

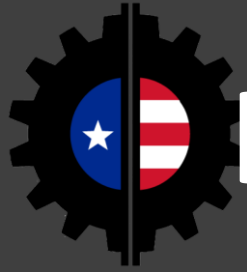
VEX PLATE CASING



2020 Make It Real CAD Challenge

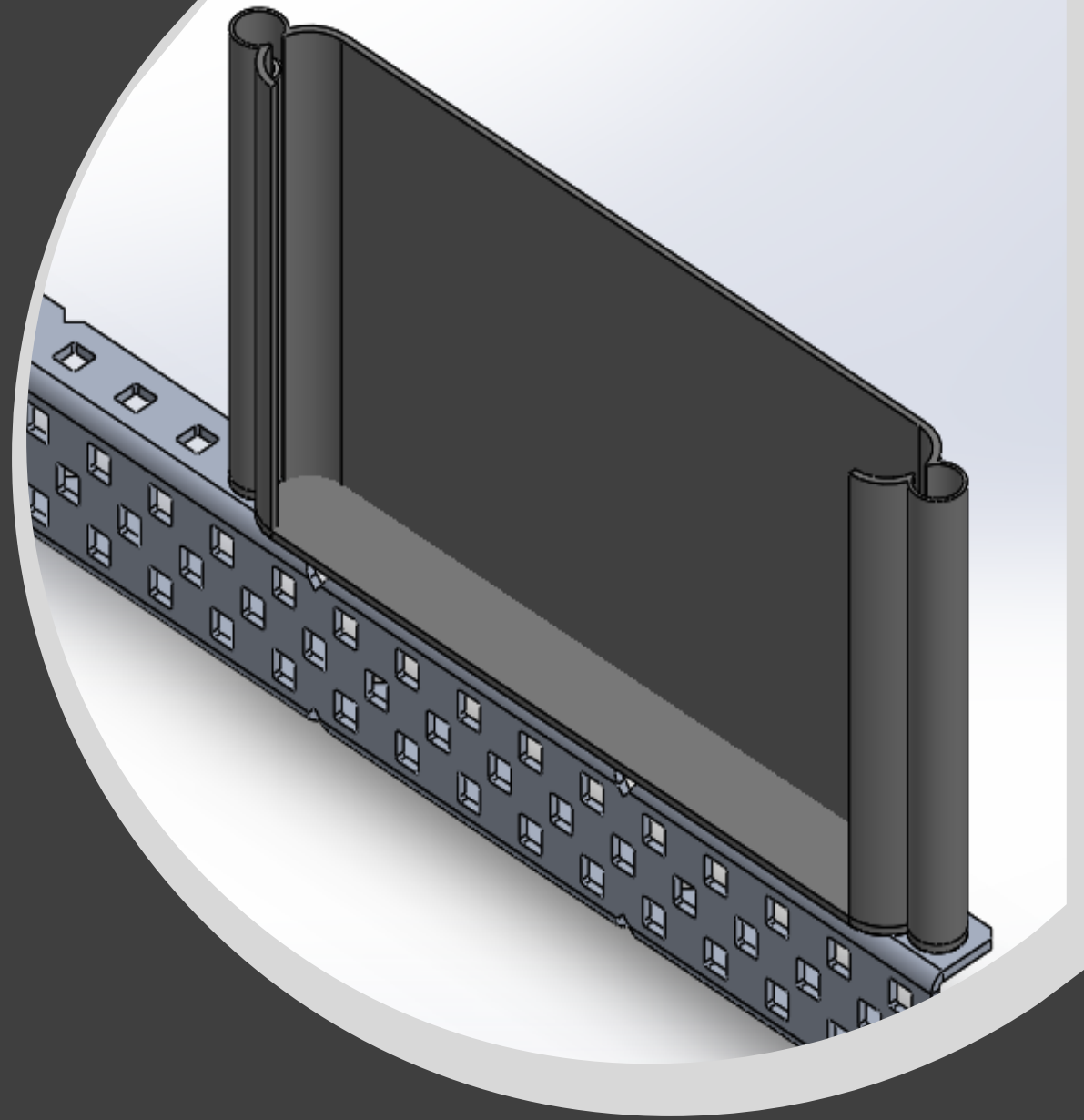
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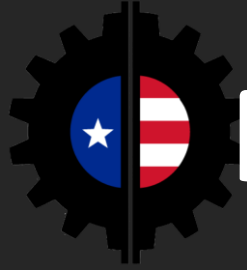




Introduction

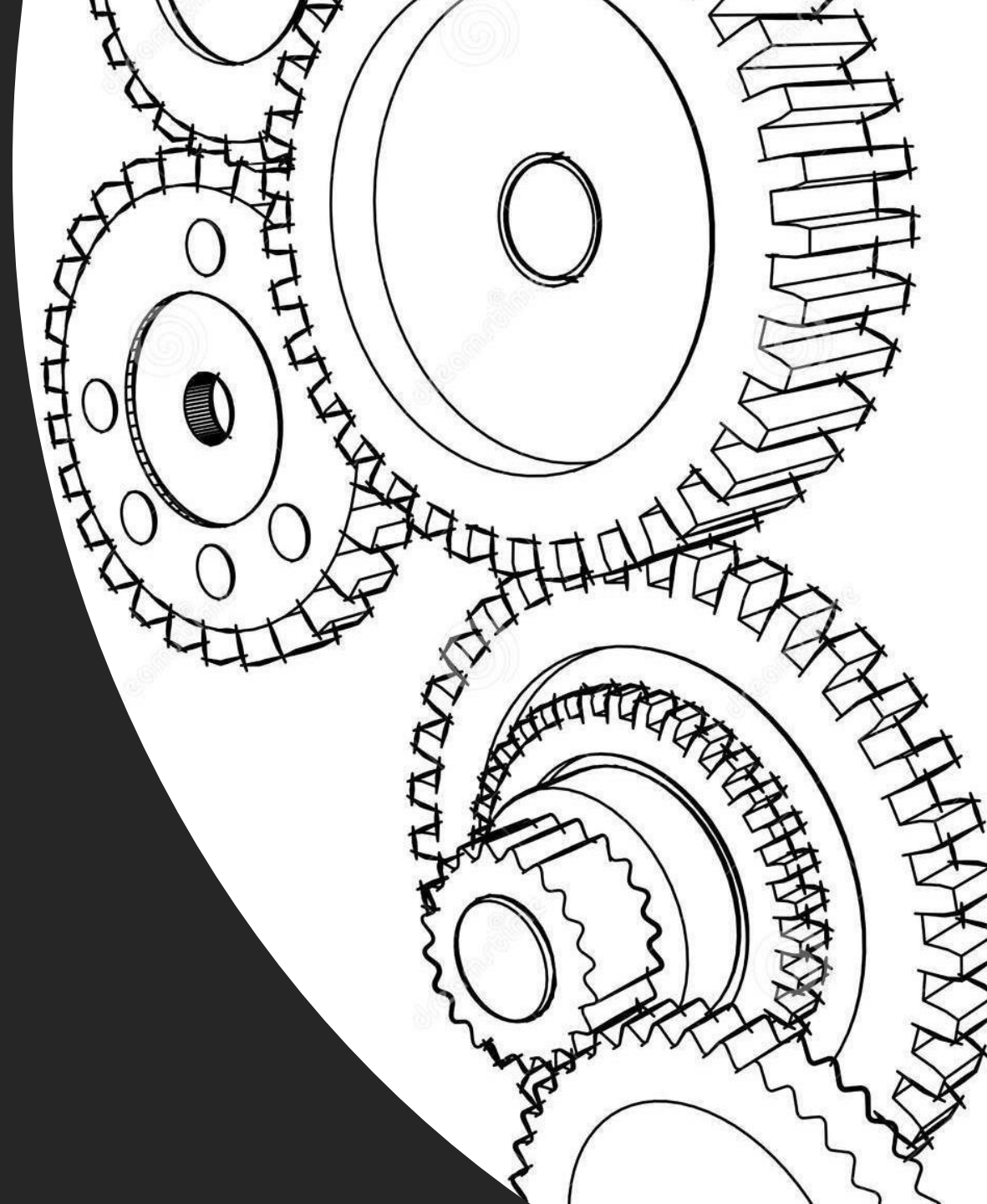
After carefully analyzing the necessities of different teams, ourselves included, it was decided to create a solution to the issue that is changing the plates between matches. This issue have been a recurrent one since the introduction of the team plates, since the color varies depending of what side of the field the team is competing on this plates must be changed constantly. A simple design was created in order to be easy to print and be accessible to all teams.

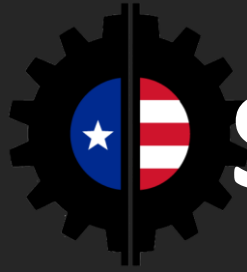




Problem

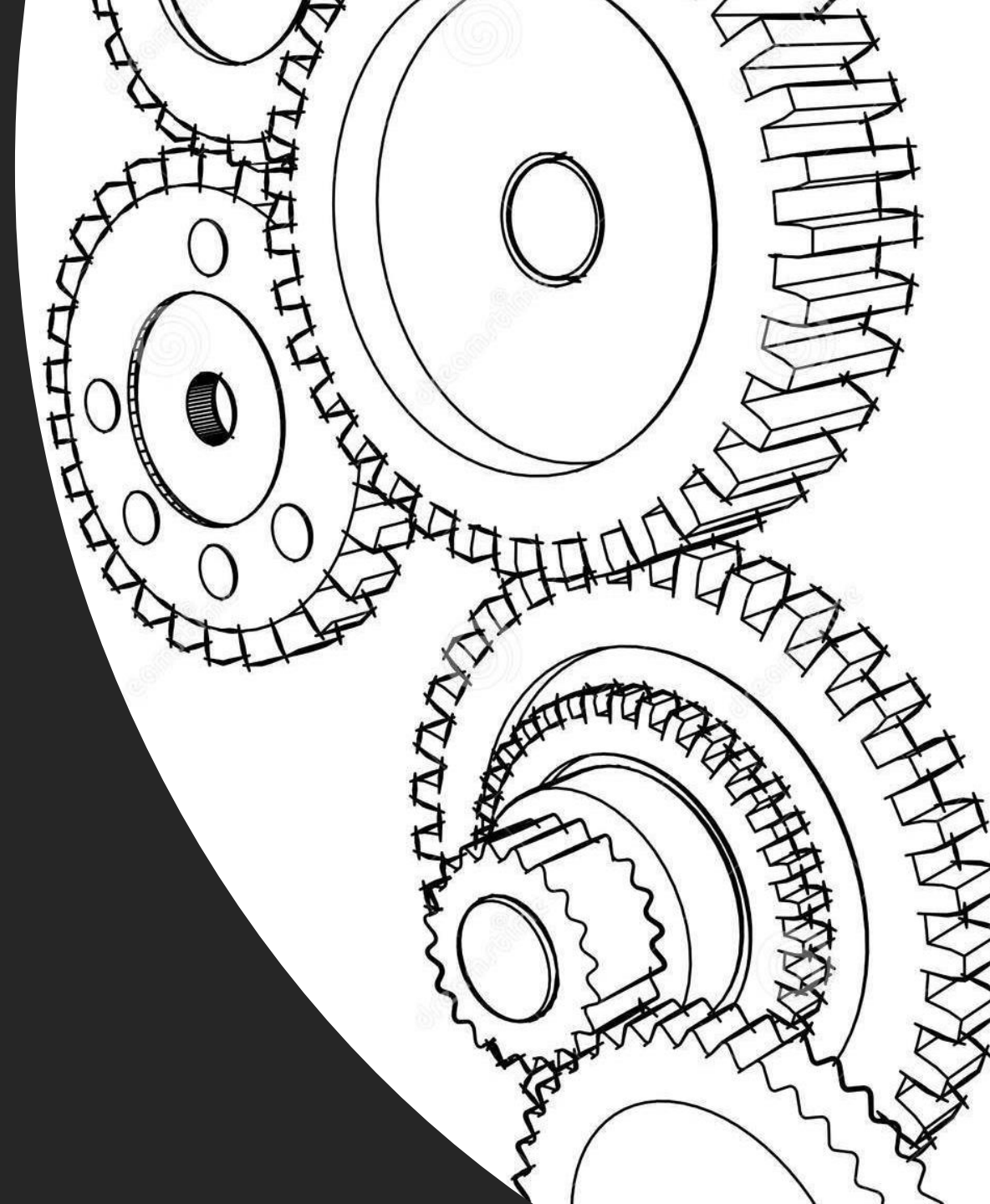
The necessity of changing the plates between matches, sometimes involving screws and nuts that are uncomfortable to change because of the location of the plates considering that the plates must be visible to the judges and referees. Additionally, plates falling during the competition are a potential risk.

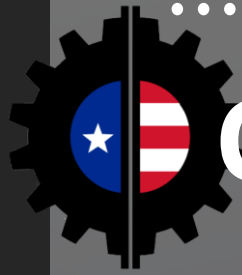




Solution

Create a design that can eliminate the necessity of changing the plates every time a team changes of alliance color and prevents the plate from falling off the robot.

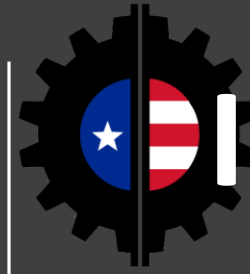
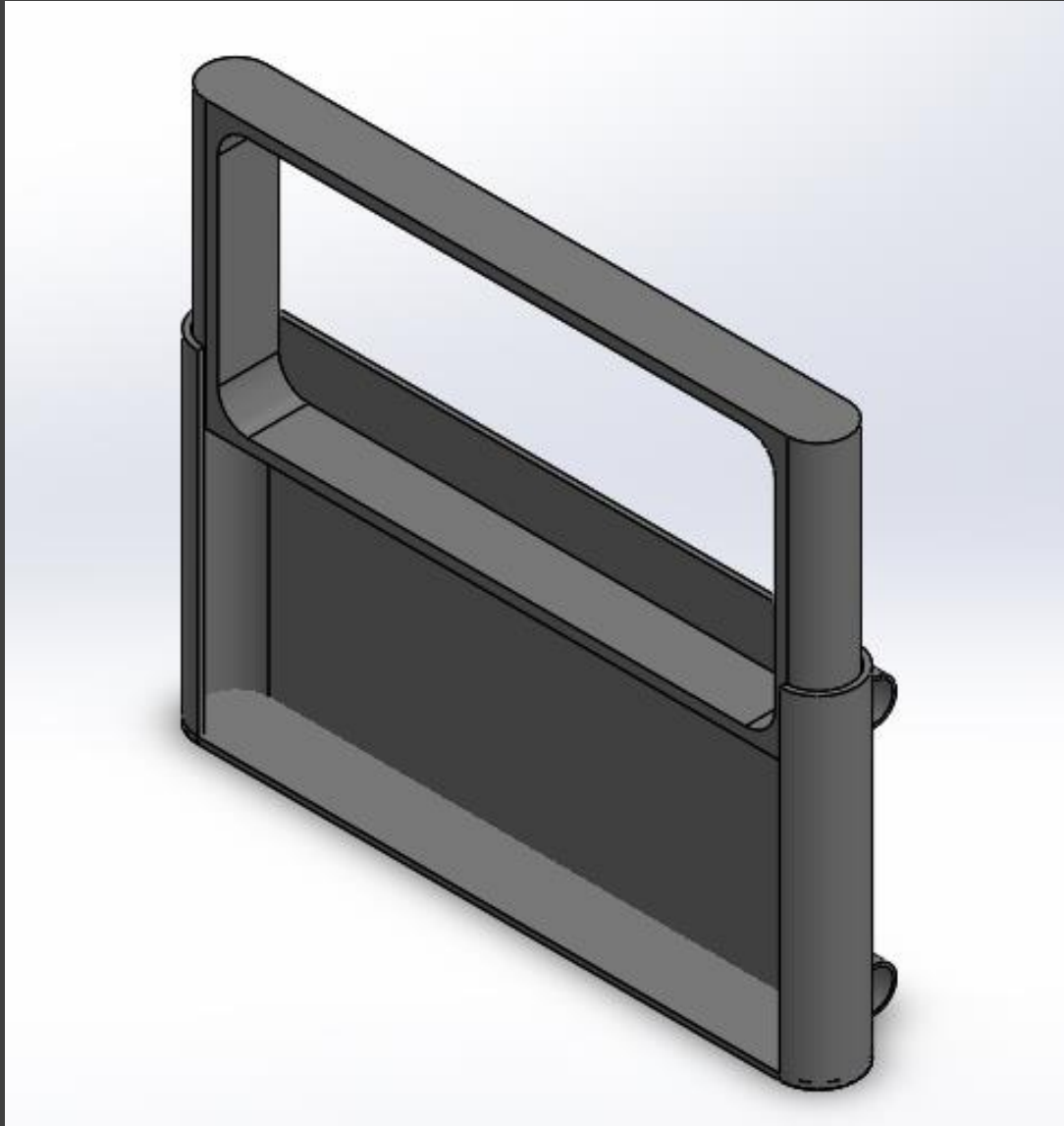




Components

1. Plates Housing
2. Plate Housing Holder
3. Stand-offs (2)



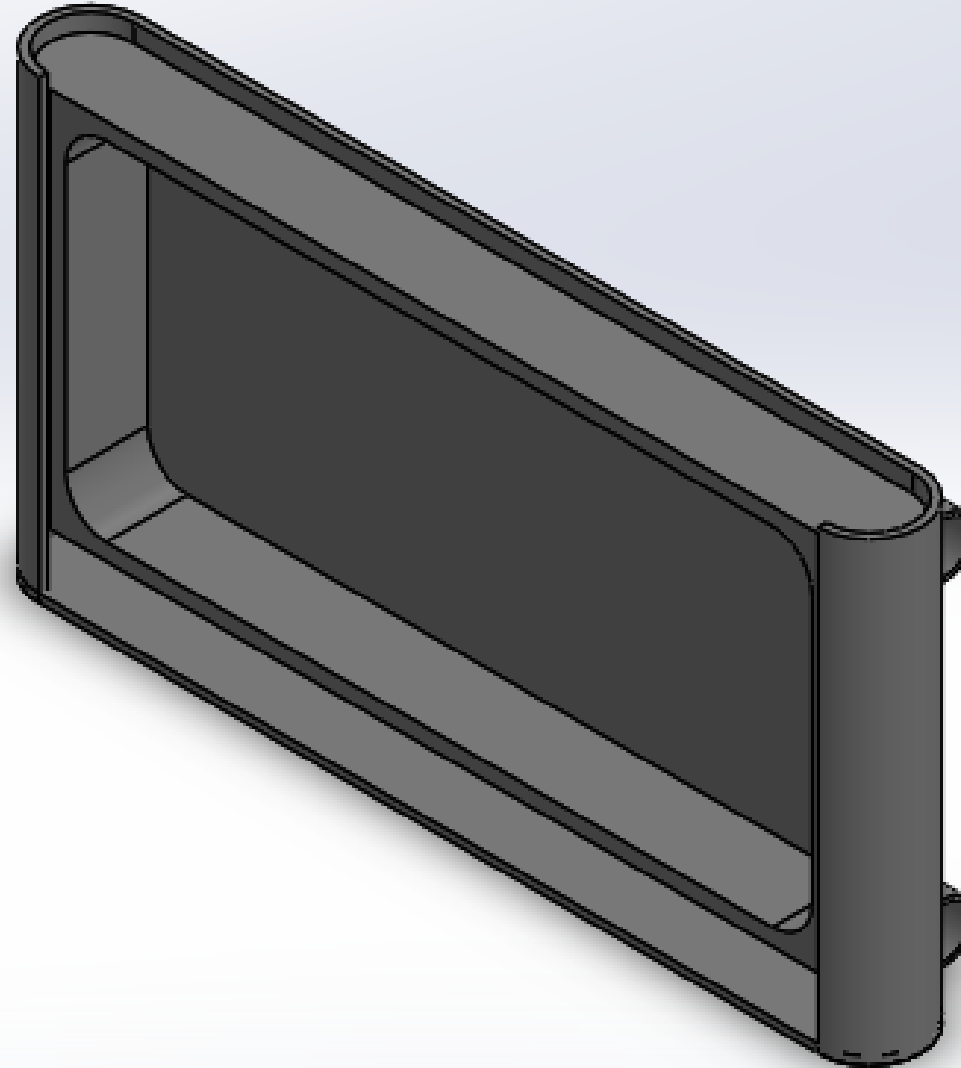


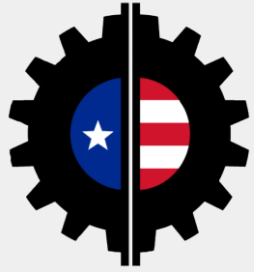
Improvements

The main improvement of this design is that it lets you slide the plates in place without the need of utilizing screws or other methods that requires a much longer and tedious process.

Usage

This part can be used for robots from all levels of VEX EDR competitions. The plates casing is user-friendly and accessible for all teams. The plates goes inside the housing and for changing the plates color you only need to slide it up and rotate to the opposite color. This way time is saved and eliminates the tedious part that is using screws and nuts to hold the plates in place.





Fusion 360

For the development of this part the program used was FUSION 360. With this program, it was easy to take the idea and make it a reality; first designing it in the program, and then 3D printing it for the use of the robot. Even though FUSION 360 isn't our main CAD Software, it is a user-friendly program, and it allows you to do everything needed to design a part.