



TRAXELERATION

DESIGN PORTFOLIO





The Inception

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Goal

- To **revolutionize** our Flin schools history, not only as a collection of talented and hardworking individuals, but also as a **successful**, competent, and innovative team.
- To resemble an actual Formula One team in all aspects.
- To have **documented** fun along the journey, together.

Vision

- To provide a **valuable** professional **path** that still presents individuality as a team.
- To leave a **lasting impression** upon the future generations of our school to embody them to take up the challenge.

Mission

- To **participate** at the competition, first.
- To compete as more **united** individuals that we were yesterday.
- To look back upon the event with fond memories of having **enjoyed** as a team much like a well-oiled machine.
- To incorporate the **experience** gained during the course of the project in our future careers.

Our Own High School - Our Home

Ever since two of our members did the first ever reaction race in our school, a **passion** welled in all of us to excel at this technological challenge. Our school has a great track record of winning. In the past competitors and as the top position team in our school, we aim to **uphold that legacy**. The school faculty have always been there to assist us. For that, we express **heartfelt gratitude** and hope to make them proud in the Finals.



Team History

Team Traxeleration has been working for this technological challenge for **more than 2 years** under different banners. Our team is such that it is a blend of **unique** and **talented**.



A Portfolio of **Interstellar** Proportions

"The Milky Way, being our home amongst the cosmos, represents Traxeleration's roots within a rich legacy of Flin Schools at Our Own High School Al Wajida."



MANUFACTURE



GRAPHICS



DESIGN



RESOURCE & MARKETING



Revolutionary Team

ROHAN RAJAN
Team Manager

KARTHICK SHANKAR
Graphic Designer

DEV KHADE
Design/Manufacturing Engineer

GAUTAM RAMAKRISHNAN
Design/Manufacturing Engineer

AHSAN FUZAI
Resource Manager

ALAN ALEXANDER
Marketing Manager



He is in charge of the **smooth functioning** of the team. As the team manager, he is also in charge of **dividing labour** and making sure each team member gives his best. **Meeting deadlines** and providing assistance wherever necessary also forms his job.

He can be adjudged as the most **creative member** of the team. He is in charge of effectively using available computer software such as Photoshop, Illustrator, etc. for giving the team a **big and elegant identity**. Team logo, intro video, renders and everything related to graphics come under his supervision.

As the name states, he is in charge of making the most **aerodynamically advanced** car possible. Wing design, nose cones, wheels, all come under him. He is also in charge of deciding suitable **manufacture processes** based on research.

He is also a design and manufacturing engineer as **two minds** are always better than one. He works closely with Dev to deliver the **best design possible** and to manufacture that best design by choosing suitable materials.

He is in charge of planning and taking care of the **team's budget**. He looks for ways to spend as little as possible while still maintaining required quality and **performance standards**. He is also responsible for searching out **possible sponsors** for the different requirements of the team and maintaining good sponsor relations.

Exposure and publicity is his area of work. He tries to promote the team as much as possible by means of social media or through promotion campaigns. He is also responsible for sponsor relations and **marketing strategies**.



MANUFACTURE



GRAPHICS



DESIGN



MARKETING & MARKETING



"Superior Ramonart SCMDIS 147 series to represent our team's ever expanding repertoire of skill and knowledge - just like the hydrogen clouds of the S-447"



Artificing Identity

Team Name

The first speck of identity of anything in the universe, be it living or inanimate, is a name. Rightly so, it requires attention and care as that will turn out to be the face of whatever it does. Traxeleration was the result of **Intense and Discursive**. After plenty of suggestions and team polls, we finalized **Traxeleration**. It symbolizes what really happens during the race. **Acceleration on the Track**. Traxeleration is based on practical observation of what FI in Schools is really all about.

TRAXELERATION

Team Colours

The team took **careful care** in choosing its colours. Since the colours are quintessential in denoting the identity of the team, all the members were required to give valuable and notable contributions in this aspect. **Orange, Black and White** have been selected as our team colours. Such is the case as we wanted originality from the more conventional schemes such as Red and Black, Blue and White, etc. The **New Hypermaxium** football shoes were the source of inspiration.

Orange represents energy.

Black represents perception and depth.

White represents perfection.



Team Slogan

The slogan is what we want the people outside FI to gain from the team. We want to show others how **different** **we are** **traxelerating**. It is to be a part of FI in Schools. It represents **IDENTITY AND INSPIRATION**.

**BE DIFFERENT.
BE SPEED.**

Team Logo

The team logo is the **convergence of multiple ideas** and themes that we want to convey to the public. It is based on vivid symbolism and has a rich meaning. Another professional concept to the logo is the fact that it doesn't have a **single colour**. Most teams make one logo and keep it the same throughout. But we have made a vector image so that the colour can be changed according to the situation it is used in. The main purpose of this logo is to show that **we are Traxeleration**. Nothing More. Nothing Less.



Team and scheme that
relating
personal idea.

Sound navigation for
which speed of sound
where the preparation
direct through the need of
light.

The Element of TRAX

The element of **TRAX** has been something that has been inherent in our identity ever since the inception of Traxeleration. It concerns the **essence** of our identity. These 4 simple, but meaningful words have helped us exceed our capabilities.

think
reach
imaze
pile

Over time, the word TRAX has also become a sort of a **password** which people use to fondly refer to us.

The Essence of TRAX Graphics

A transistor is a semiconductor device used to amplify and switch electronic signals and electrical power. It is composed of semiconductor material with **at least three terminals** for connection to an external circuit. The three terminals stand for key aspects of graphics which are - **at Simplistic**.

at Enthusiastic
at Inspiring

These three terminals, when connected to a **creative mind** as the power source, can amplify the capabilities of the graphic segment of the team and deliver **astounding** and **fantabulous** results.



The Taurus Constellation, known for its vivid and colourful astronomical formations, represents our team's colorful and flamboyant identity.





Xylotomous Machining

Throughout our journey to the Qualifyrals we have considered the manufacturing stage as one of the most important components of the project. We put ourselves on having the best looking car and the **most accurate car** at the event, which is why we took the manufacturing process so seriously. Many processes and specification checks have been administered throughout the entire process to ensure the **highest final quality** of our car.

Machining and 3D - Printing

For the machining of our car we have decided to use a **5 axes CNC machine** to reduce cutting time. Unlike the usual 3 axes one, it had many **more features**, distinct capabilities and was more precise. Travelerion has utilized the **5 axes contour feature** to allow the cars to be machined continuously rather than with an index. The primary advantage in continuous machining is the **precision and advance machining** of the more complex parts of our car design. We used a 3D printer to manufacture our front and rear wings and our wheels. These were designed using CAD software and converted to STL files for the 3D printer. We selected the printing orientation to minimize any support structures and achieve a better quality finish.

Post - Manufacture

The next stage in the manufacturing process was the most **critical aspect** in ensuring the overall accuracy and finish of the cars. We moved directly to a finer 800 grit sandpaper as the car was **already quite smooth** due to the 5 axes machining. The front nose cone and the rear aerofol were then attached using a high strength mixture of clear super glue and anadib. **Septane acrylic primer surface** was the main undercoat that was used. Decals were then applied according to. The next stage consisted of the assembly of the car. The wheels were attached along with the stub axles of the car.

The wheel was made as light as possible to **reduce rolling inertia**. Thus we resorted to a **3 spoke design** to reduce the plastic used. The placement of ball bearings along depth of wheel was something we paid careful attention to. The bearings are connected to the wheel at the **center of wheel's depth** to reduce moments along either of its sides. This will lead to a more **uniform distribution of load**. The car was then checked according to the specifications to ensure overall accuracy within the competition rules.

Materials Chosen

Aerofol: Acrylic Resin was chosen as it has low chances of breaking and has a sharp finish.

Rotating Surface of the Wheels: The rotating surface is also made from Acrylic due to abrasion resistance. It is also quite light which gives it a lower rotating inertia.

Hubcaps: The hubcaps are also made of acrylic mostly because it is strong and smooth.

Axles: Acrylic axles were dense and light and was thus chosen.

Ball Bearings: Stainless steel was chosen as it had good spinning results and was more economically viable.



MANUFACTURE



GRAPHICS



DESIGN



RESOURCES & MARKETING



05

"The Pillars of Creation, found within the depths of the Eagle Nebula, are a site of star formation - just like the CNC Machine which manufactures the stars of our project."

Enticing Sponsors



When approaching businesses for sponsorship and in-kind support we like to offer a fair proposal that outlines a **mutual relationship between the two parties**. We work with a system, known as ROI. ROI stands for **Return On Investment**, which means that everything they give us, we give back in terms of promotion for their company or their product. Instead of having our lab as "Sponsors", we split them into two - one based on requirements and the other monetary sponsors. As the name states, our financial needs were taken care of by monetary sponsors and other services were sponsored by the requirement sponsors.

Sponsorship Proposal

The team developed a **Sponsorship Proposal** outlining sponsorship for topaz, emerald, ruby and diamond levels. Initial contact was made through letters, phone calls and emails that included details of our program and proposal. We believe that a **personal touch** is important so that sponsors feel like part of the Traxeleration family. They were kept informed about our progress through a series of newsletters, which were emailed to sponsors with photographs and updates, including each sponsor's logo.



ROI

Since the sponsors are the ones who allow us to perform to our **maximum potential**, team Traxeleration took great care in giving back to the wondrous sponsors. As mentioned in the sponsorship proposal, the company can get a **personalized benefit**, which definitely include advertising, thus boosting sales. Merchandise with sponsor details will also be given out at the pit display during the Quasifinals. Some of the benefits include, but are not limited to:-

1. A 3D Printed Car.
2. A copy of the Portfolio.
3. One item of all our **merchandise**.
4. Company Logo on the Car.
5. Company Logo on the Pit Display.
6. Advertisements of sponsors in the pit display on the LCD screens on top(National Finals).
7. Company Logo on pages of the Portfolio.
8. Files about the sponsors will be included in the merchandise.
9. A photograph of the team with the sponsors.
10. Active links to **sponsors website** on our website, facebook page etc.
11. Company Logo in preferred spots on the Uniform.

Budget

The team formulated a budget plan **well before work began** for the Quasifinals. The cost of each commodity required was sought for. Hence, we could strictly adhere to the funds provided to us. Any bill, even if it was infinitesimally small, was **properly recorded** by our Resource Manager. As such, our final budget outlay is as follows:

TRAXELERATION BUDGET REGIONAL ROUND

Division	Amount Spent
Manufacturing	2580 AED
Uniform	FOC(Sponsored)
Transportation	800 AED
Post-production	537 AED
Merchandise	560 AED
Printing	600 AED
Miscellaneous	500 AED
Total	5777 AED

Corporate Proposal

DIAMOND
AED 7500+

RUBY
AED 5000+

EMERALD
AED 3000+

TOPAZ
AED <3000

"The Andromeda Galaxy is known to be approaching our galaxy due to massive gravitational forces which represents how we get closer and closer to our sponsors!"



TRADE/WORKSHOP



GRAPHICS



DESIGN



RESOURCE & MARKETING

06



Lucrative Marketing

Without clever marketing people won't know that you exist. This is the reason why we made marketing a **key focus** for the team. Our aim was to have our team identity become recognised in our local communities, our regions, our states and across UAE. We also took our marketing one step further by placing ourselves on the worldwide stage and linking our team to the global community. At Traxeleration, we all **put ourselves forth** to have an excellent marketing plan.

Pre-Competition Marketing Campaign

Phase 1: The Startup

We started our campaign by **spreading awareness** about Traxeleration via our face book page when the team was first formed. We were quickly able to amass **over 500 likes**, thus ensuring that the public was in the loop. We simultaneously moved on to twitter and gathered a mass following there as well. A few of our members also attended a public speaking workshop by **Hani Mashmouk**, who was a judge in the **World Finals of 2012**. He gave us important tips, and at the same time, we were able to tell everyone at the workshop about Traxeleration.

Phase 2: Full Fledged Campaign

a) After the team got the initial publicity that we needed, we began to routinely bring people **up to date with posts** regarding achievements, events and festivals with a Traxeleration twist. Two of our members were also lucky enough to be on **News 105.6**, where they talked about the competition and about the team.

b) We also gave away **customised Traxeleration merchandise**. This included key-chains, t-shirts, arm bands, caps etc. This generated, not only a good fan following, but also developed a sense of relatability. Our main highlight of the merchandise sale was the sale of **Traxeleration perfumes** in our school. It was very successful and we were sold out in a matter of hours!

c) Publicity in school was of no issue as we put up a **plethora of posters/brochures** before any event and thus let the community know that we are all in it to win it. We also participated in a **cooking competition** to show awareness of team Traxeleration.



Industrial Collaboration

3D printing is an up-coming industry in the field of manufacturing and rapid prototyping. Its use in FI in schools is also unparalleled. We collaborated with one of our sponsors, its 3D solutions, on **choosing the best material** for 3D printing and about the pros and cons of the respective materials. We also closely collaborated with Parvathy Perfumes to design the **fragrance of speed**. This ensured that Traxeleration had something different from the ordinary.

Competition Day Marketing

Pit Display

The pit display was the result of a **combined effort of collaboration** from the team members. The pit stands out for its simplicity while abiding by the rules of the Qualifinals. It helps us in providing maximum publicity to the sponsors. It also stands as an **interactive display** where we distribute merchandise and brochures.

Car

The **logos printed on the car as decals** helped in showcasing our eminent sponsors as without them, we wouldn't be able to partake in such an enthralling competition.



"Just We know the deep space markets its beauty with its fascinating colours.
Traxeleration markets its emblematic image to the audience."



MANUFACTURING



GRAPHICS



DESIGN



FINANCIAL & MARKETING



Exotic Designs



TX04 - Codename : Rogue

This car was one of our first models which we designed using the basic principles of aerodynamics. But soon, we realized that it was too complex and didn't quite perform that well. We built upon the design a lot, for example, the divide was removed and the wing system was further developed.

To all great designs there lies a failure that helps shape them

TX17 - Codename : Zephyr

Our innovated wing system is shown here. The car however, was quite bulky and needed to be toned down. Another major innovation was the height of the canister holder, which was minimized so as to be able to impact the whole car evenly and ensure a smooth run.

"Recreation is more important than change, who knows what you might end up making!"

TX19 - Codename : Mustang

Modeled for more than speed and stability our final car is truly a masterpiece. The efficient usage of thrust provided by the canister is what makes this car our final decision. After building on the TX17 we created a nose structure that was defined, more stable and innovative. The design is simple, powerful, elegant, and mind-numbingly fast.

"Perfection is not attainable, but if we chase perfection we can catch excellence."

TX16 - Codename : Glepnir

As our understanding of flows in design grew, we experimented with the front of the CD, canister and the nose. We decided to make a plastic nose cone which could withstand the heavy impact endured during launch. This model was quite simplistic, our full potential was yet to be discovered.

"It is easy to complicate a design, but it is excruciatingly difficult to facilitate it."

TX08 - Codename : Stingray

To follow up previous failures, we created a car with a very sleek finish. This car performed much better but we ended up not using it as this was also quite complex. An innovation we had here was the structure in front of the wing which was built upon to achieve perfection.

"An idea is truly utilized when executed perfectly"



MANUFACTURING



GRAPHICS



DESIGN



RESOURCE & MARKETING

08



"Just as we find various pocket dimensions in the universe, we deserve to give our plethora of designs their own little universe to contain them"



Relentless Study

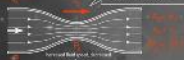


Bernoulli's Theorem

The Bernoulli Equation can be considered as being a statement of the **conservation of energy**, applicable to flowing fluids. In the high velocity flow through the constriction, **kinetic energy must increase** at the expense of pressure energy.

Drag, pressure coefficient: Drag is the resistance to the flow of a fluid over a solid surface.

$$P_1 + \frac{1}{2} \rho v_1^2 + \rho g h_1 = P_2 + \frac{1}{2} \rho v_2^2 + \rho g h_2$$



Skin Friction

The friction caused by the surface of the body due to **interaction with flowing air** is called skin friction. It forms one of the most important aspects of resistant forces on thrust. In order to reduce such a force, it is necessary to use **smooth-skinning materials** along with additional **glassy layers** on the car if necessary.



Wetted surface for the aerodynamic car

Rolling Resistance

Rolling resistance is a function of the weight of the car, friction between the wheels and the track and bearing resistance. For the running surface of the wheels, it is necessary to choose the **smoothest and lightest material** for both the wheels as well as the ball bearings.

Thrust

While there is a degree of variability between cars, the amount of thrust is not a variable that can be controlled by the team. The **faster the car**, the **greater the coefficient**, and the greater its terminal velocity when the carster begins to push it to the finish line. To correct the full thrust into forward motion, the thrust must be directed through the car's centre of gravity. If the thrust supplies above the centre of gravity of the car, a moment is created which would result in a down force on the front wheels or up force on the rear wheels. The **further the thrust is away from the centre of gravity**, the **less efficient the transfer of thrust** into forward motion. This is why the carster holder of the car is placed **lower than normal**.

$$a = \frac{F}{m}$$

Since F is constant:

$$a \propto \frac{1}{m}$$

Drag Force

Drag force is the **single most reactive force** that resists forward motion in an F1 car. Drag force is a function of air density and the car's drag coefficient, cross-sectional area and its velocity. Car drag coefficient is highly **dependable on the aerodynamics** of the car. How the car performs on the track depends on how the car is shaped. Through research, we have found out the drag force is **not the most factor** affecting the performance of the car.

Upthrust vs. Downthrust

Upthrust is the force that acts under the car to make it leave the ground. Downthrust (or downforce) however, is the exact opposite. It helps the car stay on the track. Upthrust **reduces the weight** of the car.

According to the **laws of Static Friction**, force of friction is directly proportional to normal reaction. By providing upthrust, normal reaction is reduced, which thus provides lesser force of friction. The carster holder was designed to **provide upthrust**.



"The Trifid Nebula contains old, new and upcoming stars synchronous to our research which is a blend of old, new and upcoming ideas."



Active Management

We at Trax believe in **continuous project management** and evaluation to keep track of our progress and to **assess our flaws**. We thereby have incorporated many strategies into our team structure to **grants functioning smoothly**.

Phase 1: Stockpile and Research

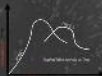
The first phase of our project is all about **raising funds** and acquiring knowledge for phase 2. Accumulation of resources is imperative for any successful project. We have recognized this requirement and hence have taken great pains ensuring that this phase succeeded. It was therefore decided that a **systematic and effective strategy** was required to approach various companies for sponsorship. We have therefore devised **algorithms** **responsible** to achieve this.



Research about various project elements is necessary to ensure project success. While research about design, manufacture and post manufacture is considered an integral part of our of this phase, we have also recognized its need for other areas such as graphics and marketing strategies. Phase 1 was allowed to exceed into the time frame of phase 2 to ensure optimum results. For communication, we mainly used a program called **TeamViewer** and **Google Hangouts** along with conventional means like **telephone** and **SMS**.

Phase 2: Execution

The second phase of our project is all about **making use of our resources** and knowledge to obtain the desired end product. Execution was spread over all aspects of the project- design, manufacture, graphics, promotion and documentation. In this phase also, effective use of available funds and time management was imperative.



Execution of each project element was undertaken by the respective department who would initially **present proposals** to the entire team, which on authorization was subsequently put into action. It is also the phase where we did our **final inspections** to our car pit display and verbal presentation.



To ensure that Team Traxeleration functions in the most fluid and smooth manner possible the above **internalized departments** were setup within the team.

Risk Management

Fin School is not without its **unseen pitfalls**. Aside from the ever-present risk of bankruptcy (which Traxeleration managed quite well with **prompt sponsors**), an missing key external deadline, there exists the hazard of unexpected changes to the team's overall plan. The former issues were managed through **water-tight planning routines**, continually updated budget tables as overseen by our Resource Manager, offer a fail-safe against spending beyond the restrictions of sponsorship funds. The team **nullified any potential risks** of failing, but the variables that could not be predicted were overcome by **rapid and effective communication** as a unified team.

$$\sum_{i=1}^n \text{PLAN}_i$$

TRAX Assessment

TRAX stands for **Time, Resource Average Expenditure**. With this self-made assessment, Traxeleration was keen to **adhere strictly** and to keep a steady track of resources. Strict deadlines as followed by Gantt charts helped immensely to submit project elements on time. Also, though the Gantt charts, we were able to gauge how much time will be spent for each element and whether something needed more attention than others. The chart was excellently managed by our Team Manager. Our Resource Manager on the other hand **calculated average expenditures** for a month with regards to how much monetary funds we had and how much we needed to spend. The money that we received was utilized under **strict supervision** so that nothing went to waste.



MANAGEMENT



GRAPHICS



DESIGN



RESOURCE & MARKETING



10

"The Eye of Trax" as the Hindu deity is commonly known as, represents our team's intensive yet complete work ethic, similar to the intense, yet pure central star.



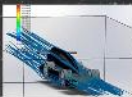
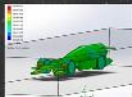
Tireless Testing

Virtual Testing

For the constant improvement of F1 in schools cars, testing is absolutely necessary. We had a good amount of base blocks, so manufacturing cars for testing was not really a concern. But, due to the **large number of models** designed by our 2 eminent design engineers, we had to narrow down our selections to the best ones. Thus, before manufacturing began, we ran **stringent tests on our cars virtually**. This was done by:-

1) SolidWorks Flow Simulation / Autodesk Fluid Design

Since our models were designed on both Autodesk Inventor and SolidWorks, we had the advantage of being able to **test with both the software**. The more one is able to test something, the better. Systematically following this principle, we were able to get **excellent results** - some that one of the programs showed and the other didn't.



Component Tests

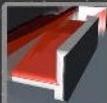
Tests were run on each component, to ensure that our final car had the **best parts** all put together.

1) Side-Pods

The side pods use a more **streamlined shape** compared to standard designs. To accommodate the side sucker, this side pod has a **concave**, which itself is aerodynamic.



Model No:
TX17 : Zephyr



Model No:
TX19 : Mustang



2) Canister Holder

After running stringent tests on numerous canister holder shapes, we analyzed that the designs presented below **performed the best**. The one to the left is more aerodynamically viable, it is more streamlined and has a **lower drag coefficient**. It is also incorporated at a **lower height**, which reduces moment of force over the car. Finally, it **provides upthrust**, which reduces weight of car on track.



Reaction Time Testing

The position racing was identified as one of the most important aspects of the competition day. As such, we needed adequate practice and technique in improving our reaction times. For this, we used the online reaction time tester at the website www.humanbenchmark.com. The person with the best average reaction time was chosen instead of the one with the lowest single reaction time as consistency was key for the races.



"The red nebula, an astronomical formation, which was difficult to analyse, required precise instrumentation and analysis, similar to the test strategy that we used"





Ingenious Views



SKETCHING



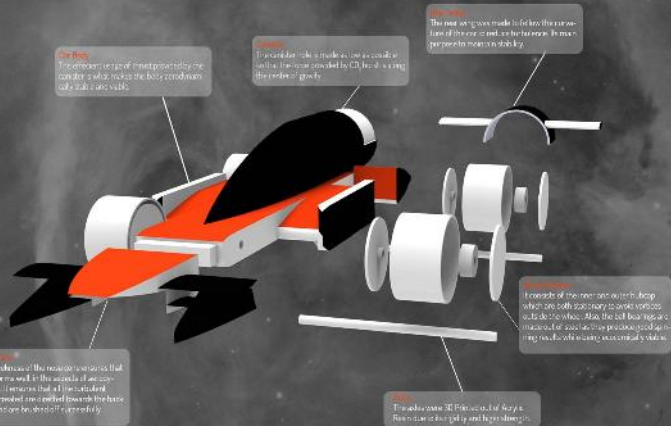
GRAPHICS



DESIGN

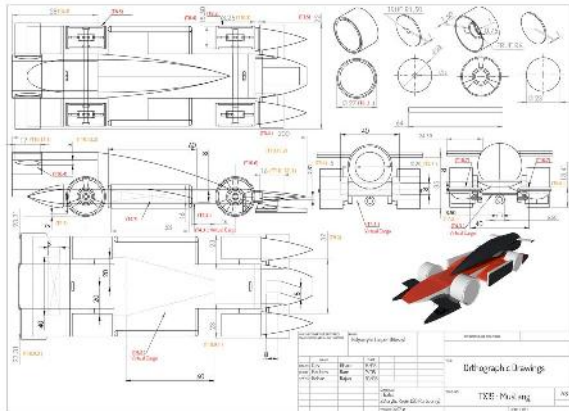


RESOURCE & MARKETING



The Gamma Nebula is often viewed as the gateway to the Keyhole Nebula, which serves to represent this page as a portal towards better understanding of the car.

Orthographic Skeleton



The Lagan fleetula showing distinction and organization, exemplifies the precision with which our engineering drawings are produced.



MANUSCRIPT



GRAPHICS



DESIGN



RESOURCE E MANAGEMENT



Narrating Experiences

Adventure comes from the Latin word **adventus**, which means 'to happen', 'to come'. It is something that happens everyday. It is what comes when we open the door. But if we do so when we think about adventure, where is all the emanating? The meaning points towards such a quotidian event? Where are all those fears that we usually attach to that word? And what about the excitement? This competition has **traveller** with the core fact, being that the experience and adventure of FI in Schools is indeed **endless**. The members of **Traveller** have picked up a really unique skill set in all respects.

Team Work

The core concept of this astounding competition is team work. Rome wasn't made in a day and it certainly wasn't made by one man. Every core concept of FI requires a whole team to fulfill to the fullest and we're proud to say that **Traveller** has excelled at team work. We learn to depend on teammates and complete our tasks and also ensure the efficiency of every individual. We were always there for our team mates and backed them up at every fork or turn in the road. This truly helped in unlocking the innate potential that everyone had and stay true to the genius inside of them.

Elegant, Minimalistic Designs

Team **Traveller** is a strong supporter of minimalism, as seen evidently in the design portfolio. Really harsh and bright designs may seem exciting first, but they gradually lose professionalism – something that our team lives by. Our designs are meant to inspire people and instil in them a passion for FI in Schools. Through countless number of failures and infinitely many trial runs, we have perfected our art and skills so that we can deliver the best among the best.

Corporate Professionalism

One doesn't survive in the modern world if he doesn't have good corporate standards. The competition enables us to do just that. We make business plans and adhere to budgets to ensure the maximum smoothness of our work. We learn how to meet sponsors and to 'sell' our brand. We learn various ways by which we can convince the sponsors that we are worth their money. We can truly say that **Traveller** is a brand that has excelled beyond expectations.

Role Interactions

Even in certain segments such as design, completely inexperienced members of the team were able to contribute original and valuable ideas for development. Role overlaps are pretty common and we used that to the best of our advantage. Everyone pitched in, no matter what the scenario. Though certain members may not be into a particular field, the vision of the brain is endless. The possibilities that can be conjured up by one member is truly infinite. Now what if we used that, multiplied by 5 super genius brains? It gives birth to a skill-set of excellence. Individuals work with diligence and in their own drawing paths, converge into one unimaginable team - **Traveller**.

Citizens of the Future

This competition inspires the every single team to use FI, to learn about physics, aerodynamics, design, manufacture, branding, graphics, sponsorship, marketing, leadership/team work, media skills and financial strategy, and apply them in a practical, imaginative, competitive and exciting way. We are going to be the future doctors, engineers, racers, leaders etc. and this competition acts as a stepping stone to propel us toward a great future. Team **Traveller** strives to stand out of the ordinary and be the difference that the world wants to be.

Afterword

Reaching the end of the portfolio which symbolizes the end of our old journey and the beginning of our new, non-stop adventure, we would like to salute every single person who has supported the team through this magnificent journey. It's been a long a tough one, but definitely one that we would remember for the rest of our lives. We would like to thank the FI in Schools organization and our Duncraig High School Al Wazir for providing the opportunity for sitting in this amazing roller coaster. With that, Traveller signs off from its journey to reach the Qualifiers and hopes to participate in the National Finals. Let us all try to live by our morals and ideals so that we can emerge as better citizens of the world.



MANUFACTURE



GRAPHICS



DESIGN



RESOURCE & MARKETING

Part Speed. Part Elegance. Part Innovation.
All TRAX.



TRAXELERATION
BE DIFFERENT x BE SPEED