Alexa Aguilar Izquierdo

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Introduction

Hi! I'm Alexa, a passionate and driven Mechanical Engineering student pursuing Bachelor's and Master's degrees at UT Austin, along with a Robotics minor. I'm interested in R&D, robotics, medical devices, and semiconductor manufacturing. When I'm not studying, you'll find me doing hands-on work at the Machine Shop or in a surgical robotics research lab. Beyond engineering, I also enjoy bouldering, playing soccer, grilling, and learning how to play the guitar.

Background

M.Sc. in Mechanical Engineering, UT Austin, 2026
B.S. in Mechanical Engineering, UT Austin, 2026

Awards

Carlos & Clara Quintanilla, 2022, 2023, 2024

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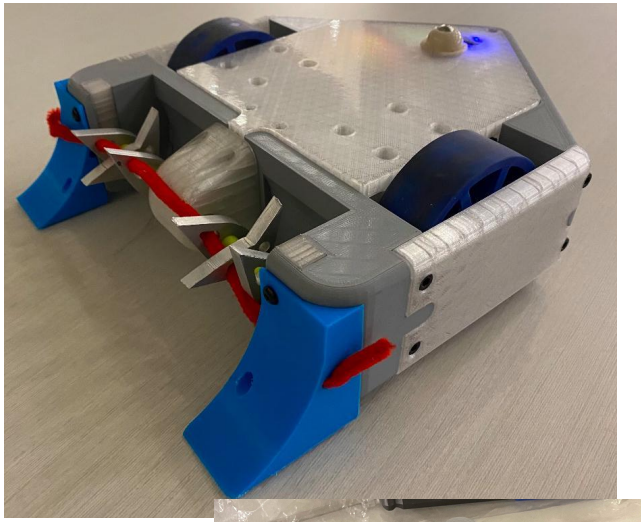
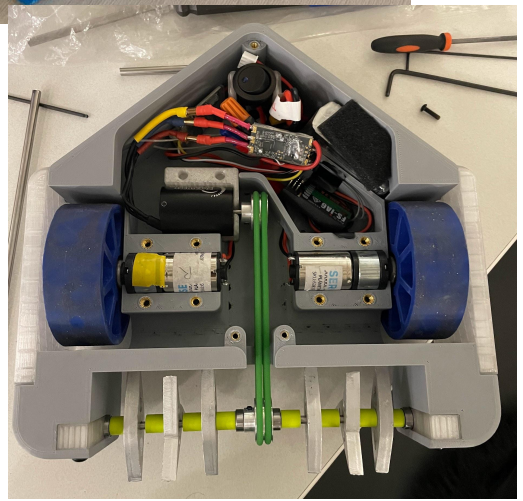
Battle Bot

Timeline 16 weeks (August - December 2024)
Skills Design for Manufacturing/Assembly, CAD, Rapid Prototyping, House of Quality, FEA, FMEA

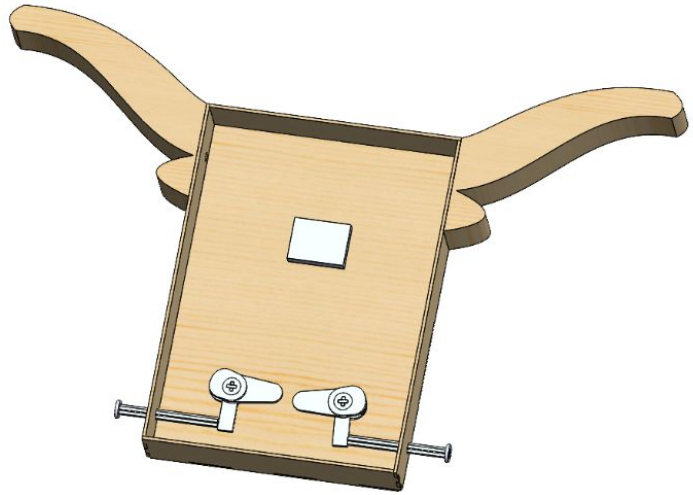
- Designed and prototyped a battle bot featuring a vertical spinner accessory driven by a belt.
- Involved in design, manufacturing and assembling parts and assemblies, and conducting FEA, HoQ, and FMEA analysis.
- Designed and machined parts using manual lathe and mill

Outcomes The team won the first match of the competition, and was disqualified in the following round to the winning team.





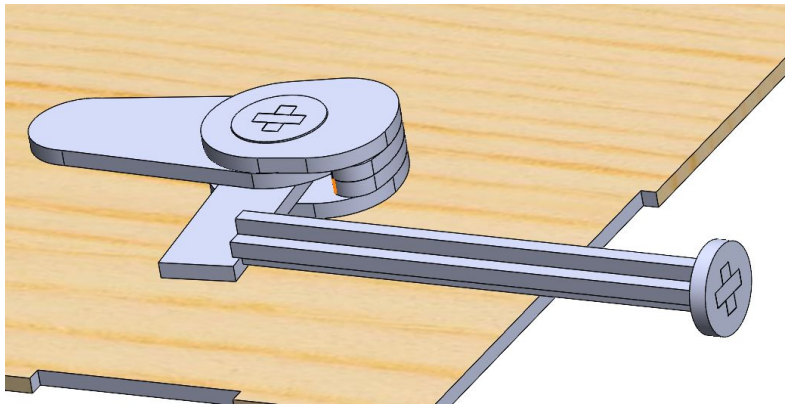
Laser-cut Pinball Machine



Timeline 3 weeks (October - November 2024)
Skills Design for Manufacturing/Assembly, CAD, Rapid Prototyping, Laser-cutting, Mechanism Design

- Competed in a laser competition led by Texas Inventionworks
- Built a mechanical pinball machine using laser-cut components.
- Responsible for designing and assembling flipper mechanism.

Outcomes The team earned second place in the competition.

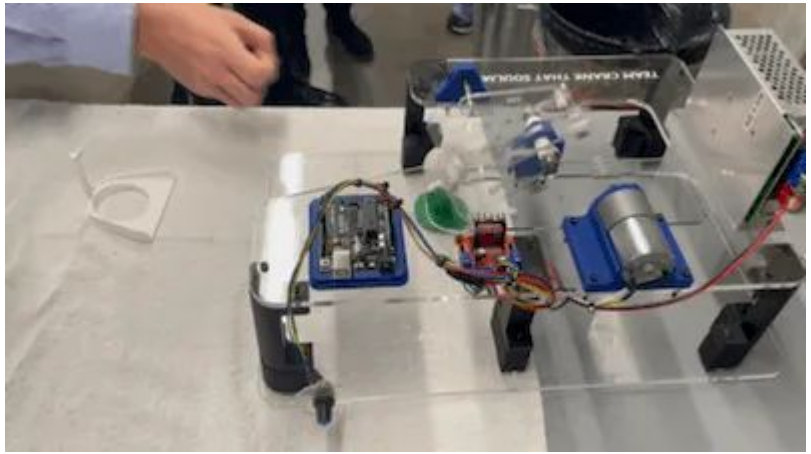


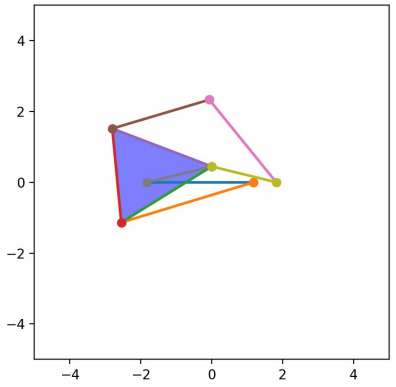
Mini-golf Machine

Timeline 16 weeks (January - May 2024)
Skills Python, Arduino, Kinematic Analysis, CAD, Rapid Prototyping, Laser-cutting, Mechanism Design

- Main project for a course on Robot Mechanism Design
- Designed and prototyped a six-bar triple crank Watt's linkage
- Performed a kinematic analysis using python
- See technical details

Outcomes The team successfully met all their objectives, and was able to flick a ping pong ball consistently.





Stanford Pupper Robot Leg

Timeline 16 weeks (August - December 2023)
Skills Python, Forward and Inverse Kinematic Analysis, 3D Printing, Laser-cutting, PID Control, Computer Vision

- Main project for Gateway to Robotics course, collaborating with Electrical Engineering and Computer Science students
- Constructed a robot leg using using 3D printed and laser cut parts, implementing forward and inverse kinematics, PID control and computer vision to command the robot to follow a red dot

Outcomes The team successfully met the objective of following the red dot.

Remote Controlled Car

Timeline 16 weeks (August - December 2023)
Skills Machine design, Project Management, 3D printing, laser cutting, Solidworks

- Main project for a mechanical design course
- Involved as Build Lead, responsible for reading and leading an assembly plan to manage deadlines effectively
- Designed and manufactured custom parts using 3D printing, laser cutting and machining.
- Managed electronics and troubleshoot hardware.

Outcomes The team successfully built a car capable of competing during race day.