Enterprise Portfolio

St Cuthbert's Catholic High School

in schools

THORN LIGHTING

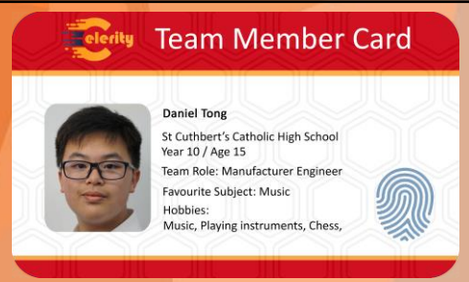
ROSH ENGINEERING LTD

REECE FOUNDATION

F1 in Schools National Competition:
Leeds University

Meet the Team

Tom W – Team Manager	**Ryan B** – Design Engineer	**Harry T –** Resource Manager	**Daniel T** – Design Manufacturer	**Sam V** – Marketing Manager
Tom overviews the whole team by creating a structured time plan for tasks completion dates. He helps with the making of portfolios with Harry and Sam, but generally helps everyone with their tasks.	Ryan develops the designs of the cars from his 2 years of previous experience. He works alongside Daniel to correctly design the car with the regulations in mind and input the design process into the Engineering Portfolio.	Harry works closely with both Tom and Sam to produce effective displays and themes in the portfolios. He also helped Ryan to arrange the engineering portfolio to a professional standard.	Daniel creates a spreadsheet of the given regulations of the competition which he will use to scrutineer the car. Daniel will also play a leading role in the making of the manufacturing and research slides	Sam will work closely with Harry and Tom to create the enterprise portfolio and pit display. He creates the logo and drafts sketches for the t-shirts and other merchandise.



Fortnight	TM	RM	DE	MM	ME
1	Talk to the team about roles and ensure that everyone understands their tasks	Talk to the DE about the cars and also work with the TM on roles	Start to look at how objects are designed to travel fast and begin powerpoint on it.	Begin to think about ideas for our team identity	Begin to familiarise with the rules and the regulations of F1 in schools
1a	Begin time plan and assist other members with their tasks	Look at deadlines and try to help TM with the time plan	Finish powerpoint and focus on thrust drag and lift	Draft up a name and logo and think about the symbolism	Look into aerodynamic principles such as newtons third law of motion
2	Work on the time plan and check that others don't need help	Start to think about ROI and what we could do to gain funding	Start to sketch out ideas for the cars and annotate the drawings	Finish team name and work on logo and team identity	Look into the regulations more and begin a spreadsheet to scrutinise the cars
2a	Finalise the time plan and begin to help the RM on ROI	Look at ROI more and begin to write a pitch for potential sponsors	Work on improving and adding to the drawings	Work on getting a team colour scheme and applying it to the logo and name	Work on adding to the spreadsheet and look at the DE's drawings
3	Look at potential sponsors an start to make notes on which could be good	Work on sponsorship pitch and draft email for sponsors	Start to work on the second drawing while making improvements and changes	Finish the team logo and name and work on the team identity	Help the DE on his drawing and work on the scrutineering spreadsheet
3a	Look at funds that could potentially be viable	Run the sponsorship pitch and email past the TM and MM and make improvments	Work on the second car draeing and its annotations and finish any changes	Start to work on the teams uniform while incorporating the team colours	Look at the second cars design and alert the DE of any issues
4	Create a tiered chart to make it clear what sponsorship will get what	Help the TM work on a tiered chart for sponsors	Begin to use autodesk and start to design the cars there	Work on the car's asthetics and look while using the team colours	Work on the scrutineering document and inspect the autodesk design
4a	Start to contact sponsors with the sponsorship pitch	Work on contacting potential funds and applying for sponsorship	Work on the car body on autodesk	Work on the car graphics further to ensure that they are good	Look at the car body and begin the DP
5	Work om a marketing document using information gained from reasearch	Work on contacting more sponsors and funds	Start the second car design and attempt to make some improvments	Help the De on his new car and suggest changes from his first car	Create a few car designs for the 1st car and think of some for the 2nd car
5a	Continue to work on MD and also spread the teams message on social media	Begin to incorperate various pieces of work into our pit display	Finalise car and run necessary tests with ME and work on pit display (car)	Work on pit display and add aditional materials from team projects	Finish pit display (car) with DE and run final tests on the car

RACI Matrix

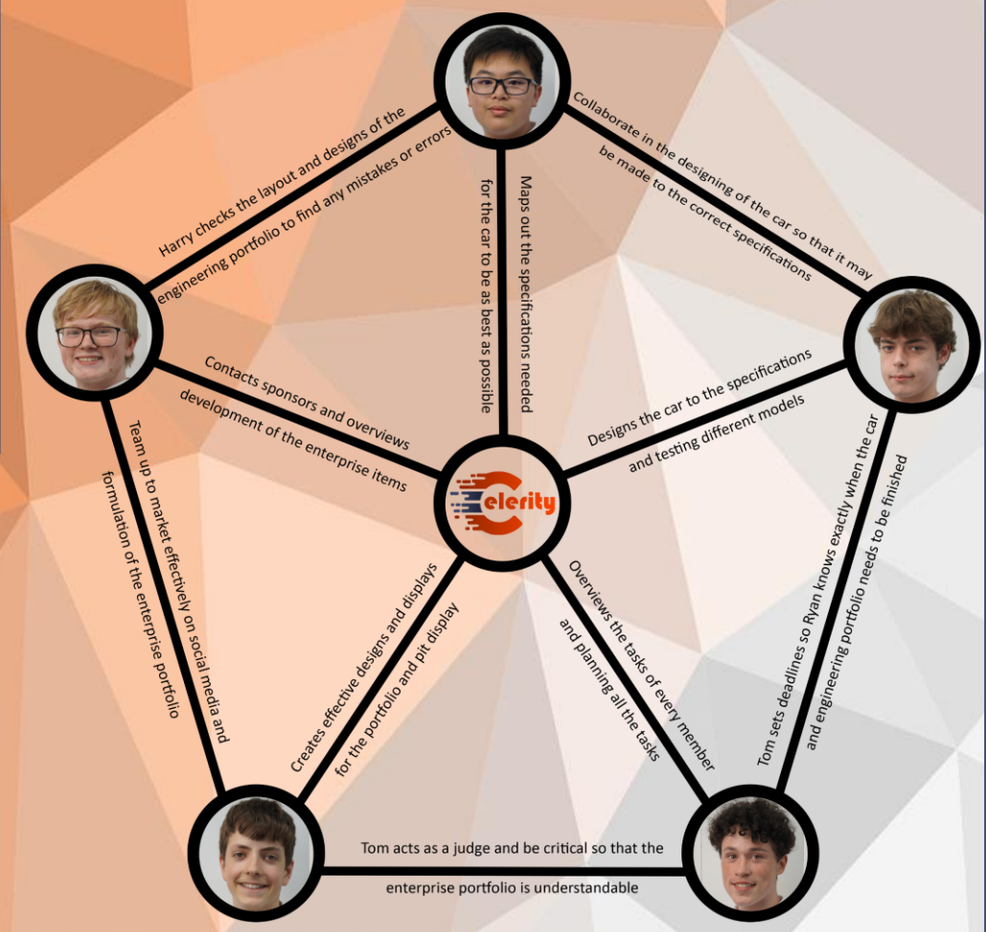
TM – Team Manager
RM – Resource Manager
DE – Design Engineer
MM – Marketing Manager
ME – Manufacturing Engineer
MD – Marketing Document
DP – Design and Engineering Portfolio
EP – Enterprise Portfolio

Our Website

If you wish to see a better-quality image of our time plans, please visit our website at [https://CelerityF1.github.io] where will have our main Gantt chat from our portfolio. We created our website through html code so that we could create our designs without the restrictions of other online website builders.

Ongoing Evaluation

Some people in our team were less informed of other's tasks and would only know about what they were doing. To stop this, we would meet up in and outside of school and generally talk about what each other people have been doing to contribute to the team.



Sponsorship

Sponsorship Contacting

After trialling different methods, we agreed upon sending out a pre-written email to companies that we thought might be interested in sponsoring us. This proved to be at least somewhat effective as most of the responses we received were positive. However, most of the companies that we did contact did not give any response. Upon thinking about alternatives, we agreed upon trying an in-person sponsorship rally. This would guarantee a response from everyone that we contacted would run the risk of appearing to be informal and thus not having our approach taken seriously. To combat this, we produced business cards to distribute if any companies wished to contact

Changing Point System

Our original method was to present those interested in sponsoring us with various bands of sponsorship that they could buy into, yet this gave them an extremely limited set of options. This strategy also discourages copious amounts of sponsorship as certain tiers would only have a low minimum threshold meaning that a £100 and a £10,000 would get the exact same things in return which was obviously flawed which led to us agreeing upon introducing some reward for the highest paying sponsors. We consulted as a team to discuss this issue and voted to change our method to a new point-based system with a special way of deciding who gets the most important item.

Point System: where £10=1P

- Logo on Pit Display: 10P
- Logo on Uniform: 15P
- Logo in Portfolios: 5P
- Car: 3 Highest Paying sponsors
- Custom made flags 5P
- Custom made badges 5P

Ongoing Evaluation

After revaluating our teams' finances, we realised we were short on money to make the t-shirts so we had our brainstorm of what fundraising activities we could do. We decided upon a bake sale which cand be seen on page 5 which made us over £200 profit.

Budget and Risk:

In our predicted Funds spreadsheet, we assumed, based on market research of similar teams and sponsors, that we would get somewhere in the region of £50 to £100 per sponsors. Our first sponsor ROSH surpassed this slightly with a generous £110 sponsorship and our second sponsor THORN showed how off we were in our prediction with a massive £400! This meant that we were already ahead of our target amount for money. Before we received our sponsors, we had been formulating different strategies on how to work well on a limited budget like reusing materials (this also helped with the Eco-Friendly part of our aims), however with this new revised budget we no longer needed to be so stringent with our cost management.

Return on Investment (ROI)

Our current system allows sponsors to handpick what they want to pay for and gives them an easy way to see what they are getting in return. We also send out a fortnightly newsletter to all our sponsors to keep them informed on where we are in this process and where their money is being used. We believe that this helps us engage with them and ensure their satisfaction. We base our sponsorship on a point allocation system with 1P(point)=£10. Listed below are the number of points required to purchase a certain item.

Unique Sales Point (USP)

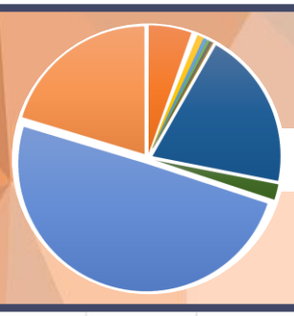
We understood that we would need to stand out to gain companies support so we had a team meeting discussing our team's unique sales point. We settled upon promoting our team message of progression through failure and dedication as part of our team's brand. We informed our sponsors about us and about this competition as much as possible (through business cards and flyers) while also ensuring that our personal goals and message were clear. We believe that this showed many of our sponsors that this was a good opportunity for them and for us.

Thorn Lighting
They are a global supplier of both outdoor and indoor luminaires and integrated controls. It was founded in 1928 by Sir Jules Thorn.

US
US is a local Northeast charity with the aim of raising awareness of Mental health issues and helping through activity.

Rosh Engineering
ROSH Engineering is a Northeast engineering company that is a distributor of key supplies for electrical transformers.

Reece
Their main objective is to increase the long term and sustainable prosperity of the Northeast of England primarily through the promotion of engineering and manufacturing.



Predicted Cost Management plan

Predicted Revenue Sources	*Predicted Costs*	*Acceptable Margins of Error*
Sponsor 1: £50-100	Pit Display Materials: £100	Sponsors: -£50
Sponsor 2: £50-100	Car Materials: £30	Bake Sale: -£10
Sponsor 3: £50-100	Team Clothing: £150	Pit Display: +£20
Bake Sale : £25-50	Other Merchandise: £50	Car Materials: +£10
Sponsor Discounts: £30-50		Clothing: +£50

Description		£
		£ 0.00
ROSH Engineering	£110.00	£ 110.00
T-Shirts	-£12.50	£ 97.50
Spray Paint	-£17.30	£ 80.20
Primer	-£9.75	£ 70.45
Lacquer	-£5.99	£ 64.46
Donated Acrylic	£0.00	£ 64.46
Donated Foam Block	£0.00	£ 64.46
PLA for Printing	-£6.00	£ 58.46
Decal Paper	-£4.75	£ 53.71
THORN Lighting	£400.00	£ 453.71
Us Active	£40.00	£ 493.71
Reece	£1,000	£ 1,493.71
Accomodation	-£410	£ 1,083.71

Marketing and Productivity

St Cuthbert's Catholic High School

Surveys

We created a survey that we distributed within our school and local communities to gather feedback about our logo, branding, social media, and communication. This soon revealed that most people preferred our new logo and found it eye-catching, but most had not seen our social media accounts.

Instagram

Upon conducting market research, we discovered that the optimal time to post on most of our social media accounts was between 8am and 10am with the best days typically being Mondays and Wednesdays. Instagram was our platform of choice as we had enough contacts to kickstart a new account and we learned that there are around 30 million Instagram users in the United Kingdom (roughly 46% of the population) with 80% of users claiming to have some interest in looking at other businesses and brands for inspiration or to learn more about them.

Twitter:

In comparison we found that on our Twitter account we did not get as much engagement with people surrounding the industry. We do not know why, but perhaps this is because only 23.79% of the UK are Twitter users or maybe those who do use twitter have less interest in businesses or brands. But this does mean in the future we think it would be a more effective use of our time to cultivate our Instagram account rather than our Twitter account.

Contacting

When devising our method of getting sponsorship, we decided to trial multiple methods and seek help from individuals more experienced in marketing than us. We tried to contact potential sponsors both via email and in person with letters and pre-prepared flyers to give an introduction as to who we are and what we are trying to do.

Example Of Instagram

After starting our Instagram account, F1 Bearings reached out to us asking if we would be interested in entering a sponsorship partnership with them. Unfortunately, we were unable to accept their offer as the development class regulations does not allow for the use of ball bearings, however, this does prove that the use of social media is an effective marketing strategy.

@f1_celerity

@F1_Celerity

Ongoing Evaluation

In retrospect, it was difficult to maintain a constant flow from our medias as it required a lot of dedication to keep posting. To combat this problem, the productivity scoring system was made to help motivate people to stay on schedule or even ahead of schedule. In our productivity assessment, we found it hard to accurately measure how effectively people were working at first and thus changed the calculation system to better reflect each team members work. Overall, all member of our team stayed in the middle band for productivity throughout the process which was good as it meant that we were always on track.

Productivity Scoring System

We designed a comprehensive scoring system to measure our team's overall productivity. This would not always provide an accurate number as is demonstrated below in the table – note that the this shows work done and time taken of someone working at a linear and constant rate who will finish on time- with the formula: productivity score = 2(Percentage of tasks on Gantt chart completed or significantly under way X percentage of time left before deadline) / 100

Green Band = < 40 Orange Band = 30 – 40 Red Band = < 30

Week	1	2	3	4	5	6	7	8	9	10	11	12
Work done %	8.3	16.7	25	33.3	41.7	50	58.3	66.7	75	83.3	91.7	100
Time left %	91.7	83.3	75	66.7	58.3	50	41.7	33.3	25	16.7	8.3	0
Score	15.2	27.8	37.5	44.4	48.4	50	48.4	44.4	37.5	27.8	15.2	0

Analysis

This is evidently not a good method as it seems to suggest that the person is most productive in the middle of the process when it was previously dictated that they were working at a constant rate proving that this original formula was inaccurate at best.

New Productivity score = Percentage of tasks on Gantt chart completed or significantly underway + percentage of time left before deadline / 100. This was a far simpler and far more effective formula as it was less dependent on the time elapsed in the process of preparing for F1 in schools.

Green band (ahead of the schedule) = 1.2 < 2 Orange band (on time) = 0.8 < 1.2 Red band (behind schedule) = 0 < 0.8

Week	1	2	3	4	5	6	7	8	9	10	11	12
Work done %	8.3	16.7	25	33.3	41.7	50	58.3	66.7	75	83.3	91.7	100
Time left %	91.7	83.3	75	66.7	58.3	50	41.7	33.3	25	16.7	8.3	0
Score	1	1	1	1	1	1	1	1	1	1	1	1

Second Analysis

This yields a far nicer result which aligns with predictions and shows that this person is working at a constant rate with unchanging productivity. In summary this helped to keep everyone accountable and show the team where they were and whether their work rates needed improvement throughout the task. For example, Sam had done 5/7 tasks with 3 weeks remaining and gets a score of 0.96 which puts him in the orange band.

Merchandise and Advertisement

St Cuthbert's Catholic High School

Design Process

When designing the pit display, we created a new design with orange triangles slowly fading out into the dark blue background in photoshop. This was because the design in the portfolio was too small to be blown up to the scale needed. It was kept very minimal with mainly titles and pictures with many iterations made after speaking with graphic designers. The main advice given to use was to keep everything simple, so our right panel changed from logo & car development to memory board of activities. The left panel was originally like the flyer to the right but changed as this was too confusing to follow. For the main two panels in the centre, we were unsure but decided to put us, the car and the logo there as they are the centre of our team as a whole.

Engagement

To aid us in increasing audience engagement, we decided to implement multi-media into our pit display. We did this by adding QE codes on the pit display and setting up iPads that would show a timeline video of our team's development. We also would have a reaction time-based game that we made on html code that would also allow us and our competitors to practice reaction times before the race.

Sustainability

We made the pit display from vinyl sheets stuck onto foam boards that we printed and in school with a refurbished printer. The two tables in the pit display were made from wooden boards and magnets for easy access from a previous team that we spray painted with our colours.

Sponsorship Rally

Sam and Tom decided to conduct our sponsorship rally on Scotswood Road in Newcastle which is home to many local car dealerships and engineering firms. We took business cards and flyers which would show the companies that we were looking for sponsorship and help lay the basic groundwork of what F1 in schools is. Each company would also receive a brief verbal overview of the process. We managed to talk to many businesses but conducting our venture on a Saturday meant there weren't many staff so there was no one who had the authority to directly grant us sponsorship as most of the staff members with managerial roles were absent. There were, however, expressions of interest that we received from companies, with many taking business cards or even providing us with contact details for managers at their establishments who would have the power to support us. Unfortunately, did not receive further contact with the companies we emailed. This led us to the conclusion that it would be beneficial to make a few changes such as; we should conduct future ventures on weekdays as we would be able to speak to more managerial staff and research what the companies we were visiting were about

Bake Sale

Discovering that we needed more money as we hadn't received any sponsors from our rally, we did a bake sale. Baking the brownies and flapjacks in our school's food tech department, we then went around and asked pre orders from teachers.

During lunch over two days, we took the pre-orders to teachers and sold the brownies and flapjacks to students; we made £247. This money would come incredibly useful when buying t-shirts and materials for the pit

T-Shirt Design

We decided to keep the same design from the Pit Display as to keep a congruency to the team. However, the team debated whether to flip the colours so that the triangles became blue and the background orange. This would more boldly represent our team colour and allow the t-shirt to match our black school trousers.

Manufacture

We created a mock-up version of the t-shirt on photoshop as seen to the left. We then sent this as inspiration for Raging Bull so that they may create our t-shirts to a very professional standard. We also asked Raging Bull to make our hoodies with the triangle pattern

Ongoing Evaluation

We felt that the designs we were using were of a great standard and professionality, however, at the beginning, we were unsure of what sustainable materials we were going to use for the t-shirts and pit display. This was resolved when we found the old base boards and tables for a previous team.

Project Management

St Cuthbert's Catholic High School

Gantt Chart

Also, on website – see page 2

Project end: -/6/23

TASK	ASSIGNED TO	colaberation?	Priority	Ideal time	Week 1+2	Week 3+4	Week 5+6	Week 7+8	Week 9+10	Week 11+12
Car										
New car design	DE (Ryan)	No	A	1-2 weeks						
Research	ME (Daniel) + DE (Ryan)	Yes	B	1-2 weeks						
Production	ME (Daniel)	No	A	1 week						
Assembly	ME (Daniel)	No	A	1 week						
Scrutineering + Testing	DE (Ryan) + ME (Daniel)	Yes	A	3-4 weeks						
Enterprise Portfolio										
Team overview	TM (Tom) + MM (Sam)	Yes	B	1 week						
Team identity	TM (Tom) + MM (Sam)	Yes	A	1-2 weeks						
Sponsorship	RM (Harry) + TM (Tom)	Yes	A	3 weeks						
Project management	TM (Tom) + RM (Harry)	Yes	A	2-3 weeks						
Project goals	TM (Tom) + MM (Sam)	Yes	A	2-3 weeks						
Engineering Portfolio										
Research	ME (Daniel) + DE (Ryan)	Yes	B	2-3 weeks						
Design process	DE (Ryan)	No	A	2-3 weeks						
Manufacturing	ME (Daniel)	No	A	2 weeks						
Testing	DE (Ryan) + ME (Daniel)	Yes	A	4 weeks						
Drawings+Render	DE (Ryan) + ME (Daniel)	Yes	B	2 weeks						
Pit Display + Marketing + Verbal Presentation										
Pit Display design	MM (Sam)	No	B	1-2 weeks						
Pit Display content	MM (Sam) + TM (Tom)	Yes	A	2-4 weeks						
Marketing strategy	MM (Sam) + TM (Tom) + RM (Harry)	Yes	A	2-3 weeks						
Media presence	MM (Sam)	No	B	2 weeks						
Verbal presentation	Everyone	Yes	A	1-2 weeks						

Gantt Chart

Our Gannt Chart clearly allowed us to grasp the overall scope of the project. We ranked different tasks based on how we prioritised them and made it clear to our team members whether it was something that they could embark on alone or if they would have to rely on someone else to work with them on it. It clearly structured the process and helped us all maintain good levels of productivity.

Project Reports

We stared to write progress reports every few months to help us keep track of each sector. Our team was divided into 2 different sections: our enterprise section (that was led by Tom and assisted by Harry and Sam) and our design team (led by Ryan and assisted by Daniel). Each team would have meetings and create progress reports together. These would then be collected and compared to our other project goals and predictions to ensure that we were working in accordance with our schedules.

Celerity
St Cuthberts Catholic High School
Tom Weinstein

PROJECT STATUS REPORT

PROJECT SUMMARY

REPORT DATE	PROJECT NAME	PREPARED BY
27/4/23	F1 In Schools	Tom

STATUS SUMMARY

We have managed to create multiple new logo concepts and agree upon new team logo that we believe better encapsulates our team and is more eye catching. We may create a survey to confirm other people's viewpoints on this matter. Our Enterprise portfolio is also progressing nicely, and we have attempted to update and research our sections on marketing and our marketing strategies. Our sponsorship approach has been amended to hopefully yield aa higher success rate and we have decided that we may trial different approaches later on in this process.

TASK	% DONE	DUE DATE	GOALS	NOTES
Logo concepts	100	30/6/23	Engaging logo	Good designs
Marketing Strategies	100	30/6/23	Interactive marketing	Engage with audience more
Sponsorship	85	30/6/23	More Sponsorship	Trial different methods

NEW PROJECTS OVERVIEW

LIMITING FACTORS	CHALLENGE POSED	RISKS	ON TRACK?	NOTES
Time	medium	None	Yes	Time has not yet been an issue
Scope	medium	Poor execution	Yes	Scope has posed a slight challenge, but it is fine
Resources	minimal	None	Yes	No resources required

CONCLUSIONS/RECOMMENDATIONS

Overall, we seem to be on time for everything so far but there are a few improvements that we can make that are cited above. There are a few things that we would like to work on such as our in-person sponsorship rally and also try to develop our team's identity further.
Enterprise team report 1 concluded.
Yours Sincerely,
Tom Weinstein (Team Manager)

Project Quality

Task	Who is cross checking this	Has the standard been approved?	Improvements (if possible)	Current risk level (risk of incompletion)
Car Design	Daniel (MM) + Tom (TM)	Yes it has been approved	Maybe make an additional model or 2	
Research	Daniel (MM) + Tom (TM)	Yes it has been approved	Bar chart of material research ?	
Production	Ryan (DE) + Tom (TM)	Pending	Finish the process	
Assembly	Ryan (DE) + Tom (TM)	Pending	Finish the process	
Scrutineering	Ryan (DE) + Tom (TM)	Yes it has been approved	Up to standard	
Testing	Ryan (DE) + Tom (TM)	Pending	Finish the process	
Team overview	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Team identity	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Sponsorship	Sam (MM) + Tom (TM)	Yes it has been approved	In person sponsorship rally	
Project Managment	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Project Goals	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Computer testing	Daniel (MM) + Tom (TM)	No it has not been approved	Find a way to access this software	
Design Process	Daniel (MM) + Tom (TM)	Yes it has been approved	Add more detail in the portfolios	
Manufacturing	Ryan (DE) + Tom (TM)	Pending	Finish the process	
Drawings+Render	Daniel (MM) + Tom (TM)	No it has not been approved	Finish versions with isosketch	
Pit display design	Harry (RM) + Tom (TM)	In progress and being manufactured	Finish the process	
Pit display content	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Marketing strategy	Harry (RM) + Tom (TM)	Yes it has been approved	Up to standard	
Media presence	Harry (RM) + Tom (TM)	Yes it has been approved	Post more + spread awareness in school	
Verbal presentation	Everyone	Pending	Finish the process	

High risk	
Mid-high risk	
mid risk	
mid-low risk	
low risk	

The Three Constraints

The three main constraints that we knew we would face were: time, scope and money. It was important to focus on minimising the impact these had on the quality and quantity of our work, so we decided that our main objectives were scope and time. Money would also pose a risk, but this could be avoided to a certain extent using past teams' resources available to us at our school. Of scope and time, having a good scope was our main goal as we were lucky enough to have over 12 weeks in-between the regional and national finals.

Long-Term Goals:

So far, we have achieved our goal of qualifying for the national finals at Leeds and learning from that experience, but the chance of going to the World Finals is still in our minds. To manage our progress, we regularly met up in and out of school where we shared our advances individually.

Project Risks and Quality

Each task was assigned a backup coordinator who could help if the original team member could not complete the task alone.
We also assigned different team members to quality assurance checking others work to ensure the highest final quality.

Stakeholders

Identifying who was involved with us throughout this process helped us manage multiple aspects of our task and ensure that everyone had the necessary resources and was kept happy. Some roles included: team member, stakeholder (people who had an interests involved with the project outcome), sponsors and managers.

Ongoing Evaluation

We found that we had left the verbal presentation late and we attempted to improve our last presentation as that was our weakest score from the regional final. Working efficiently and following the Gantt Chart, we managed to complete the verbal presentation with time to spare.

Project summary

Overall, this project has presented us with both many opportunities and many challenges. We have had to push ourselves to understand and incorporate things that we wouldn't cover in school or in class and we have had to both research existing strategies and formulate our own to help us tackle this process efficiently and to a high standard. The main difficulties that we encountered were in relation to organising our time and resources efficiently, but we feel that our innovative strategies have helped us with this massively and improved our overall approach to long term projects.