

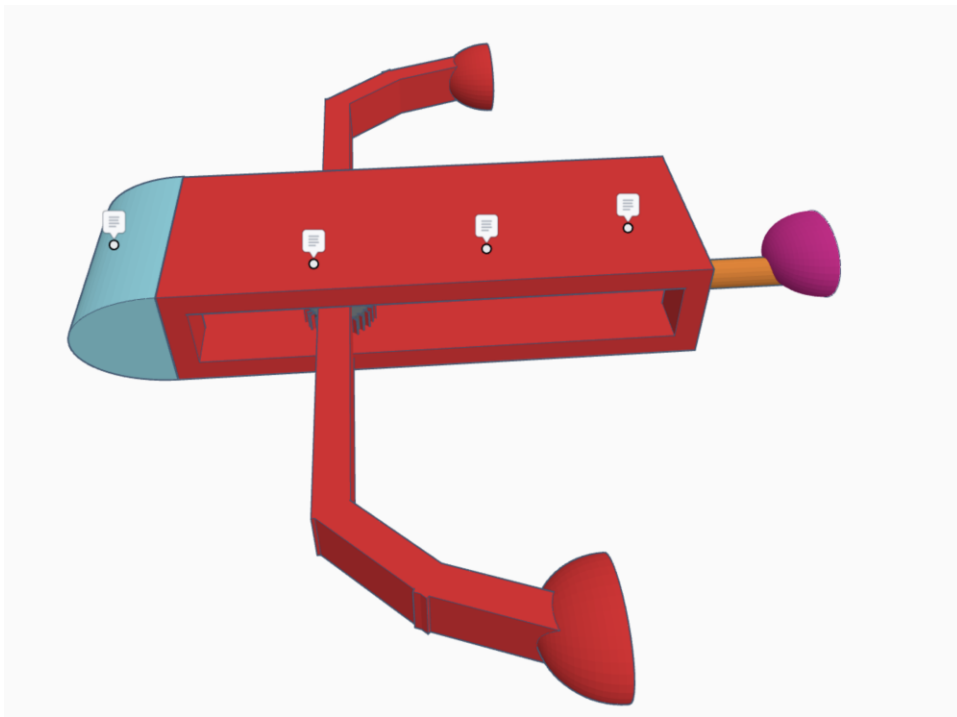
“Trident” Claw Extension for VRC Middle School

By Andrew

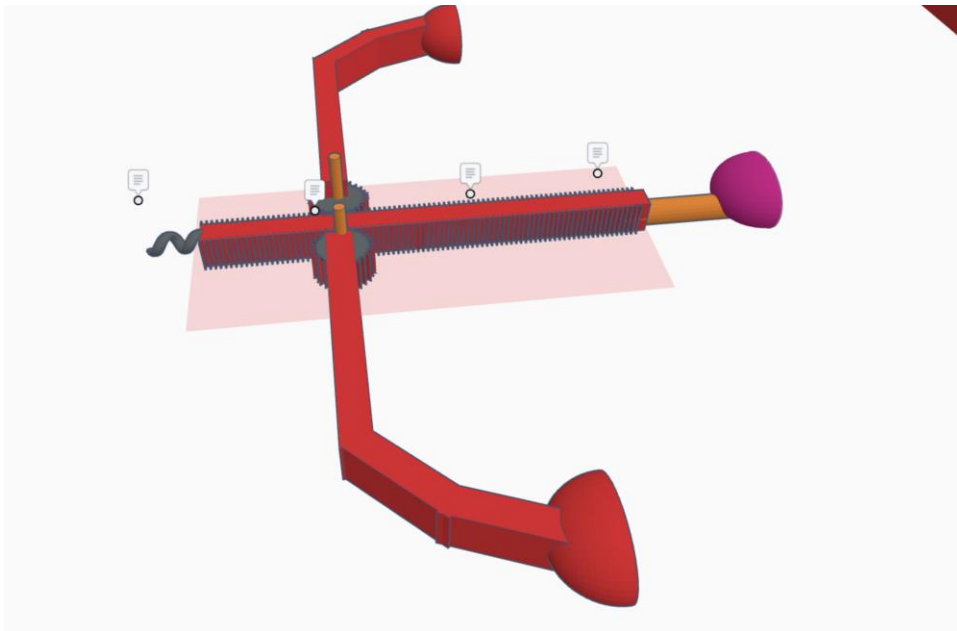
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Brentwood, TN

Photos on next page



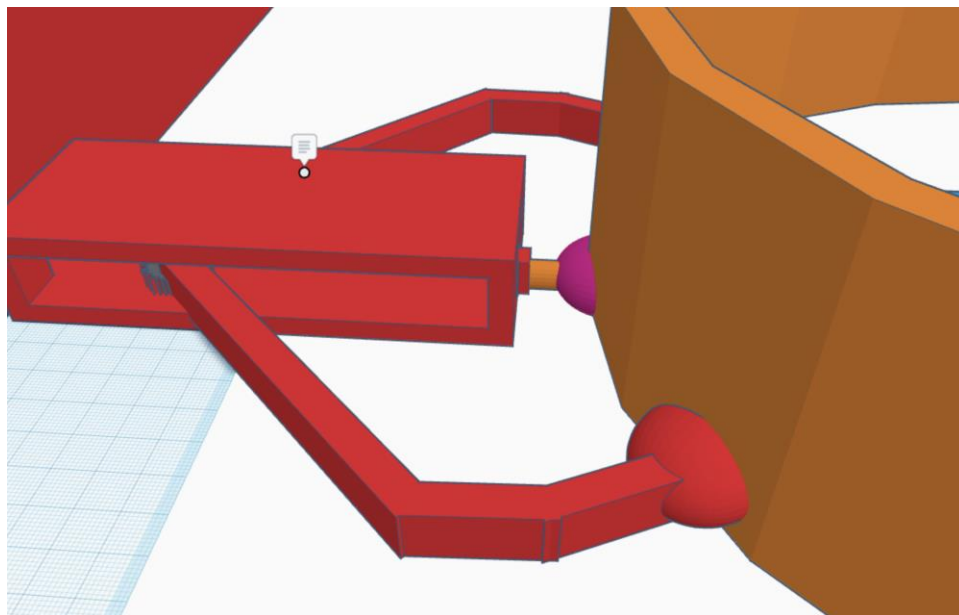
The "Trident" with casing.



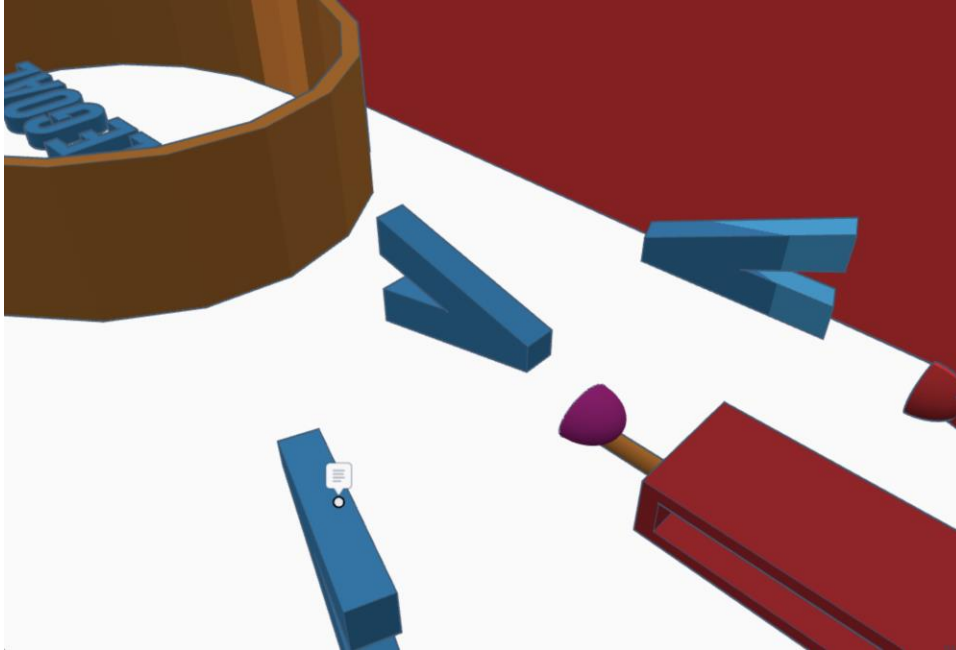
The "Trident" without casing.



The complete project as shown from the top down. (Includes “Trident” model, motion model, and the Trident in action.)



A detailed view of the “Trident” in action



A detailed view of the motion of the arms in the “Trident”

I also wanted to say thank you to all the judges working on this, your work means more opportunities in robotics for kids like me. **Thank You!!**

Final Report

One of the largest issues that has been encountered in this year's VRC game, "Tipping Point," is that mobile goals are circular, while most claws are rectangular. This results in less grip and a higher chance of dropping the mobile goal. The "Trident" claw extension fits on to the bottom of a claw. When the claw clamps on a mobile goal, the central rubber bumper is depressed. This rotates two arms that firmly clamp down on the outside of the mobile goal, giving the claw three strong points of contact with the mobile goal. This creates much more friction than currently available methods. This friction translates to an incredible amount of grip. When the mobile goal is released, the central bumper is pushed by a spring back to its starting position, ready for the next mobile goal. This is a simple yet tricky build in Tinkercad. I used almost every available feature in Tinkercad to create the components that are in this build. I did not use any preset or already designed parts, I made every component myself, by extruding shapes and combining those extrusions into an efficient and thorough design. In conclusion, by using Tinkercad, I learned many skills, such as extrusion and scaling. These skills are necessary for even more complex and intricate designs later. I now have knowledge about CAD that helps me be a better builder and designer. Many of those skills are useful in countless careers and other applications.