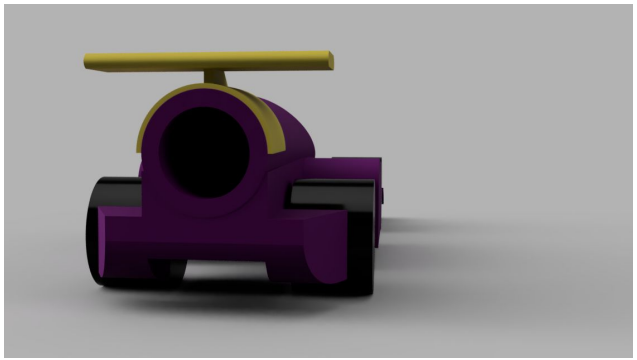
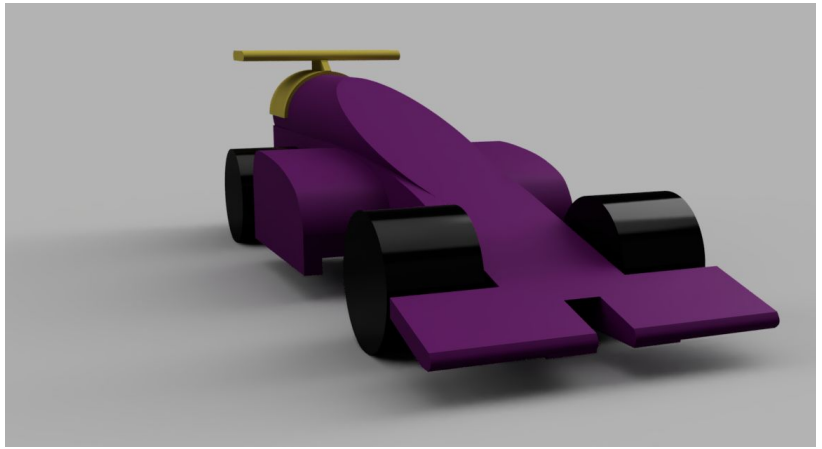
The design derive

Our initial approach was based on a short and fast impulse sketches with no constraints. That phase ended with a lot of alternatives but the end result was highly not complying with competition requirements.
Our intent was to create the artistic base line for the final design
We used the outcome and started to audit it and manipulate the dimensions and forms to reach acceptable geometry. The final phase of design was more detailed and oriented into preparation for fabrication and adjustment for real world fitment.





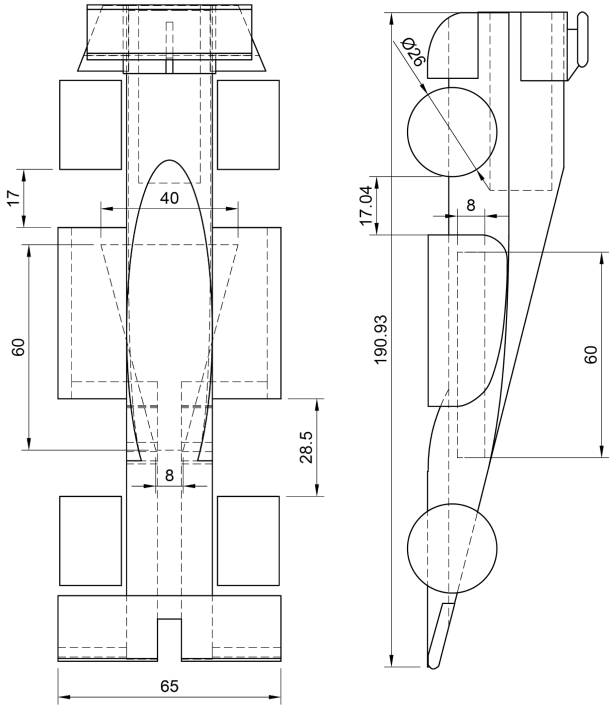
Design tools

We used the following tools

- FUSION 360: it was used constantly during the design process. It is highly developed design suite that allowed us to use hand sketches as base for 3d modeling. It also helped in weight calculation and adjusting center of gravity and many other features
- PROCREATE: the software was used to generate hand sketches. The software is very fluid and saves a lot of time in coloring and amendments
- Other related cad softwares like Slicers and 3d printing servers.
- Sketch pads and pens

Design development

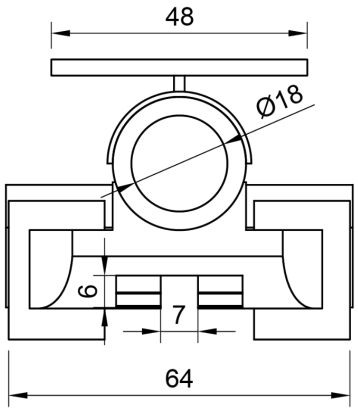
- First phase: fast and rapid development of initial sketches to establish the artistic direction and design intent. This phase was crucial for our team in order to familiarize ourselves with vehicle design and different possible approaches. There was more focus on 2d design in this stage.
- In the second phase we started working heavily on 3D modeling. Cad software was used in long sessions of 1 or 2 hours and many 3d proposals were generated and discussed with team. In this stage the general dimensions were adjusted.
- Third phase final audit and preparation for 3d printing, CNC cutting and other preparations required. Final adjustment of tolerances and material weight was checked. We used manufacturing module in Fusion 360 to prepare the model for fabrication.

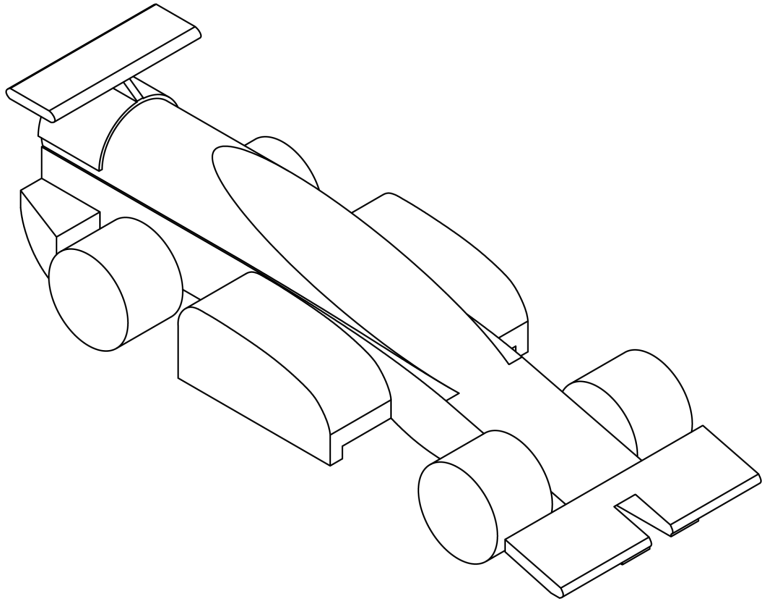


Raven F1 Team

Production

- In this stage we Utilized existing resources , including 3d printers for prototyping and CNC for final competition models.
- The model was checked and once approved by all it was sanded properly and primed to received final finishes. The color selected was purple and yellow as our distinguished logo and branding.





Reflections and lessons learned

- Cost of material should always be considered
- Weight and density of final materials should be looked into in earlier stage. We could have saved a valuable time if these were considered earlier.