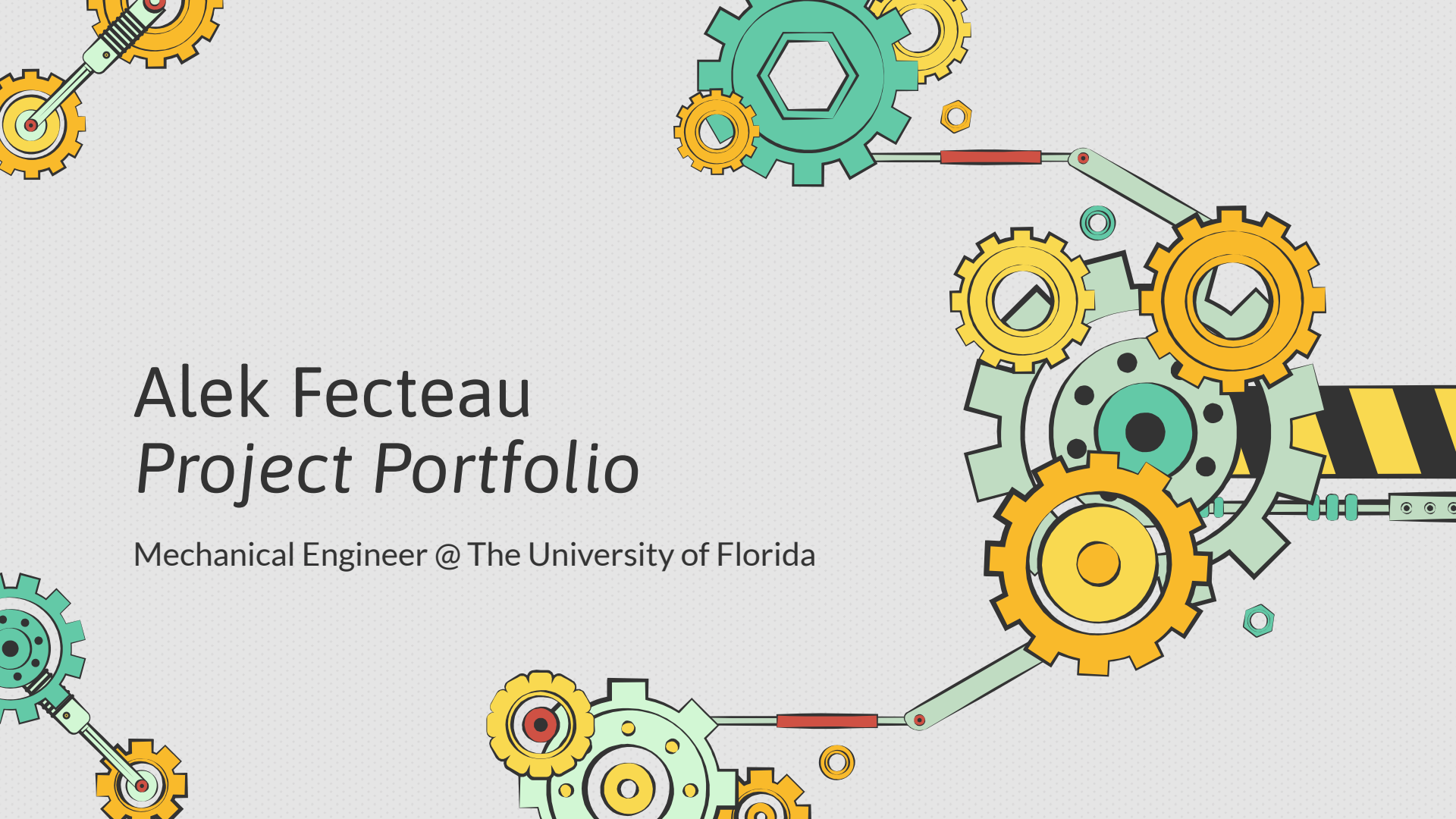


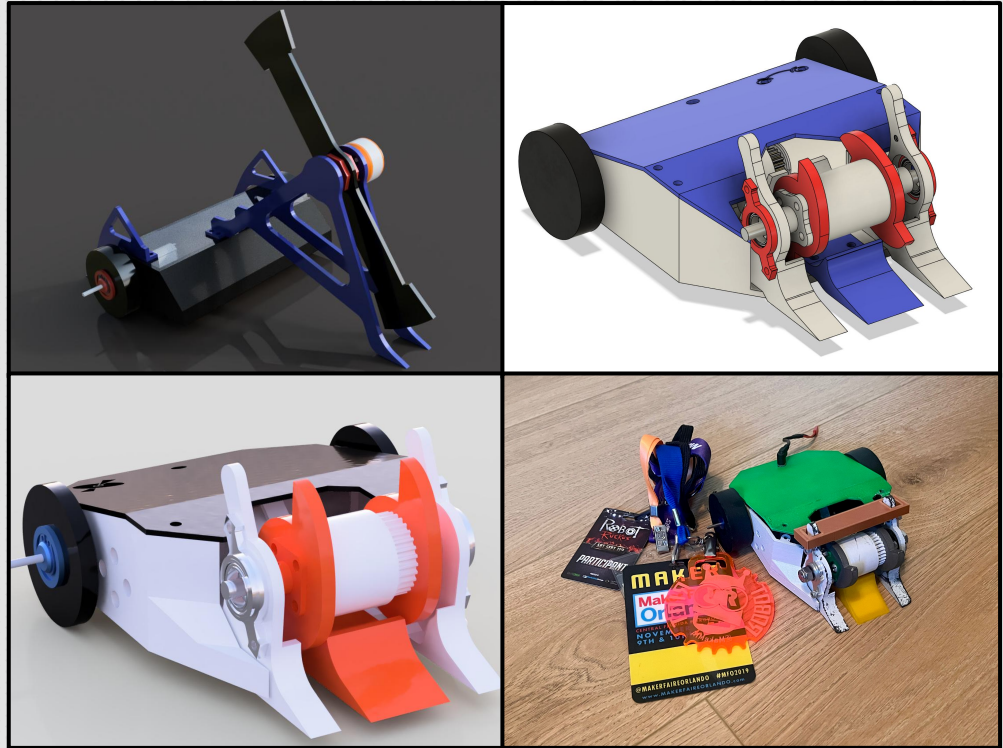


Alek Fecteau *Project Portfolio*

Mechanical Engineer @ The University of Florida

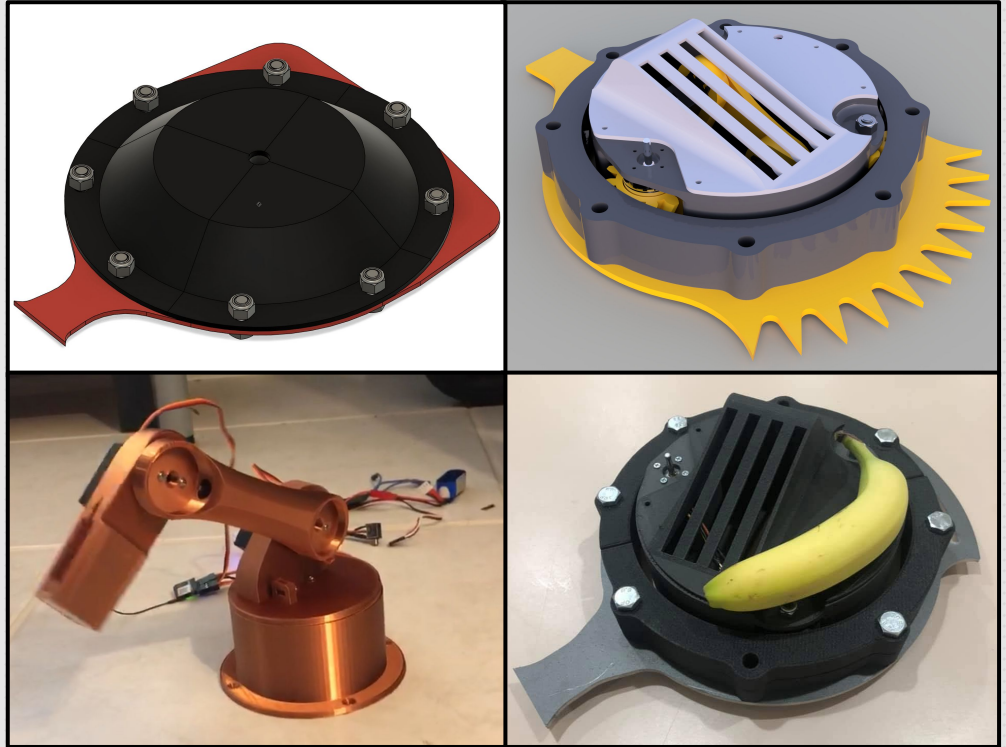
Pulsar - 1 lb Combat Robot

- Designed and manufactured a series of vertical spinner combat robots, using Fusion 360 and mostly 3D printed parts
- Iterated upon the design to turn an initially showy and ineffective robot into one which was compact, easily drivable, and powerful
- Ultimately was able to win or podium at many hobbyweight tournaments in the Florida area and helped inspire the growth of similar designs which now dominate the hobby

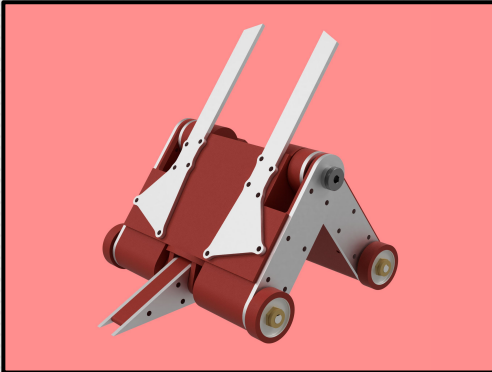
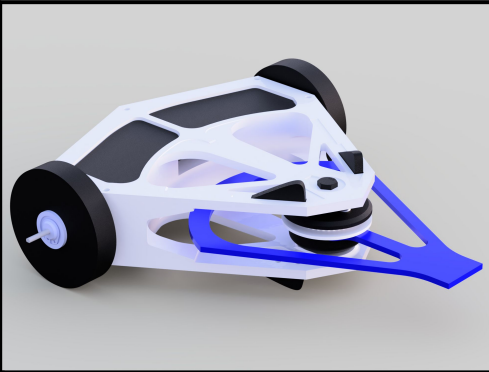
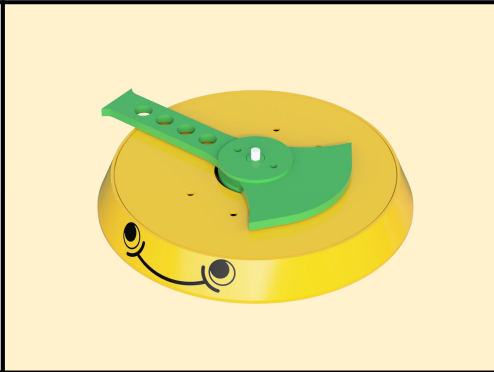
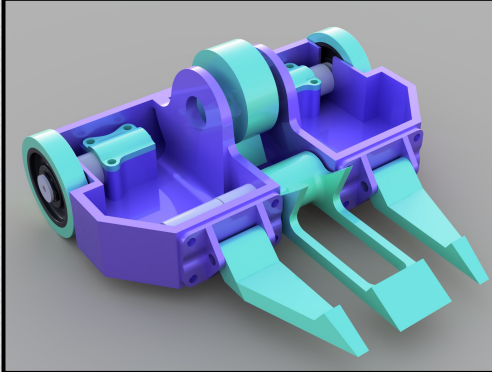
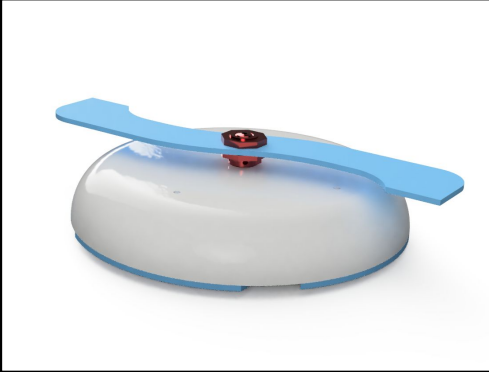


UFO JOE - 6 lb Combat Robot

- Engineered and built UFO JOE to leverage Norwalk Havoc's weight-bonus rules, enabling a 6 lb robot to compete in the 3 lb class through non-wheeled locomotion
- Developed a novel walking mechanism driven by two servo motors and a robotic arm which allowed for just enough motion to support the gear driven steel weapon ring
- Created the largest kinetic energy weapon ever entered in the event's 3 lb class, inspiring a change to the tournament's official ruleset despite limited competitive success

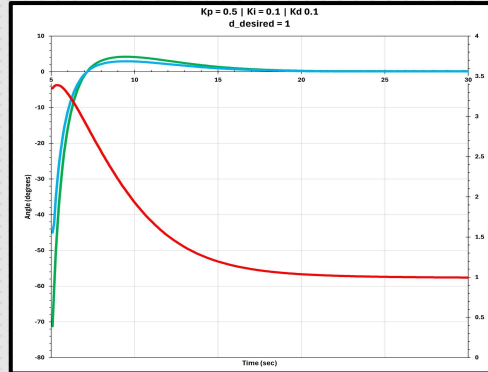
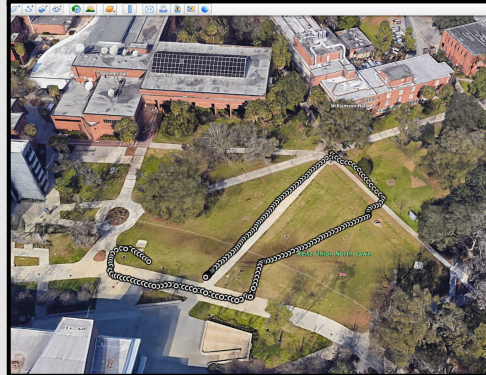
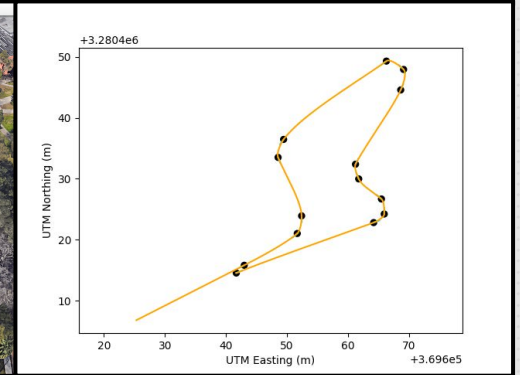


Misc. Battlebot Projects



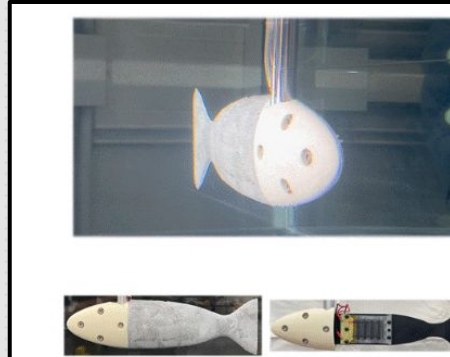
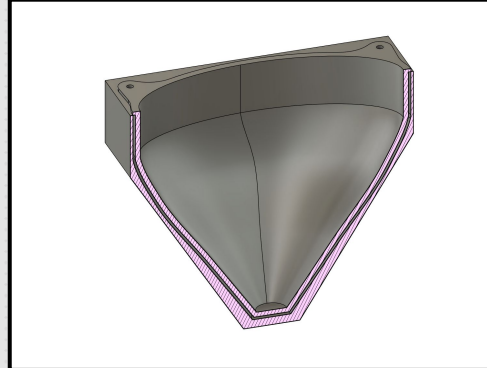
Autonomous Vehicle

- Integrated a pre-built autonomous vehicle platform with ROS 2 on Linux, developing several interfaces for vehicle control using Python
- Implemented manual driving functionality, as well as a PID control scheme, to enable autonomous navigation given the car's Ackermann steering setup
- Combined LiDAR sensor readings and GPS-based pathing to support autonomous vehicle navigation, allowing for the vehicle to traverse both indoor and outdoor portions of campus on its own



UF FAST Lab Robotic Swimmer

- Worked alongside other members of UF's FAST Lab to develop the robotic swimmer soft robot for use in delicate underwater ecosystems
- Developed the lab's methodology for the design, fabrication, and application of silicone parts within the swimmer, as well as a spine and rib system which defined the form factor of the fish
- The prototype systems developed during my period with the lab are now the basis for the work which continues to be conducted post my own graduation



The background features a light gray color with decorative mechanical elements in the corners. These include yellow and teal gears of various sizes, some connected by red and green mechanical arms. A yellow and black striped hazard bar runs horizontally across the bottom of the slide.

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