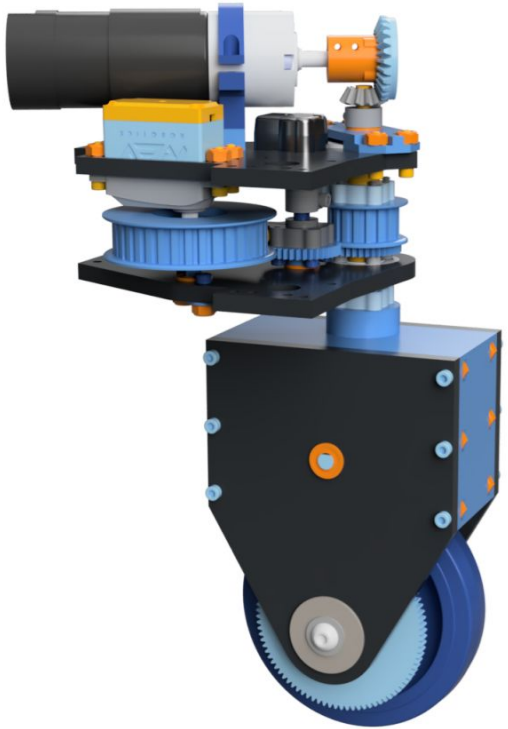
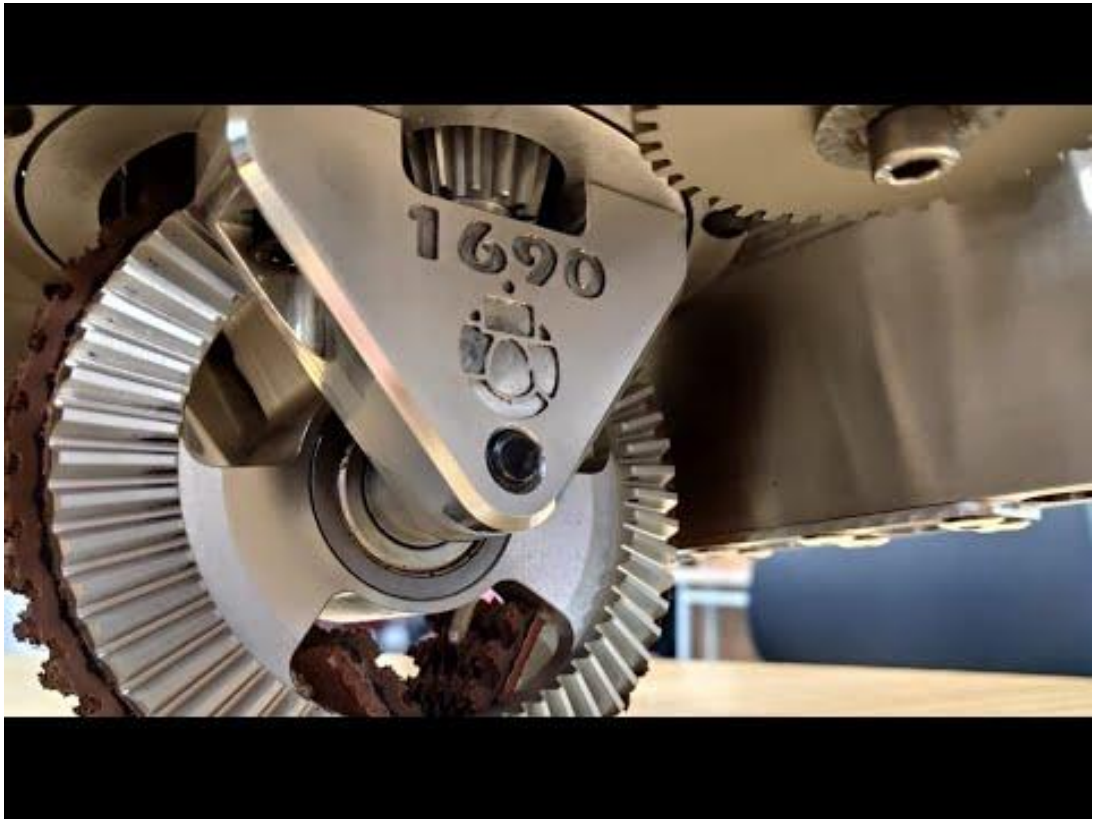
Table Pitch



Project Proposal

- Rideable Holonomic mobility platform
- All interested in creating an interactive experience to be tied in the transportation space.
- Applications: Highly maneuverable wheelchairs, the next hype transportation device (better than hoverboards ;)

Swerve Drive Demo



How it Will Work

Electrical System:

Our electrical system will mainly consist of several motors that allow the system to move omnidirectionally. We will use absolute encoders to determine the angle of movement in order to program the motors.

Mechanical System:

The mechanical system will be focused on designing and fabricating the mechanical components of the swerve drive, as well as the feature that the user stands on.

Firmware / Software System:

For the software, we want to use ROS to program the motor controllers and read from the absolute encoders. The computer used will be an arduino or raspberry pi. We'd like to add an accelerometer + gyro if we have the budget and bandwidth, to enable additional driving capabilities.

Integration: This will all be integrated together to create our omnidirectional robotic platform

Scoping/ Project Extension

- Various control methods - hand control through openCV
- Extend the application of the robot to more specific use cases
- Obstacle avoidance
- On-board cameras for some sort of following system

Current Team Considerations

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Questions for Teaching Team

- Project scoping: where should we aim to go with this idea before attempting to add any complexity (mvp)
- Should we make this a proof of concept rather than make it human sized? Would make things cheaper.
- What motors are strong enough to handle a human?
- How to account for safety & speed?