

# Steering Wheel

## Solar Gators Steering Wheel

As part of the Cockpit subsystem at Solar Gators, I'm redesigning the steering wheel for our solar powered car. Taking F-1 steering wheels and our past designs as inspiration, a design was first drafted making sure it followed the Formula Sun Grand Prix (FSGP) regulations. The steering wheel for our next car will include a small screen as well as 8 actionable buttons and paddle shifters to activate regenerative braking.



Fig. 1. F-1 steering Wheel to the left, 2024-25 Flare steering wheel to the right.

The main changes the new steering wheel would have are the implementation of the screen on the wheel and paddle levers. Separate holes for the thumb will also be implemented to make steering and actuating the levers easier. The quick release will stay at the center of the wheel.

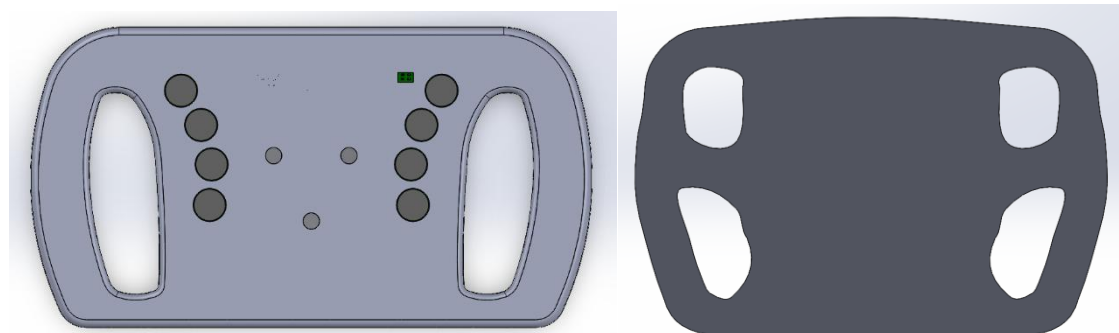


Fig. 2. 24-25 Flare Steering wheel design to the left, 25-26 preliminary design to the right.

The PCB that will handle the electric components will also be redesigned for this new steering wheel. The button placement will be chosen so it's reachable with the new design and a slot for the screen will also be added.

A prototype was printed to test how comfortable the shape of the new design was before adding the button locations and moving forward with the design in general.



Fig. 3. 3D Printed prototype.

After evaluating the prototype, it was determined that the screen should be moved up so that the quick release is in the center of the steering wheel. The size is optimal and fits in the dimensions of the new car and it feels comfortable when grabbing it. The next steps are to make the changes made above and design the button placement.

The paddle shifters will be attached at the back of the steering wheel and will be used for regenerative braking. This new addition has never been done before in our club, so more iterations are expected than usual.

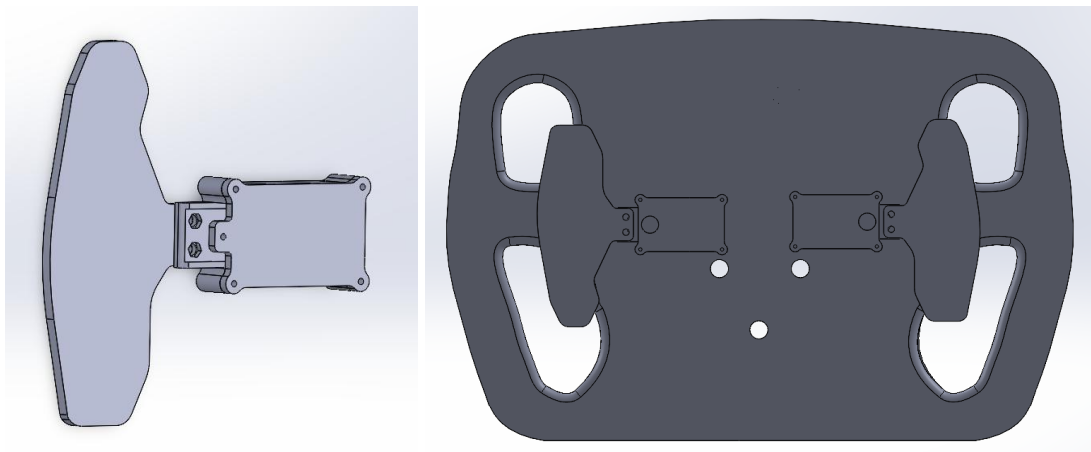


Fig. 4. Paddle shifter assembly to the left. Steering wheel assembly with paddle levers to the right.