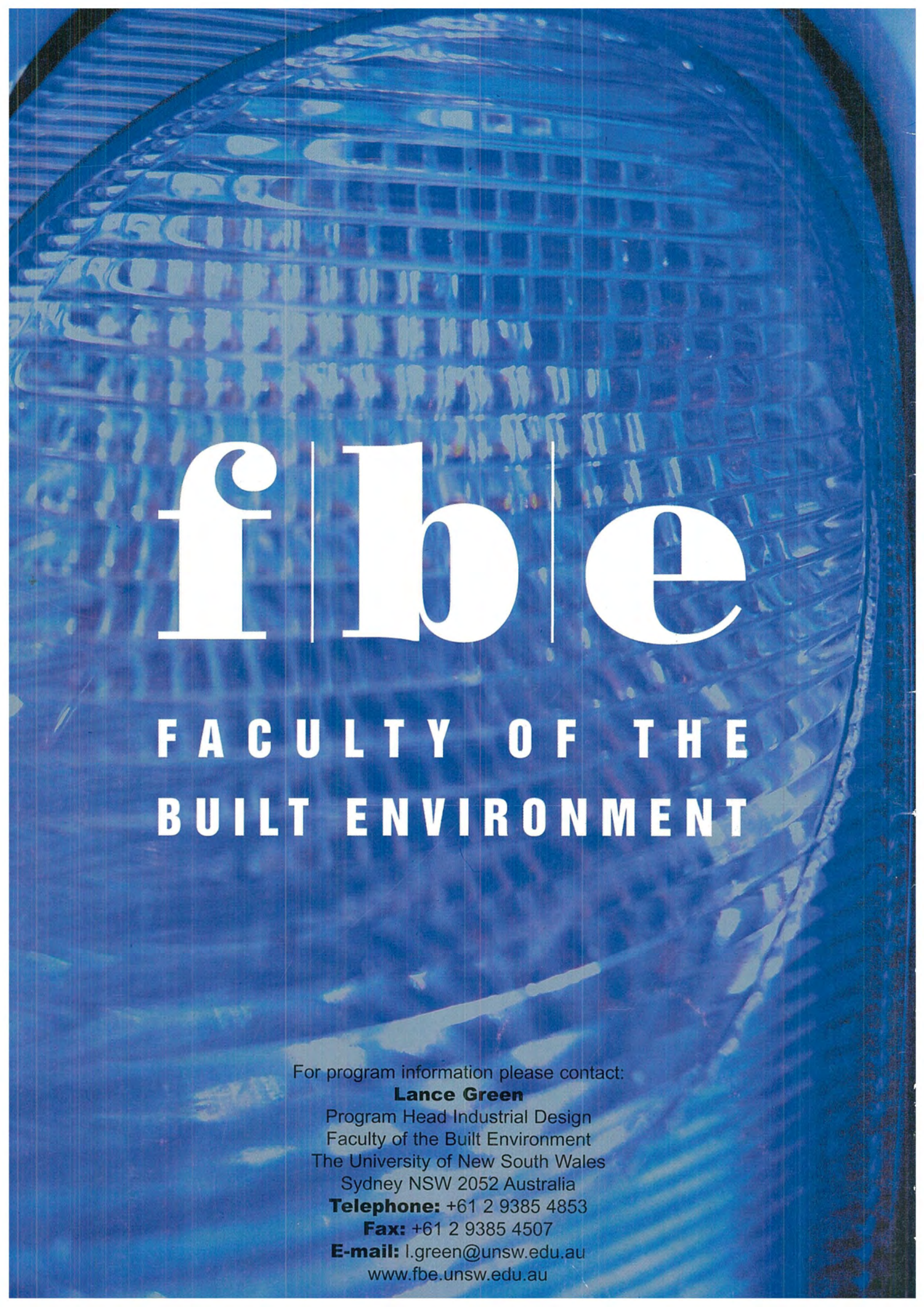
Mara Rungis
21 Margaret St Roseville NSW 2069
9417 8286
0412 601 691
mara_r@optusnet.com.au

Matt Schwab
32 Kaleula Cres Kiama NSW 2533
02 423 21682
MattSchwab@hotmail.com

Christine Shim
152 Smith St Pendle Hill NSW 2145
9688 4198
0412 244 531
Shimmy@lhug.com.au

Greg Upston
6/32 Hastings Pde Bondi 2026
9300 0609
0411 712 819

Peter Ward
7/176 Gardeners Rd Kingsford NSW 2032
9697 3133
Villeward@hotmail.com



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FACULTY OF THE BUILT ENVIRONMENT

For program information please contact:

Lance Green

Program Head Industrial Design
Faculty of the Built Environment
The University of New South Wales
Sydney NSW 2052 Australia

Telephone: +61 2 9385 4853

Fax: +61 2 9385 4507

E-mail: l.green@unsw.edu.au

www.fbe.unsw.edu.au