

Creative Venture Evaluative Report

- Inspiring the next generation –

By Archie Graham

P134046

Contents

Executive Summary	3
1. Introduction	4
2. Concept Design	4
3. Graphic Design	6
4. New Brick Design	8
5. Critical Appraisal of Final Proposition	10
6. Future Trajectories.....	11
References	13

Executive Summary

LEGO is an extremely simple yet effective toy that has been popular with young people for many years. However thanks to its simplicity, LEGO is an extremely versatile product, and there is potential for the product to explore many new directions.

As a keen enthusiast of LEGO, I used this project as an opportunity to explore some of these new directions, whilst also designing something that would be a viable product for LEGO to release to the public. It is also an expression of what LEGO is to me and was a way of integrating my design philosophy into a product that I am extremely passionate about. This initial brief lead me to split the project into three main sections:

- Concept design, where I utilised my automotive design skills to design a series of new vehicles.
- Graphic design, for which I collaborated with a graphics student to design the packaging for these new sets.
- New bricks, which was the section that explored the new directions that LEGO could go with their products. It was also a chance for me to demonstrate and enhance my product design skills.

By completing and bringing together these three sections I executed a new LEGO theme which enhances the current play experience of LEGO for young people. As a designer one of the most exciting thoughts is the idea that my work could inspire some young people to go on to be the designers of the next generation. This project therefore aims to inspire young people to become designers, in the same way that LEGO inspired me to become a designer.

1. Introduction

For my creative venture, I have explored the design process of a LEGO theme, by designing my own which combined both my own design philosophies and the philosophies of LEGO themselves, as well as my own personal experience of LEGO.

When I first started this project in the first semester, I set myself the following briefs:

- Create a new LEGO theme that will encourage young people to engage with their creative side, and inspire them to become designers in the same way that LEGO inspired me to become a designer.
- Pay homage to LEGO as the company that inspired me to be where I am today by applying my own design philosophy to designing what I think is the perfect LEGO theme.
- Design a series of sci-fi vehicles, and translating those designs into LEGO models. With this I will demonstrate my sketching and rendering skills, and also my ability to turn a 2D sketch into a 3D LEGO model.
- Design some new types of LEGO elements, which will enhance the interactivity and playability of LEGO models. These will then be put into context with my own LEGO models.
- Design the boxes, logo and decals for the model, thus demonstrating my graphic design skills.

2. Concept Design

The concept design section of this project was where I designed the vehicles for my theme through the normal design techniques of sketching and Photoshop rendering, and then translating those 2-dimensional designs into 3-dimensional LEGO models. Before I could start designing the vehicles, I had to first determine what vehicles I would be designing. I did this by asking various people what vehicles they would like to see in a new LEGO sci-fi exploration theme. I asked numerous people, the results from whom I compiled into a pie chart, which can be seen in the development pack.

I had a lot of experience with designing LEGO models going into this project, but I was still learning the skill of translating a 2D sketch into 3D LEGO model. Nevertheless, I approached this stage of the project with the same process as any other project. I began by gathering inspiration, primarily of things that came to my head when I thought of each of the vehicles that I was designing, so that each vehicle looked as though they had been designed for a purpose.

During the design phase, I took the opportunity to explore some new sketching styles. Seeing as my main aspiration is to become a concept designer, I looked into the work of some professional concept designers. The most notable I found was a concept design Youtube channel named FZDSCHOOL [A]. There was a distinct difference between my current sketching style and the style of these various concept designers. Their Photoshop rendering techniques were also notably different, and so I attempted to imitate the style whilst combining it with my own already existing style. Furthermore, it appeared that the rendering style being demonstrated on FZDSCHOOL was a

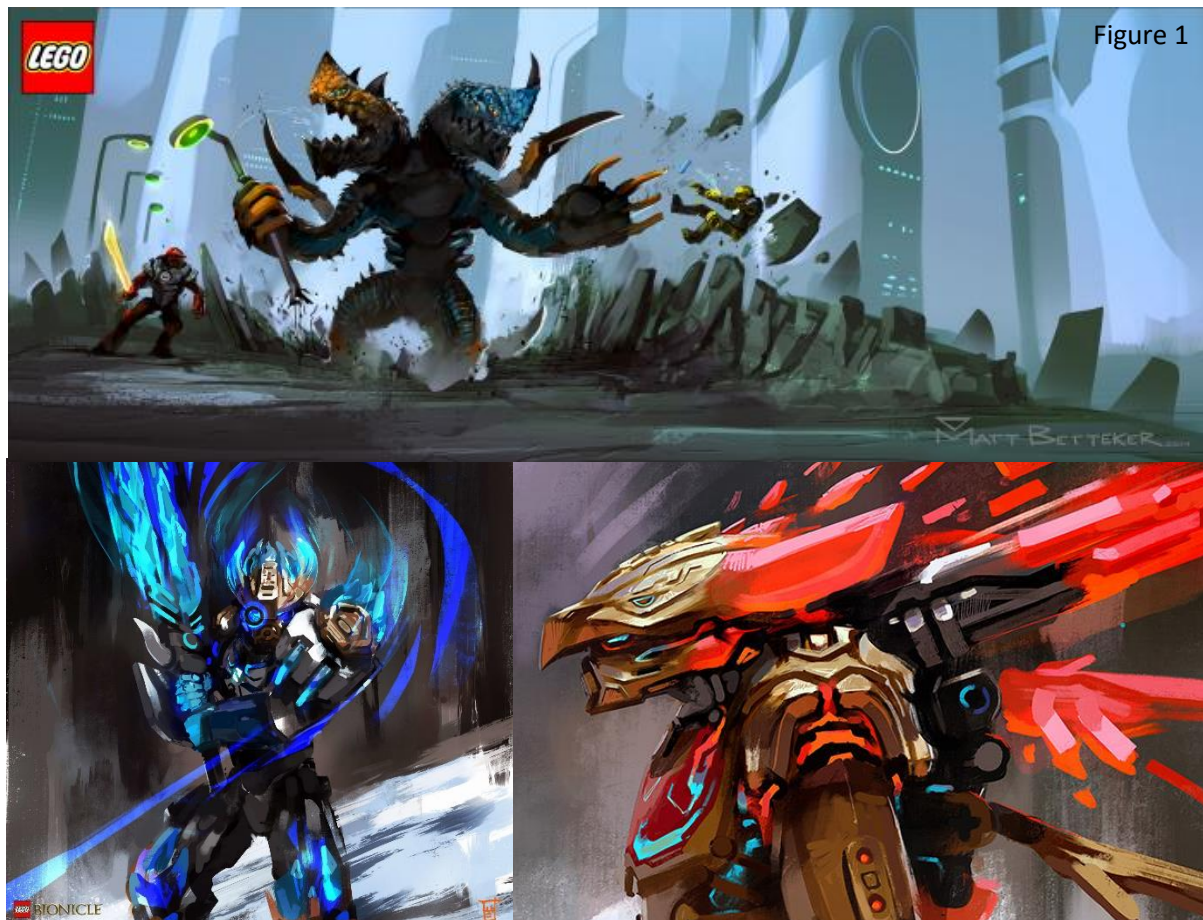


Figure 1

universal concept design rendering style, as Matt Betteker, a concept designer at LEGO, also uses a similar technique in his work, as seen in figure 1. My sketching style was fairly similar to their style, but the rendering proved to be more difficult to imitate.

Translating 2D sketches into 3D LEGO models was a different but enjoyable process. When I've designed models in the past, I always start with the structure, but I had to change my approach for these designs. I began by studying the shapes that the vehicles that were made of, and then I identified LEGO elements or combinations of elements that could be used to create the respective part of the vehicle. By the end of the stage I had 4 incomplete LEGO Digital Designer models which comprised of floating LEGO elements in the vague shape of a helicopter, tank, truck and boat. Next I started to construct a chassis for each of the vehicles, at which stage I started integrating the interactive features of the models, such as the suspension on the tank and truck, and the rotating jets on the boat.

After sourcing all of the bricks I constructed the models and began the testing of the models. I conducted a series of tests to determine the structural integrity of the models. These tests were based on the main ways that LEGO models could be used by children, including being rolled into skirting boards, dropped, being rough with the mechanisms and being held from delicate and/or precarious areas of the models.

Endurance/10	Tank	Truck	Helicopter	Boat	Bike	Miner	Quad
Dropped	6	9	3	6	7	9	9
Skirting	9	9	8	8	7	8	10
Holding	4	8	7	6	8	9	10
Mechanism	8	10	8	7	4	9	10
Average	6.75	9	6.5	6.75	6.5	8.75	9.75

The models were dropped from 25cm onto a wooden floor, and the results were based on a number of factors including playability of model after test and the number of bricks that fell off the model. The results showed that the only truly solid models were the truck, quadbike and miner. A lot of modifications were carried out on the other models, which can be seen in the development pack.

The final stage to this section was feedback. I uploaded all four of the models I'd designed to LEGO Ideas, in order to feedback from genuine LEGO fans. This proved to be fairly successful. Since joining LEGO Ideas I have submitted 36 projects, only five of which managed to reach the 100 supporters milestone. Two of these five projects were of the four LEGO Horizon models, specifically the tank and helicopter, which subsequently went on to receive staff pick of the week. To finish the concept design section on such a high note gave me a lot of drive and confidence when starting the graphic design and new brick design sections.

3. Graphic Design

The main purpose of the graphic design collaboration was to design the packaging for each set, however I figured that it would be wise to make the most of the opportunity and ask for Hannah's help to design the other graphic elements of the theme, such as the main logo and stickers. Before beginning the collaboration, I studied examples of packaging not only of other LEGO sets, but also the packaging from other rivalling construction toy companies.

One of the most eye-catching examples was of a LEGO Technic set box, as shown in figure 2. This style of box cover worked perfectly with LEGO Horizon, as the cover of each set could be made slightly different from the others by using the unique set icons, which was the first assignment that I gave to Hannah.



Figure 2

The idea of having a unique symbol for each set came from the concept design phase. Each vehicle was designed with a different function, which gave each the right to bear its own unique symbol. Hannah's first assignment was therefore to design four symbols that represented each vehicle, which are shown in figure 3. These symbols went on to be used in numerous areas of the final outcome of

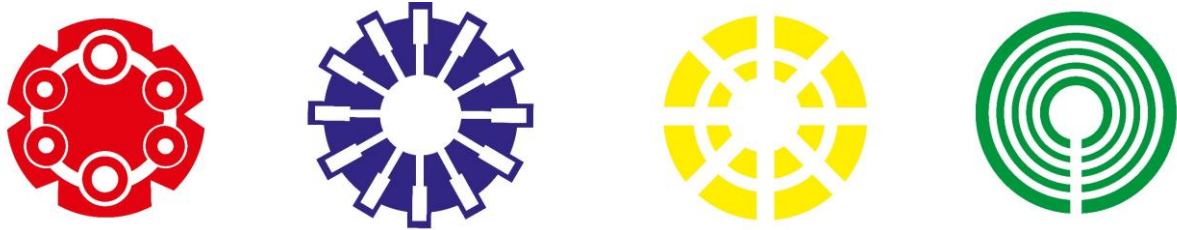


Figure 3

the project, including the stickers, the boxes, the final board and the box covers. I also worked with her on developing the main logo of the theme, which are in the graphics section of the development pack.

After showing people from the course and back home I found that the top left proposal was the most popular logo. This logo and the four symbols were integrated into the simple cover idea, the results of which can be seen in the development pack. The idea of this style of box cover is to leave the viewer intrigued. Firstly, they are very different to any other LEGO box on sale today, and secondly the fact that they don't show the product on the cover leaves the buyer wanting to see more. However, whilst this style of cover proved to be quite effective, it was still important to continue developing and experimenting with other box cover ideas. Hannah and I began designing a proposal of cover that is more coherent with LEGO's current style of box cover. The two final proposals are shown in figure 4, and the left proposal was the one that got the final vote. The central

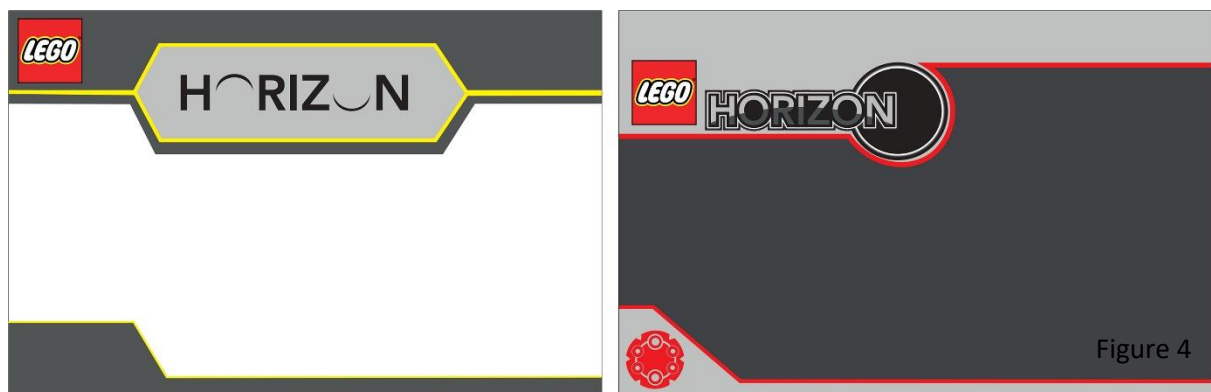


Figure 4

location of the main logo gave it a fresh look, whilst also staying very true to the LEGO graphic design language overall. Furthermore, imagining the bottom banner also being symmetrical, the shape formed by the banners was reminiscent of a first person point of view from a sci fi visor. This sat well with the rest of the project, as a major part of the project was the VR system that would take the play experience of the models to an entirely new level. This visor aesthetic captured that idea perfectly.

At this point, I was torn between both styles of box cover. However, this dilemma reminded me of some larger LEGO set boxes that feature a front flap that can be lifted to reveal a secondary cover. I created some mock-up box nets of some ideas for how I could cheaply but effectively replicate the same box shape. Even the most effective one had its flaws, in that the seams of the side panels connected with the front cover rather than the rear, making it look messy. So, I decided that while the set boxes would feature both covers should they ever hit toy store shelves, for this project the boxes would be executed in a traditional six-sided box format.

4. New Brick Design

The idea of designing some new elements for this new theme has been part of the project right from the very beginning, however what those elements would be changed numerous times. The initial ideas from the first semester included a 4x2 motor brick and a flexible brick. The motor brick idea survived through the months to become part of the final outcome, though it changed form somewhat. The flexible brick, on the other hand, was dropped rather early on, as there were not many applications for it in the style of vehicle that I had settled on designing. It was also limited in the number of ways that it could be used, as shown in the development pack.

Early in the second semester, Sony visited the university to view a short project the second year students were working on, about wearable technology. This triggered the idea of a gauntlet that could be worn and used to control a remote control vehicle, which could be linked up with the motor brick. LEGO Horizon is a sci-fi theme, so I felt it would add to the effect of the genre that one of the models could be controlled with an Iron Man style gauntlet. I also brought the idea down to Earth a bit by exploring some ideas of what a LEGO sci-fi RC controller could look like. Both these ideas were good fun to play around with, but they were ultimately demoted to a side project within project, and the majority of the process was put into the design of the brick itself.

The VR Brick was the main focus of the new brick section. During the Research Methods and Communication module, I found that it has been noticed by researchers that girls prefer to play in the first person, while boys tend to play in the third. Whilst this has been an extremely valuable piece of information for the project, I was looking at it in a very literal sense. VR was also a concept that featured heavily in the Sony wearable technology project, and this spawned the idea of integrating VR into my models. It struck me that if girls like to play in the first person by likening themselves to LEGO minifigures, then they would enjoy taking that style of play to the next level, and actually become the minifigure. This enhanced level of interactivity would also appeal to both genders, as it is a fresh and exciting new way to play with LEGO models.

The idea of the VR brick was to have a 360 camera that could fit inside the cockpit of the LEGO models. This camera would then link up to a VR headset through Bluetooth, which will allow the user to 'become' the minifigure. The main issue that came out of this idea was size. If the brick is to fit inside the cockpit of the models it needs to be very small. Three of my four models use cockpits that are only 10x4x2 LEGO units in size, and there are other LEGO cockpits that are even smaller. If this brick is to be used not only in my models but also in other models are even peoples' own creations, I needed to design the brick to be the size of a 2x2 brick at most. With that in mind, I began by researching already existing 360 cameras, particularly the most recent, and thus smallest, ones. I found that the smallest 360 cameras currently on sale is the Nico 360 [B]. The Nico 360 measures 46x46x28mm, while a 2x2 LEGO brick measures 16x16x9.6mm. Whilst this is a significant size difference, there are numerous facts to suggest that a 360 camera this small is possible. Firstly, the medical industry has miniscule cameras for many years now. Furthermore, figure 4 shows an exploded view of the Samsung Gear 360. A large portion of the device is taken up by the battery. Like the motor brick, the VR Brick will be powered by a separate power unit, meaning that a large amount of space is saved in the brick itself. Finally, I watched an interview with the CEO of LEGO, who said that one of the first rules he laid down after being appointed CEO was that the company were to only make one major change in the company's product range every 3-5 years. Based on their current product line, it is fair to say that LEGO Boost is LEGO's most recent endeavour. Boost will be released this year, meaning we won't see LEGO's next major endeavour for another 3-5 years. By

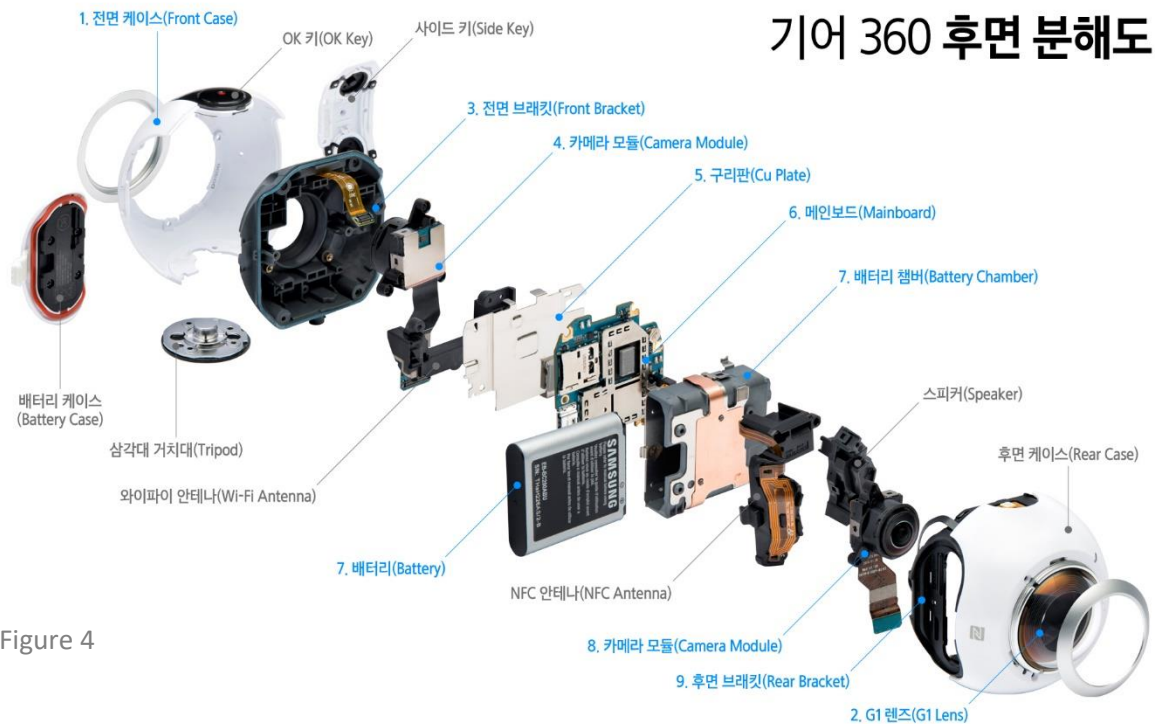


Figure 4

then camera technology should be sophisticated enough to allow for a 360 camera the size of a 2x2 brick to be made, especially as the first 360 camera wasn't on sale until 2014 [C]. Despite all this, however, I still considered the possibility of slightly larger VR bricks, as seen in the development pack.

With the size determined, I started to design the brick from an aesthetic point of view. The aesthetic that I wanted the VR Brick to have right from the start was for it to have the overall look of a standard LEGO brick, but to feature unique but subtle details to make it clear that it is a unique element with a special purpose. Despite the specification of the element needing to look like a standard brick, I decided to start quite far afield, and gradually reeled it in as the process went on. The final outcome was cube, from which I chipped away a centre line running around the middle. This gave the effect of the brick being split in two halves, allowing for a two-tone colour scheme. I felt that this was the perfect way of bringing the brick to life, and also giving an interesting aesthetic that made it clear that the brick did something special.

The final part of this design process was to visually convey what it was that this brick could do. The time and resources that I had to complete this part of project were not sufficient to create a working model of the brick, but I was able to create some short, edited videos that communicated what one would see through the VR headset when synced up with the VR Brick. Some of footage I gathered was from a GoPro that stuck to the bonnet of a remote control car, which was then got driven around the ground floor of the Alex building. I also wanted to get some footage from an environment that is more contextually relevant to the project, so whilst I have not managed to visit home myself, I was able to get my sister to record some videos from certain angles and from ground level of my cat walking towards the camera.

5. Critical Appraisal of Final Proposition

Upon completion of the concept design section I concluded that I was far too reliant on LEGO Digital Designer. I used LDD to design 100% of the models except a couple of tests on how certain systems and contraptions could work. The problem with this was model integrity. Being a digital program, the models that I designed here did not have to comply with the laws of physics, and thus when I sourced the bricks and built the models for real, there were some joints that could not quite support the required weight, or axles that didn't have quite enough purchase on the corresponding part. The table of results from the strength tests of the models were a fairly clear demonstration of this.

I also felt that the models were not a true demonstration of my LEGO building skills. I am aware that this is not a particularly versatile skill, but as an aspiring LEGO concept designer I felt that it was one of the most important part of the project. As a part of the lead up to this project I gathered as much research as possible on the design process of a LEGO set, and one of the first specifications that the designers are given is a rough piece count. I applied a piece limit to all four of my models for this reason, and was the first time I had ever done so when designing a model. It therefore provided a fresh challenge for me, but I felt the constraint went on to show through my models. Piece limits are applied to sets that are due to be released to the public, so the set doesn't cost too much for the company to produce. My sets were never due to hit the shelves, so I feel that I could have taken a far more conceptual approach to the models, by not applying the piece counts, and letting loose with my LEGO building skills and producing four great models that were a perfect demonstration of my LEGO building skills.

Towards the end of the project and after reviewing my development pack, I felt that my priorities on various sections of the project could have been shifted, either by reducing/increasing the focus on a certain area, or in some respects removing some elements entirely. This applies primarily to the motor brick. The motor brick was a very valid idea, a very versatile as a LEGO element, and worked well in tandem with the VR Brick, I think it is fair to say that it didn't play a major role in the development of the project. The motor brick was designed around the chassis of the tank model, and had this process been more thorough the tank could have received some development in return. But due to the large number of sections of the project I was working on at the time, neither received this depth of development. I realise now that, without being aware of it at the time, that I was focusing far too much quantity rather than quality. Due to the fact that I'd gone to the effort of designing an entire series of four models, I think that I must have felt that I should do the same with the other sections. This lead to me trying to design what could have perhaps been too many new bricks. If I were to repeat this project, I would ensure that I take a quality over quantity approach. I feel that this project could have been far more successful if I had not taken forward the motor brick, and instead taken my one best idea (the VR Brick) and focused all of my efforts on making that element even better.

The most successful section of the project was the graphics collaboration. Whilst it was the smallest the work produced for it was of high quality, plus I felt that I learned a lot of from this section as well. Hannah England designed the whole of the front cover, but considering that this was a collaboration for my project we agreed that I could use the work anywhere, as long as Hannah is fairly credited. The covers of the boxes especially were a great outcome from the project, as they are very versatile and can be used separately as a promotional image for my work.

I learnt a great deal from this collaboration. It was the first time since second year that I had properly worked in a group, which was refreshing and reminded me of just how much more efficient and successful group work is than solo work.

6. Future Trajectories

One thing the graphics collaboration taught me is that whilst I was capable of being design team leader, I didn't feel right at home. It is a skill that I could definitely have with a bit more practice, but I think that practice will have to come a bit further down the line when I have a bit more experience in the design world. I have decent organisation skills for my own work, but being in charge of organising an entire design team is not something that I could do, certainly not at the moment. This collaborative experience allowed me to confirm for myself that I will not start up any sort of freelance or design company career. I am completely fixed on moving into employment.

One of the most important things to have come out of this project is that a major hole in my skillset has been filled. With the help from Josh, I was able to come to terms with Solidworks. I always had it in mind to 3D print some models of the bricks that I designed, which meant that I throughout the project I was preparing myself to have to come to terms with 3D modelling, which has always been a big weakness of mine. After completing the designs of the bricks Josh agreed to spending a few hours with me over the course of a couple of days to help me get to grips with Solidworks, and whilst I may not be a Solidworks genius yet, I am competent enough to model a decent range of various products. With this understanding of Solidworks I can now confidently include CAD as a skill on my CV. This will hopefully make me a far more desirable choice for employers.

With all of the work and effort that has gone into this project, and a final outcome that I am relatively pleased with, I would hope that I am at least being considered for New Designers. Having not gone last year, I am extremely excited about the potential opportunity. I am aware that LEGO have sponsored the event in the past, and whilst they are not doing so this year, I am hoping that they will still be sending some designers to investigate some of the young talent at the show, and I hope that my work will be enough to catch their eye.

Even if a job doesn't come straight out of the degree show, New Designers or any job applications I make between now and then, I plan to keep working on my design skills over the summer. I was reflecting on my portfolio after gathering all the relevant work from all of my projects, and I realised that despite making the effort to do a product design based project for my Creative Venture, my portfolio is still massively automotive design biased. I have learned a huge amount about product design thanks to this project, so I decided to change the name of my professional name from 'Archie Graham Automotive Design' to 'Archie Graham Industrial Design'. My portfolio, however, doesn't reflect this, so I plan to carry out a few small personal product design projects in my free time in order to increase the variety and the quantity of product design projects in my portfolio. I also think that this will help me avoid a trap that I've been trying to not get caught in for the majority of this project, which is getting too fixed on trying to work for LEGO. I've made it clear that working for LEGO is the main dream for me, and so I have obviously put a huge amount of thought and effort into this project in the attempt of making that dream come true. I don't, however, want to become

so glued to that aspiration that I lose all hope or drive if I don't get a job there for great period of time, if ever. I will of course be thoroughly disappointed, but I want to be able to put it behind me and aim for jobs with other companies listed high up on my list. I have been keeping a close eye on job opportunities, and have applied to a couple of jobs with Hasbro and JLR, so I can keep my view as broad as possible, but without diluting my efforts of making it into LEGO.

I also plan to continue the Creative Venture. I enjoyed the project, and think that there is scope for further development. Had I done the MA, and chosen the same project, I would still be working on the project through the summer anyway, so I'd like to see how much more I could achieve. Firstly, within the various LEGO communities that I am part of, I received a lot of positive comments regarding my models. Also, my project was to design a new LEGO theme, and most LEGO themes continue to release numerous waves of models. So, I am planning the summer to be the period where I design another wave of vehicles for the theme, and release them to all of my sites and pages to give my theme an even more authentic vibe, and to also increase its chances of being noticed by someone, and will also look more impressive when someone looks through my portfolio for a job application.

References

Websites

[A] <https://www.youtube.com/channel/UCbdyjrrJAjDIACjCsJAGFAA>

[B] <https://www.indiegogo.com/projects/the-world-s-smallest-360-camera-nico360-vr#/>

[C] <https://www.kickstarter.com/projects/giroptic/the-worlds-first-full-hd-360-camera>

Images

Matt Betteker top: <http://www.coroflot.com/mbetteker/LEGO>

Matt Betteker bottom left: <https://www.artstation.com/artwork/XDIzR>

Matt Betteker bottom right: <https://www.lego.com/en-us/bionicle/activities/wallpaper/tahu-concept-art-971925623e284f6fa6e3c1c9420b316f>

LEGO Technic Box: <http://www.technicbricks.com/2013/07/tbs-techreview-24-41999-4x4-crawler.html>

Samsung exploded view: <http://www.stuff.co.za/wp-content/uploads/2016/05/Gear-360-Teardown.jpg>