Ross
Mclean
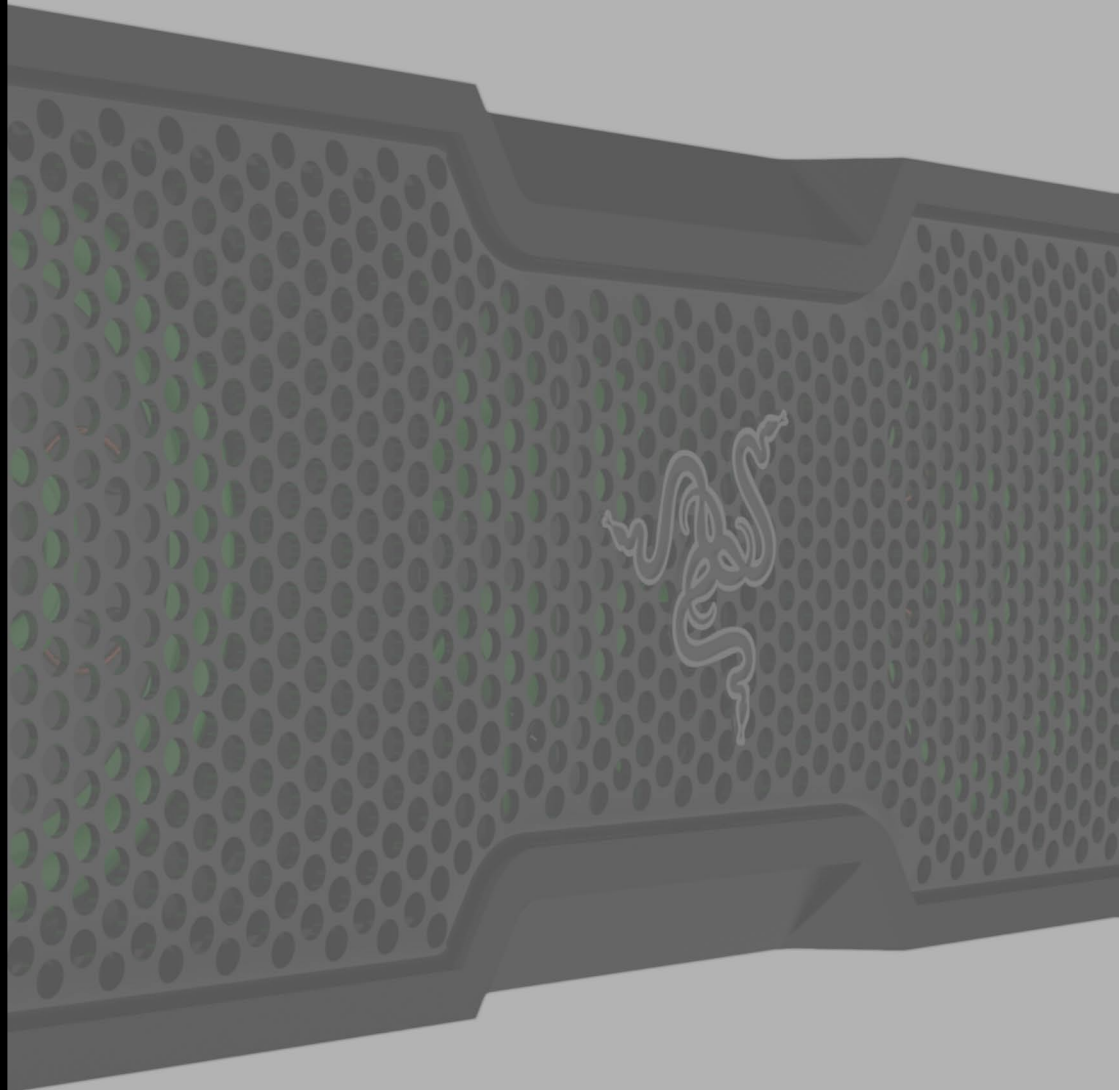# Design

Portfolio 2015

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Ross
Mclean
Design

"Design is a tool to help the tribe."
Philippe Starck

The design of a product is not a simple task. Its final aesthetics are only a small part of the design story. Making sure the product can fulfill many different needs of function, manufacture, assembly and cost are all important parts of the puzzle to mention but a few. It is this varied and engaging process that drew me to product design and the following pages are an attempt to display my projects and the challenges faced with each one.

Early Work
- 2013


1. Electric shaver render

2. Stanley knife front
3. Stanley knife top

Both the electric shaver and stanley knife were modelled in PTC Creo and rendered in 3DS Max.

The brielf for the project below was to design a family of street furniture, a bollard, bin and bike rack. My design used internal lighting to make the designs glow at night. A very early project where I used previous experience in Cinema 4D for modelling and rendering.

4. Exploded view
5. Situational render

Ross
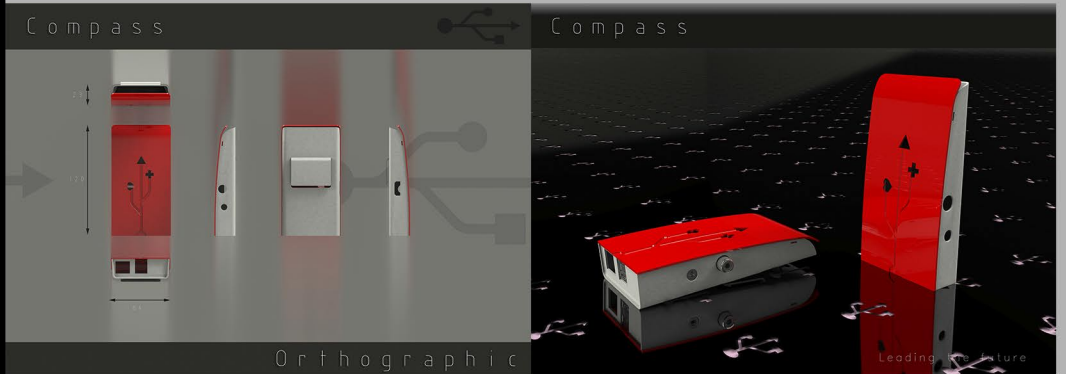# Mclean
Design
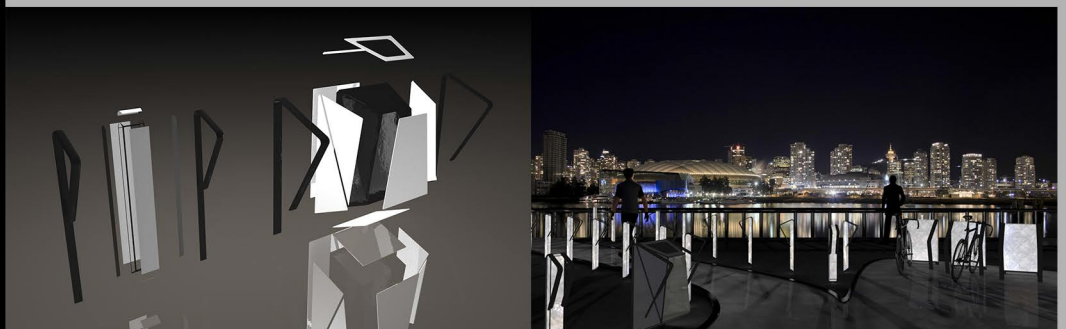
Early Work
Train Interior

1. Interior render

2. Bicycle space
3. Wheelchair space

Train interior design of a flexible area within the carriage. This area can tranform to carry bicycles, prams, wheelchairs and luggage. The seating can also fold upwards during peak times to allow for more standing passengers.

Early Work
Raspberry Pi Case
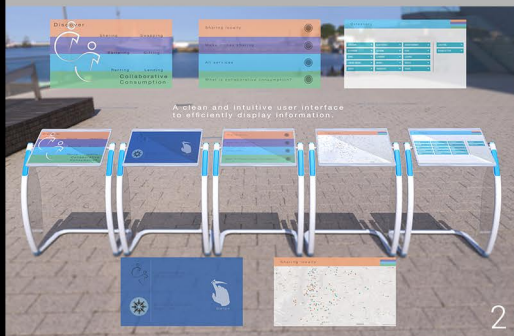

4. Orthographic view
5. Pi Case render

6. Rapid prototype open
7. Rapid prototype and Pi

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Third Year
RSA 2014

1. User interaction
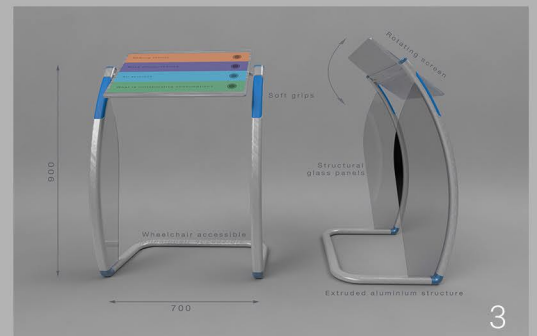

Raising awareness for Collaborative Consumption

2. UI detail
3. Specifications

The RSA Brief was to design a product within the area of collaborative consumption. A new and fast growing economic model that uses network technologies to do more with less. Companies such as Airbnb and Zipcar are some larger examples.
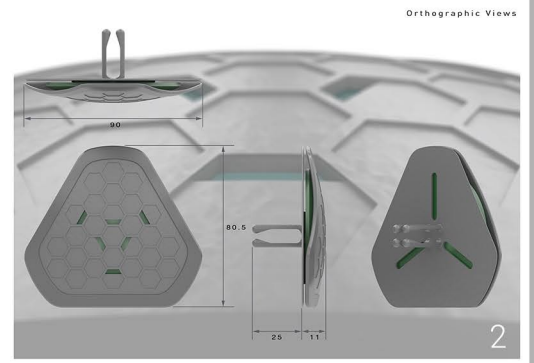
My solution is a public display that allows those with little to no technological presence to find about local collaborative consumption services. With a clean UI the display guides the user to a service that could benefit them.
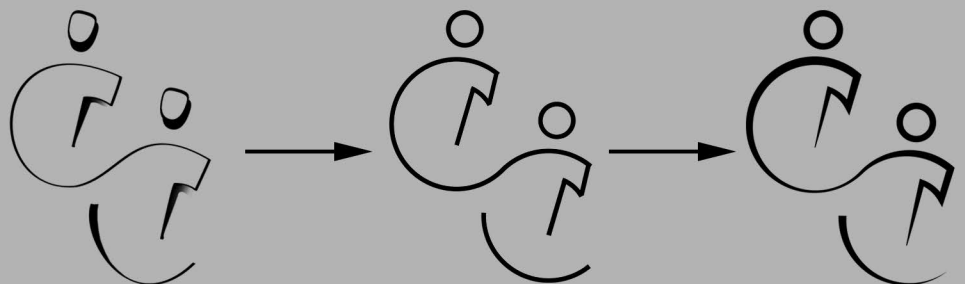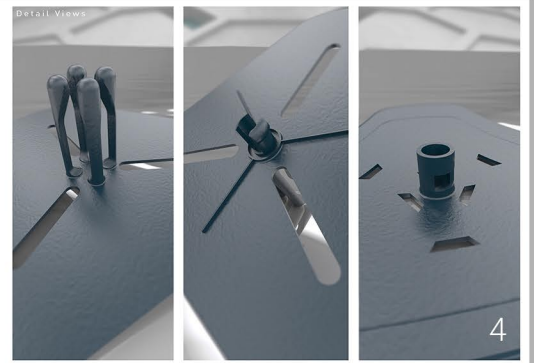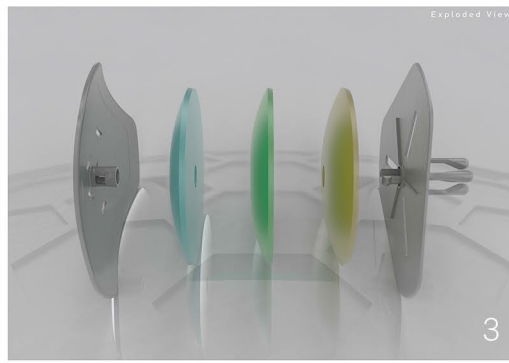

Collaborative Consumption logo progression.

Third Year
Car Air Freshener

1. In car renders
2. Orthographic

3. Exploded view
4. Detail views

The focus of this design brief was to look at the injection molding process in great detail. An in car air freshener was to be designed with a maximum of three parts.

Both halves of the design were analysed within Creo's plastic advisor to ensure the parts could be injection moulded with optimal fill, cooling and gate location among many other factors. The mould designs for eah part were kept as simple as possible to minimise the tooling costs.

The design was also rapid prototyped with the FDM process to imform aspects of strength, size and form as shown in the image below.
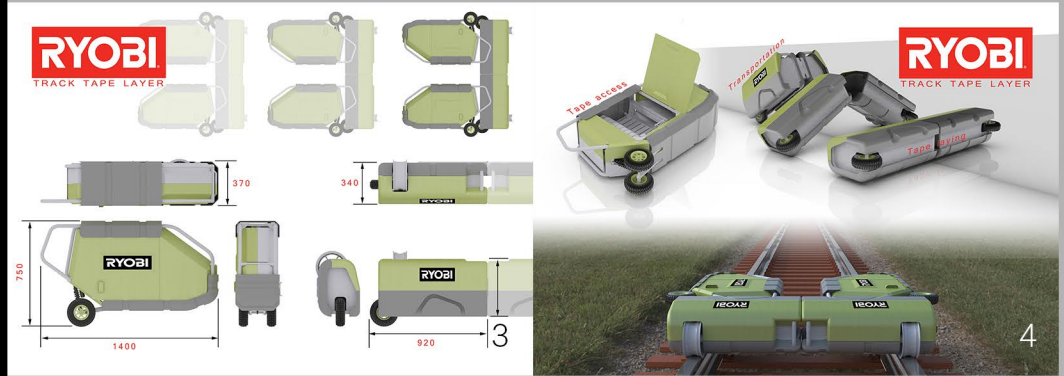
5. FDM model
6. Detail render
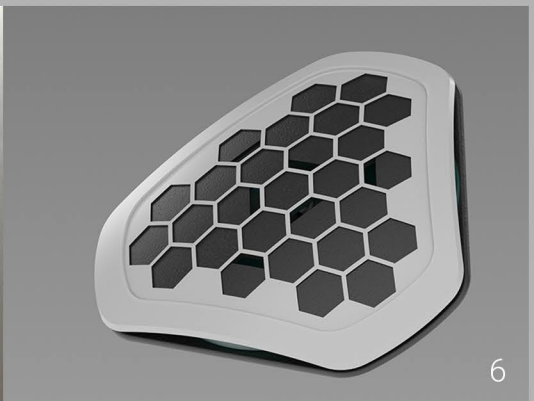
Third Year
Track Tape Layer

1. Unfolded tape layer
2. Folded tape layer

3. Orthographic
4. Detailed views

Research engineers at the UoN developed an innovative method of applying tape to railway tracks for train brake testing. The initial prototype rig was developed into a practical solution that allowed for easy deployment to any stretch of track. In order to guide the design process a brand was chosen. My Ryobi branded tape layer is a modular system that features a fold-able drive module and two mirrored tape laying modules.

My final third year project involved a large amount of user based research with two visits to a local retirement village. The initial session looked at user requirements whilst the second gained feedback upon initial concepts we had designed. My design ensured ease of access and high maneuverability.
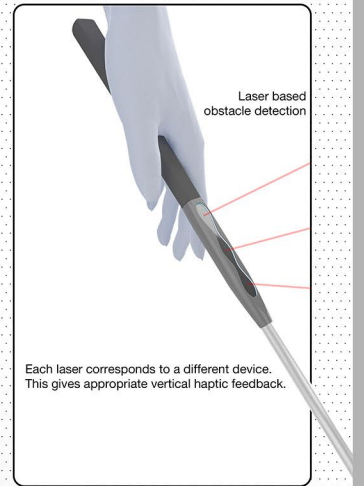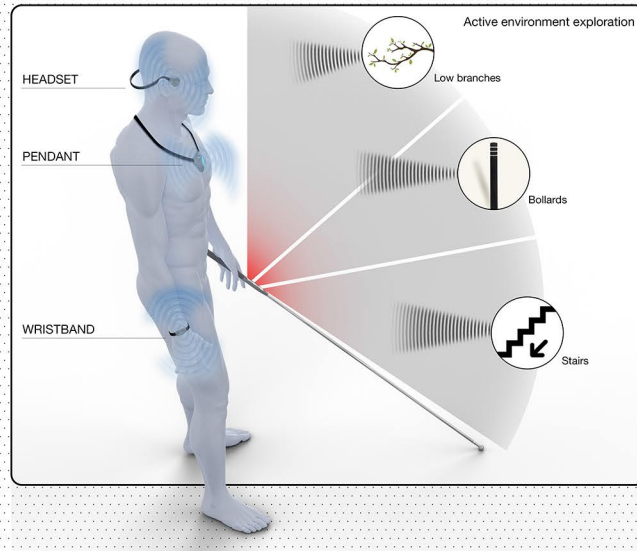
Third Year
Outdoor Furniture

1. External renders
2. Internal renders

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Final Year
RSA 2015

1. Environment exploration
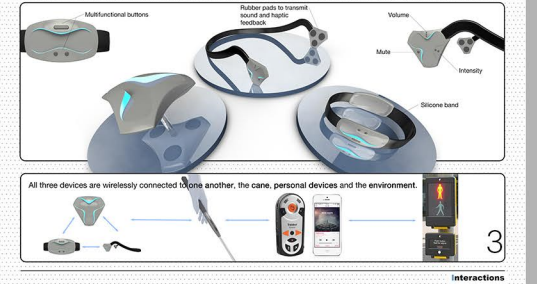
2. Accessory detail
3. Environmental integration

The Mobility City RSA brief posed a difficult challenge, to design a product to improve the experience of people with disabilities within towns and cities. Following an enjoyable literature review on haptic technologies I decided to design a set of haptic wearable accessories that help visually impaired users navigate safely around cities. My concept also looks towards a wirelessly connected future city that allows the visually impared better communication with the environment around them.

4. Current technologies
5. Haptic research

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1. Media board

2. Exploded view
3. Features and rear I/O

The brief for this project was to design a mini projector to suit the style of a chosen brand. Other requirements included the manufacturing process to be injection molding and for the internal volume to be over 225ml. The chosen brand was Razer, famed for its high quality gaming peripherals. My design, the Razer Basilisk, incorporates leading features that would appeal to the target market.

4. Product Showcase
5. Concept board 1/3
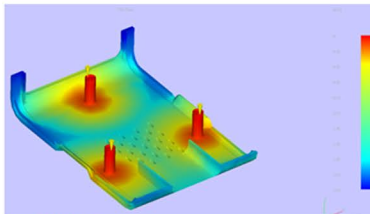
Final Year
Mini Projector

1. Detail renders

A concept was chosen after presenting three initial ideas to the course head. The concept was developed into a design suitable for injection molding. A FDM prototype was created and the design was optimised to suit injection molding. Following the final design a technical report was produced outlining part manufacture viability and detailed costings.

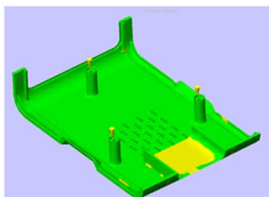As part of the final submission a full scale model was produced using a Zcorp full colour inkject system.

2. Part viability
3. Initial FDM prototype
4. Final Zcorp model

Ross Mclean Design

Final Year
UV Imaging Booth

1. Media board

2. Scale and Environment

3. Manufacture

The brief was to design a product to take on saftey in the sun. The UV Imaging Booth allows users to see their skin like never before - within the ultraviolet spectrum. Images taken reveal hidden sun damage and the UV blocking power of sunscreen.

The design uses a modified camera to take full body images in the UV spectrum. The user is enclosed within the booth where a modified zenon flash provides the light in the UV range.

Other features of the UV Booth are an ultra-tall HD side display suitable for product and booth advertising. The Booth also uses a SolarClover panel that captures energy efficiently upn the top of the booth.

X

Final Year
UV Imaging Booth

1. Storyboard A
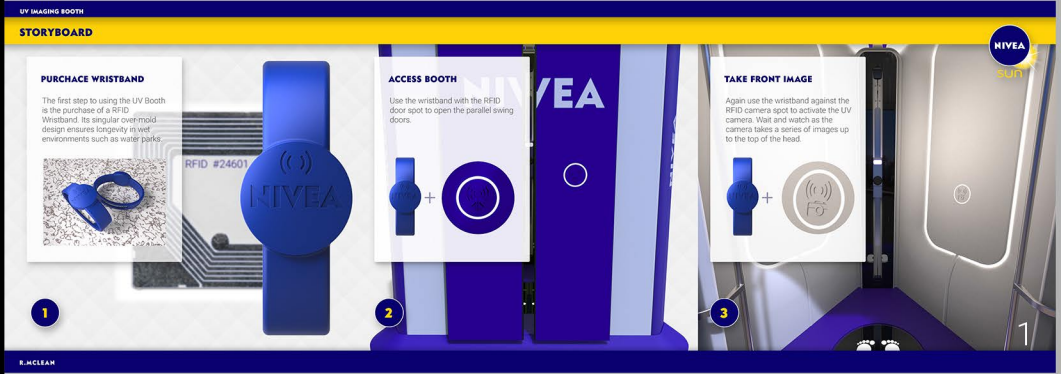
2. Storyboard B

In order to create a fluid user experience RFID wristbands were designed to let the user interact seamlessly with the Booth and touch screens. The band gives the user access to the booth, the ability to take images and secure viewing of the images at the localised touchscreen stations.

The user experience extends past the Booth and lets the images to be viewed on mobile devices and at home. This allows the images to be shared on social media, raising beneficial awareness for sun safety.

Following a relatively open brief a large amount of research was done to guide the project. Research into novel technologies and existing dermatological products greatly influenced my final design to create a viable solution.
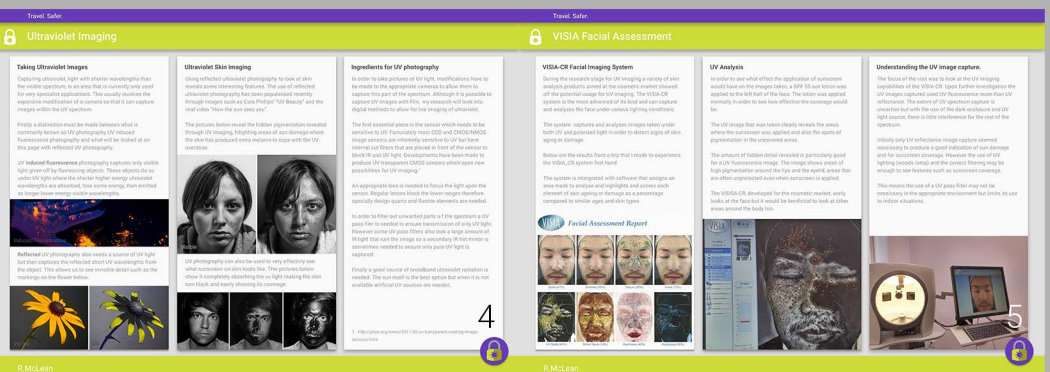
4. UV imaging research
5. VISIA facial assessment

Portfolio 2015

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