

Gesture Based Tracking and Control of AV

Full Demo: Tracking and Gesture Control:

https://drive.google.com/file/d/1NgYXbn2g9zULR_QFsH5DNA11RgRCjx_x/view?usp=drive_link



Robot Camera Feed, play at the same time:

<https://drive.google.com/file/d/1icDKAANJaJQORDw6MJQjMkxpmiHpZnxz/view?usp=sharing>



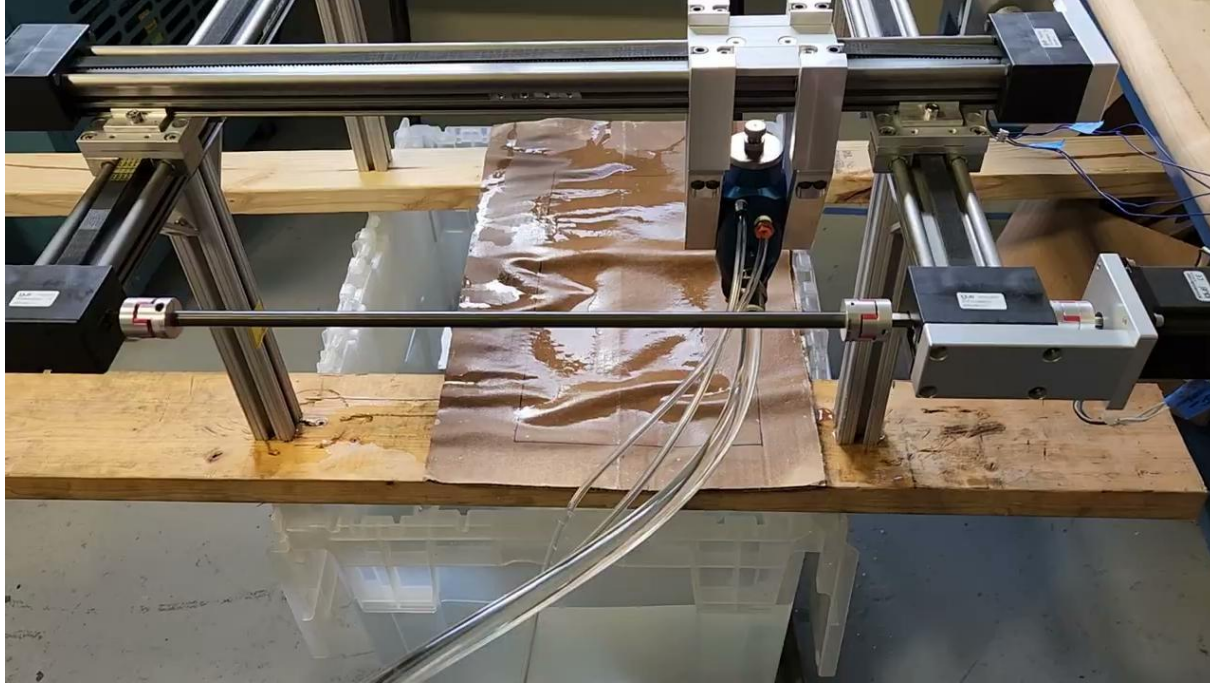
Additional Videos:

https://drive.google.com/file/d/1NfoKVIPo3MulGHIh5xcQB7GdnoA2nVJh/view?usp=drive_link

Additional Camera Feeds:

https://drive.google.com/file/d/1DSuYdTTF2OISmD4tEiN-0LYSj3c5yQjJ/view?usp=drive_link

Automated Adhesive Painting System



- Fully functioning prototype waiting to be installed on production floor
- Designed system, selected and wired the gantry, motors, drivers
- Programmed PLC in Arduino C++

https://drive.google.com/file/d/15PyGhKRrNnCefMQgUjGnNgrStjFSXMce/view?usp=drive_link

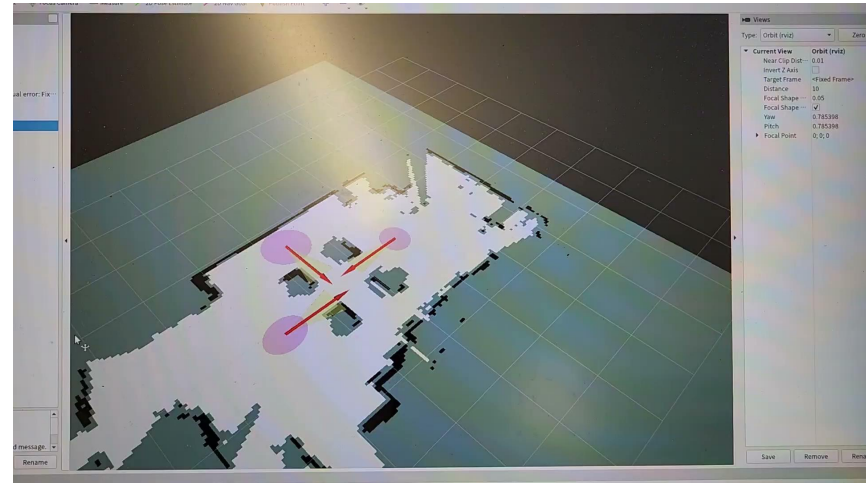
City Intersection Simulation with Multi Agent AV System

Demo:

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Robot Localization:

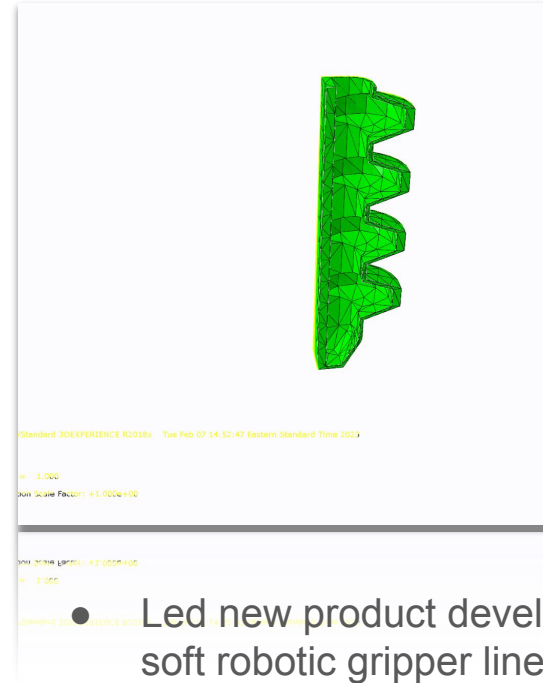
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Soft Robotic Gripper Product Prototype

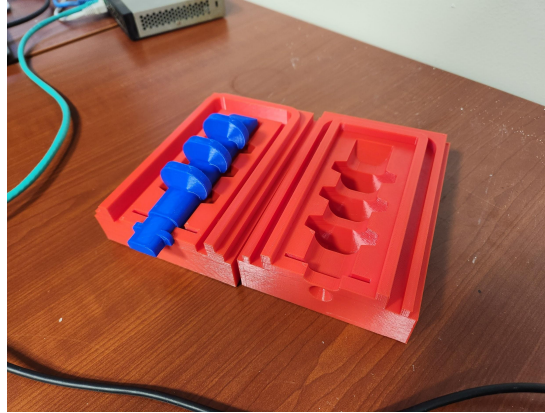
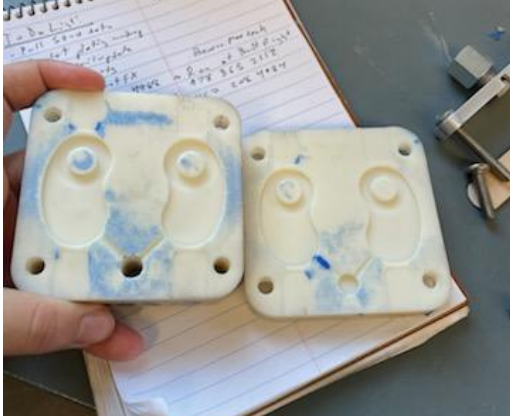


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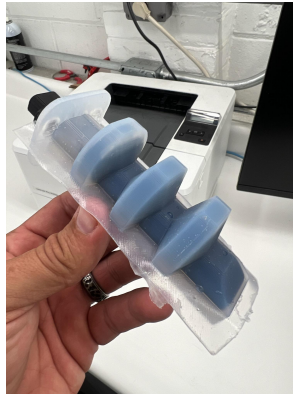
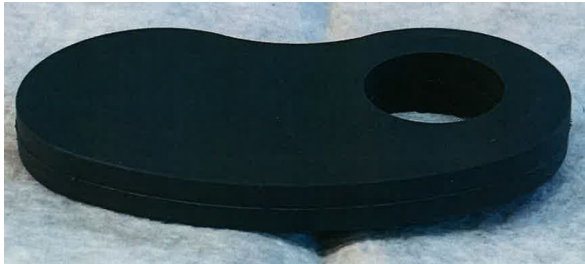


- Led new product development for soft robotic gripper line
- Tested designs through Abaqus simulation and rapid prototyping through 3D printed molds

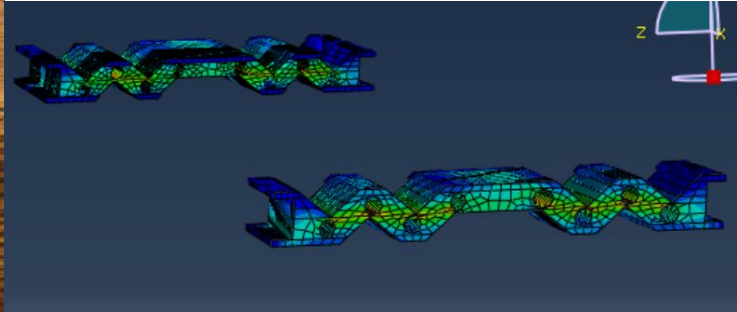
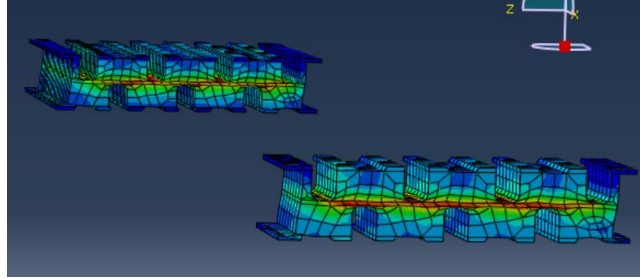
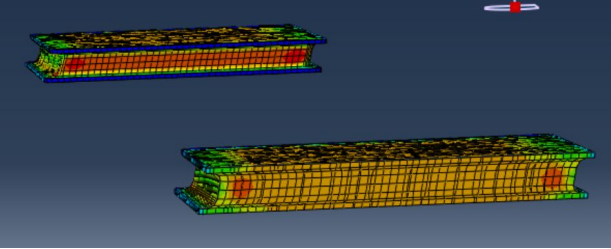
3D Printed Rubber Injection Mold



- Best suited for small, low volume jobs due to time spent heating mold
- SLA printed, with Somos Perform material for high temperature stiffness



Vibration Isolator for Custom Aerospace Application



- Initial parts failed to survive test, multiple design iterations experiments to increase fatigue life and natural frequency
- Metal components not included in simulation since they are much stiffer than the rubber
- Accounting for Natural Frequency, Damping, Max Strain / Fatigue Life, Stress concentrations, Manufacturability
- Final design on top right successfully survives test and passes vibe requirements