PROJECT MANAGEMENT

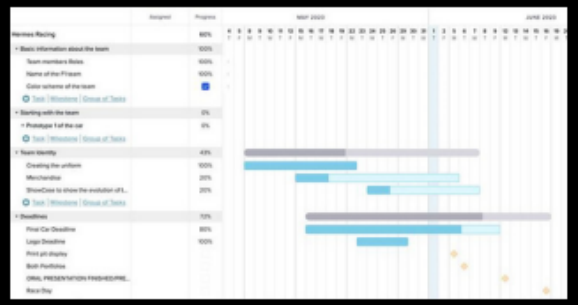
RESOURCE MANAGEMENT

Resource	When	Availability
Laptop	Every Thing	Everyday
Team Members	Afterschools	Everyday
3d Printers	Car and Display	Everyday
Onshape	Car Creation	Everyday
Simscale	Car Testing	Everyday
Canva	Marketing	Everyday
Micosoft Teams	Communication	Everyday
Instagram	Marketing	Everyday
Wix	Website	Everyday
Tiktok	Marketing	Everyday
Youtube	Marketing	Everyday
Imovie	Video Marketing	Everyday
CnC Router	Shaping Car	Everyday

In our second week of the process, we created a resource table. This allowed us to brainstorm websites and machines that we needed throughout our process. This allowed us to determine the resources that we might need.

TIME MANAGEMENT

To guarantee, that we were using our time well, not wasting time, and leaving everything till the end. We set up a plan, that was extremely brief but helped us have a prospect deadline. We set deadlines on our team's channel, reminding every day, to complete our tasks. To give us sufficient time, to accomplish high quality work.

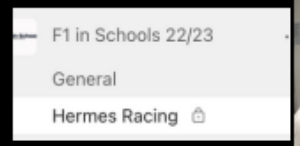


MANAGEMENT THEORY

our management theory throughout the process, was systems theory. We had set up systems for every task. We never let one person work on one task alone. We believed that two heads are better than one. This allowed us to not be stressed from our work, both from school and F1. It allowed us to be accountable for our own tasks but we always had each other.

COMMUNICATION

We used a plethora of communication tools, to communicate with each other throughout the process. The most common form was on our Microsoft Teams Channel, where daily messages would come through. This gave us an accessible medium of communication. We also relied on meetings weekly, in real life, and online to help us progress.



FINANCE MANAGEMENT

Money Received (AED)	2750
Money Spent (AED)	2218
Money Left (AED)	532
Outgoing	Amount(aed)
Uniform	560
Spray Paint	200
F1 Blocks	180
SLA printing front and rear wing	160
Donating	100
Merchandise	300
Pitdisplay	400
Portfolio	100
Website	188
Stickers	30

When creating our finance management, we have decided to do realistic budgeting. We wanted to spend the least amount of money, while still being able to acquire high quality. We underestimated the cost of certain elements, such as the uniform. We predicted of 700AED, but ended up only spending 560AED. As well as the unexpected generosity of sponsors in financial backing.

RISK ASSESMENT

In our first meeting as an official team, we had done a risk assessment. This was done as such, when we ended up facing the problem, we would know the level of risk. As well as what reaction we should partake in to solve the problem. This allowed us to identify potential risks earlier in the project, then be surprised by the risk. We looked through each task, to identify potential risks.

ISSUE	PREVENT	PRIORITY
Not being able to get Sponsors	Try a plethora of methods to acquire sponsors	VERY HIGH
Team Member Absent Long	Distribute similar task between two people	MEDIUM
Not Meeting Deadlines	Create a system the makes them accountable	HIGH
Not doing work at all	Create a system the makes them accountable	MEDIUM
Work dissapears	Create folders and store them on the team drive	VERY HIGH
Work is not High-Quality	A person will review the work	HIGH

TEAM IDENTITY

TEAM NAME

Hermes Racing embodies the qualities of speed, agility, and precision inspired by the Greek god Hermes. Like the swift messenger of the gods, our team delivers unrivaled performance on the racetrack. With innovation and strategic prowess, we race to victory, leaving a trail of excellence in our wake.

COLOR SCHEME

We had an enduring journey to finding the perfect color scheme that represented the team's admiration. We eventually settled with a pink, black, and green, scheme, we wanted to be unique and recognizable.

TEAM VISION

At the beginning of our journey - we had created our team vision, where we expect to be at the end. We took this vision as a goal and helped shape the team's identity. Our team vision - "The final goal, is to win, but we want to promote sustainability and gain and improve personal skills while having an amazing experience. We took this vision and applied it to our mentality. In every interaction and every collaboration, we always reminded ourselves about our team's vision. The team's identity was shaped by our team vision.

TEAM LOGO

Our logo went through massive development as we couldn't find a symbol that fully represented Hermes Racing.

This was our logo for a while, but we felt it wasn't unique and us.

This was an idea, but our team branding wasn't fully represented in the logo.

This logo represents Hermes Racing with an H and wings - speed.

TEAM UNIFORM

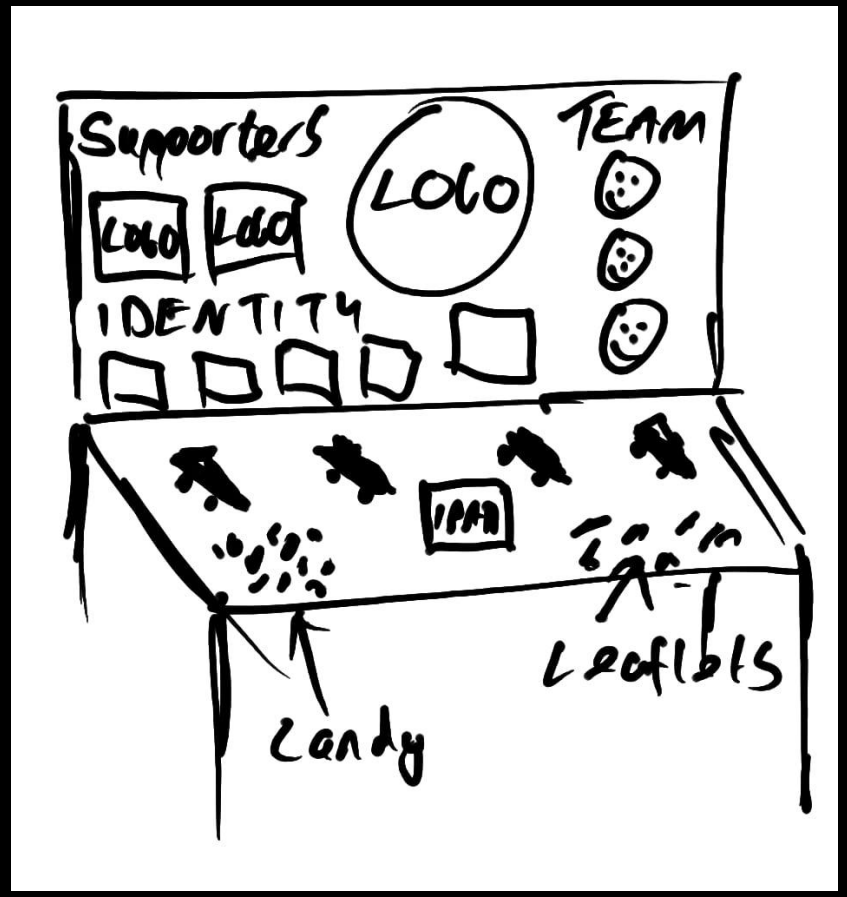
This final uniform design was configured to fit within our team identity. We ended up going for a sports shirt texture, as it helped us represent one of our sponsors. The design fully represents the uniquness of our team indenity and fully represented our sponsors.

Design 1: 5/10
This was our first idea for our uniform. This was the basis of our future uniform mockups. We didn't end up going with this format, as we had felt that our sponsor weren't being represented as well as we had wanted.

Design 2: 7/10
This was our second idea, and we opted to go toward a polo shirt as it seemed professional. We had almost gone for this plan - but we backed out as we felt the uniform was too basic, and didn't showcase the team's brand fully.

PIT DISPLAY DESIGN

IDEA 1

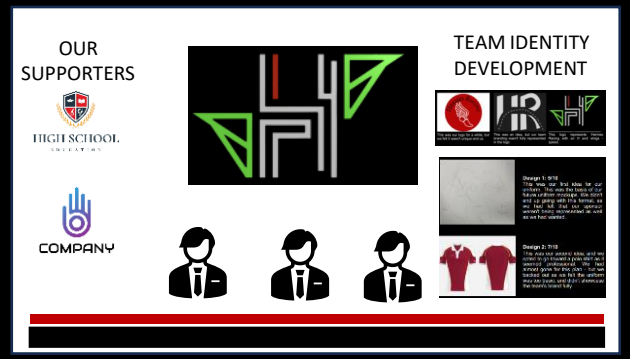


INCLUSIONS:

- Team Identity
- Sponsors
- Technology
- Multimedia
- Marketing
- Car prototypes

IDEA 2

BACK BOARD

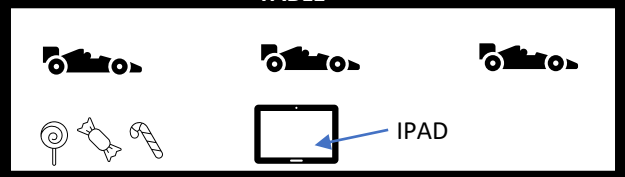


TABLE

IDEA 3

BACK BOARD

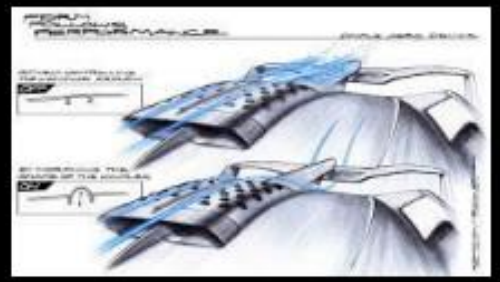
TABLE



EVALUATION

Overall, the F1 in Schools pit display design demonstrates strong potential but may benefit from refinements to maximize its impact and engagement during competitions. With careful adjustments, it has the opportunity to effectively showcase the team's achievements and leave a lasting impression on spectators and judges alike.

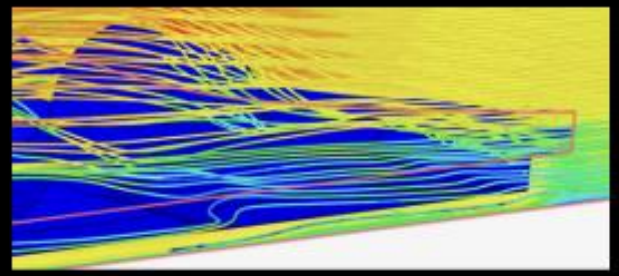
CAR RESEARCH & DESIGN DEVELOPMENT



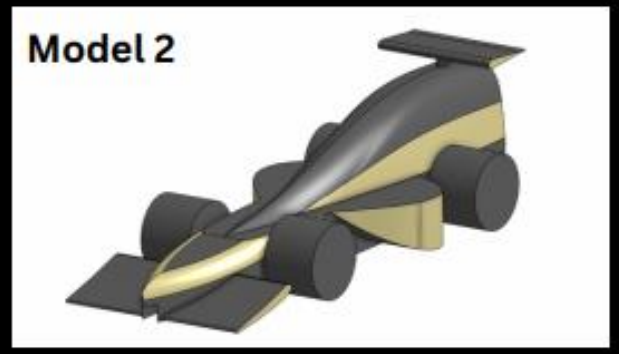
Inspired by the Bugatti Bolide, we started off our design by testing out this feature. Bugatti says that the dimples on the car are supposed to decrease drag and have the same function as the dimples of a golf ball. Because air has viscosity, it means that the air will stick to the car. However, due to the car's inertia, the air is unable to stick all the way, as it creates pressure drag at the rear, which pulls the object backwards. Because of this, the bubbles of the Bugatti and the dimples of a golf ball create small areas of higher and lower pressure areas on the surface of the object, which turns the laminar air into more turbulent air. Turbulent air has less inertia which allows it to stick to the car better, meaning there will be less pressure drag at the rear. However, due to the scale of the car compared to real cars, the size of the bubbles/dimples won't affect the airflow, especially because the 1cm tall dimples on have an effect when the car is at 80km/h, and the car will reach a maximum of 72km/h. When creating the car using the CNC machine, the radius of the tip is 3.175mm, meaning that we wouldn't be able to achieve the size of dimples we wanted to have an impact on the turbulence.

For the rear wing, we decided to create a wing that span throughout the entire width of the car, this was done to create as much space as possible between the rear wing and the supports, so that there was would be more space for the air to go through, and so that there would be less of a high pressure area under the rear wing airfoil, which would increase downforce, which we do not want. The side pods also used a tear drop shape, which we thought would make the car more aerodynamic. The end of the side pods would instead bring the air inside and make it hit the rear wheel, which would slow the car down as it would create a lot of pressure drag behind the car. Behind the rear wheels, there are cubes with a rounded edge on the side, as it would bring the air inwards, as thus allowing the air to go back together behind the car and reduce the wake.

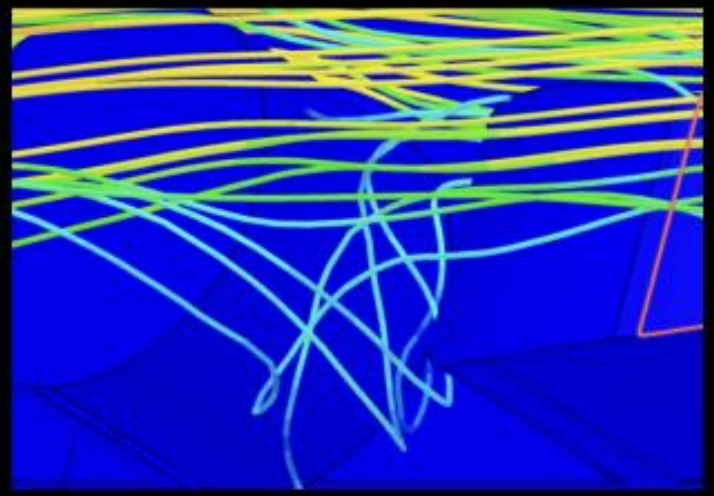
We started the front wing off by using the tear drop shape, which has a low drag coefficient (0.05). However, the thickness of the airfoil is extremely thick, 4.5mm, which means it will create a high amount of drag. Instead, we could have decreased the width to 2mm to fit within the regulations



Continuing from the first model, you can see this CFD run that the air is pushed under the rear wing, which would push against the wheel and create drag.



First, we decided to change the rear wing, the center of the rear wing would help stabilize the car, so that it doesn't hit the walls or go side to side during racing. The rear wing also helped reduce the car's weight, decreasing friction with the ground which will allow the car to go faster. The rear wing's airfoil is 2mm thick, so that the air can move more freely and decrease pressure drag compared to the first model. I decided to smoothen the front of the car so that less vortices would be created when the air separates from the car's surface, which more turbulent air hitting the wheels and so the air hits the rear wing incorrectly. The side pods push the air outwards, next to the wheel, but due to the tear drop shape, it brings the air back in as shown in this picture.



But they also push the air underneath, all the air needs to squeeze under with only 2mm height, between the car and the track. This creates a low-pressure zone underneath the car, creating downforce. This also means that air will be pushed under the rear wheel, which prevents the wheels from spinning properly, which may make the wheel block. We reversed the air foil from the front wing as we thought it would allow for the car to cut through the air easier, and due to the ticker rear, a larger wake will be created.