

MANAN SHAH

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EDUCATION

The University of Texas at Austin

B.S. Electrical and Computer Engineering

Expected May 2030

EXPERIENCE

University of North Texas — Computer Vision & ML Researcher

Sept 2024 – Present

- Built a real-time, non-invasive facial-gesture recognition system that restores speech output for speech-impaired users.
- Annotated a 1,000+ clip video dataset using the Facial Action Coding System; trained a CNN-LSTM in PyTorch to map spatiotemporal facial features to text.
- Integrated a Tacotron2 TTS engine into a cross-platform interface for live speech synthesis.

Zycus — Engineering Intern

June – Aug 2025

- Built 5+ automation scripts for data validation and preprocessing, cutting manual review time ~20%.
- Ran systematic error analysis across 1,000+ system outputs to isolate failure patterns and feed them back into design decisions.
- Worked with engineers and product managers to turn test findings into feature-level improvements. Awarded Best Summer Intern 2025 company-wide.

Plano Sports Authority — Soccer Referee

Nov 2022 – Dec 2023

- Officiated youth matches across multiple age groups, managing players, coaches, and spectators under pressure. Funded personal engineering projects with earnings.

PROJECTS | [View Project Portfolio ↗](#)

Electric Go-Kart & 72V Lithium-Ion Battery Pack

June – Aug 2024

- Designed and assembled a 20S10P pack (72V, 49Ah) from 200 Samsung INR21700 cells, spot-welding nickel strip and matching cells by capacity and internal resistance.
- Implemented a BMS for per-group monitoring, balancing, and charge/discharge protection.
- Restored a broken chassis — rewelding structural members, rewiring, and fabricating drivetrain mounts — then integrated pack, motor, and controller. Reached 50 mph with a 225 lb payload.

Thrust Vector Controlled Rocket

Nov 2024 – Apr 2025

- Built a 2-axis servo gimbal for active motor-nozzle control; simulated and tuned pitch/yaw PID loops in Simulink.
- Implemented a Kalman-filter attitude estimator fusing IMU data for real-time orientation.

Auto-Fin Stabilized Rocket Mount

Aug – Oct 2024

- Designed and fabricated a stabilization mount driving four servos to independently actuate fins for pitch, yaw, and roll correction.
- Implemented a PID control loop on an Arduino with an MPU-9250 IMU; bench-tested against simulated flight disturbances, confirming rapid response and reduced roll deviation.

LEADERSHIP

FTC Robotics — Team Captain (Murphy MS, McMillen HS, Plano East HS)

2021 – 2026

- Captained three teams; led robot development across Fusion 360 CAD and software (PID control, RoadRunner motion planning).
- Coordinated mechanical, programming, and outreach subteams with biweekly meetings to keep progress consistent through build season.

SecondStepTech 501(c)(3) — Director of Technology & Logistics

May 2024 – Present

- Trained and supervised 20+ members in hardware diagnostics and repair; ran intake-to-distribution workflow.
- Led refurbishment and distribution of 200+ devices valued at \$32.5K to partner schools and international communities.

SKILLS

Languages: C/C++, MATLAB/Simulink

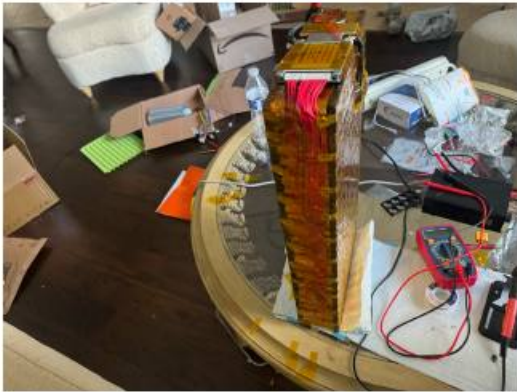
CAD & EDA: Autodesk Fusion 360, KiCad, Git

Hardware: PCB design, embedded firmware, sensor fusion, PID control, Li-ion battery pack design, soldering and spot welding, mechanical fabrication

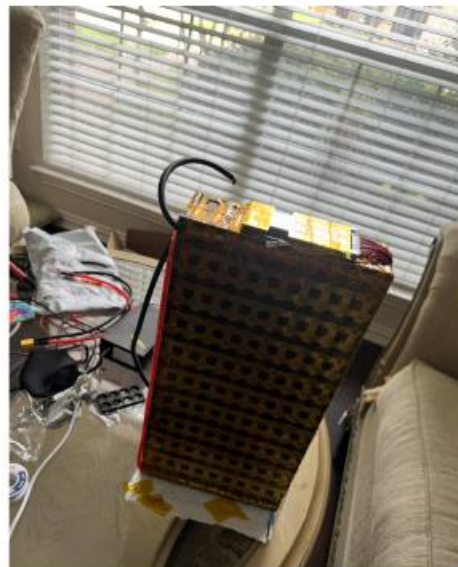
HONORS

- FTC Inspire Award (Ranked #1 Overall); Semi-Regional Championship Winner; UIL 6A State Qualifier
- 6th Place, Battle of the Brains Coding Competition — University of Texas at Dallas
- Zycus Best Summer Intern 2025; AP Scholar with Distinction

3000 Watt Battery Pack(72V)



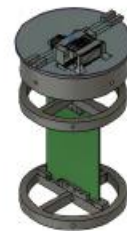
Manan Shah



Gokart

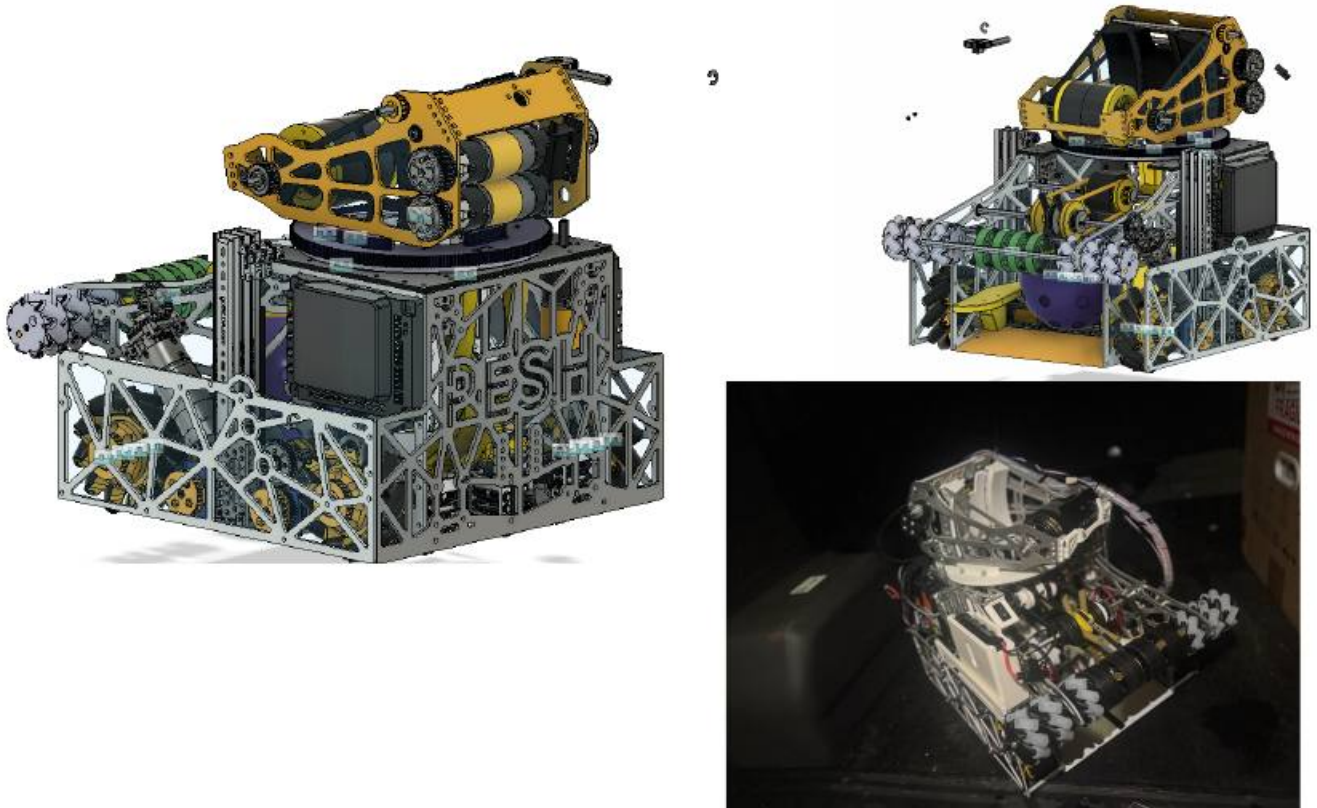


Thrust Vector Controlled Rocket

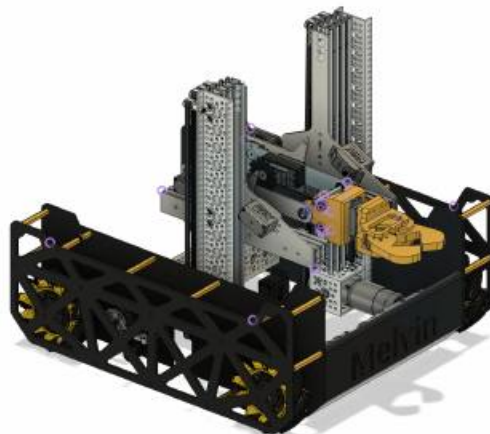
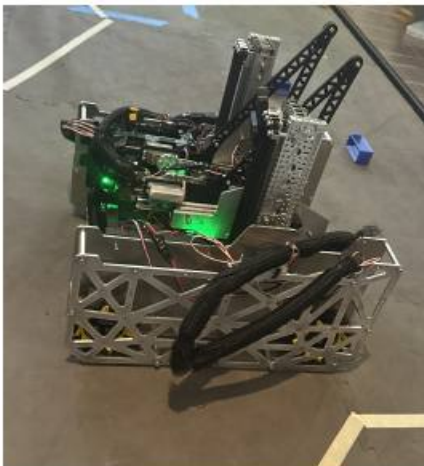


Robotics

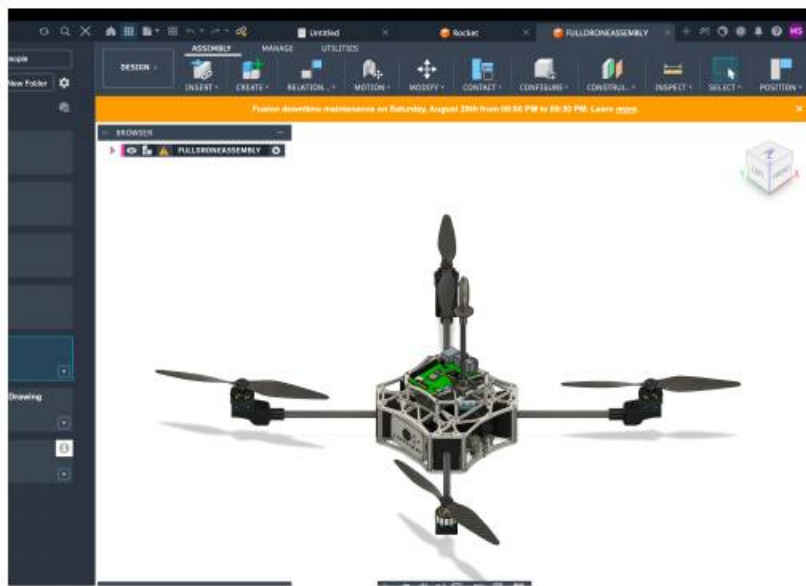
This is one of my proudest robot CADs. I completed 100% of this CAD. It includes a PTO powering full lift. *this was our second robot iteration of the season



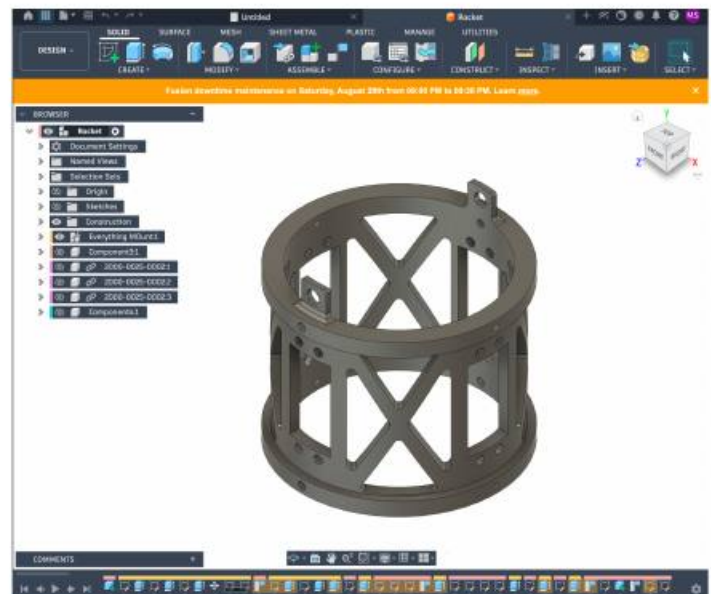
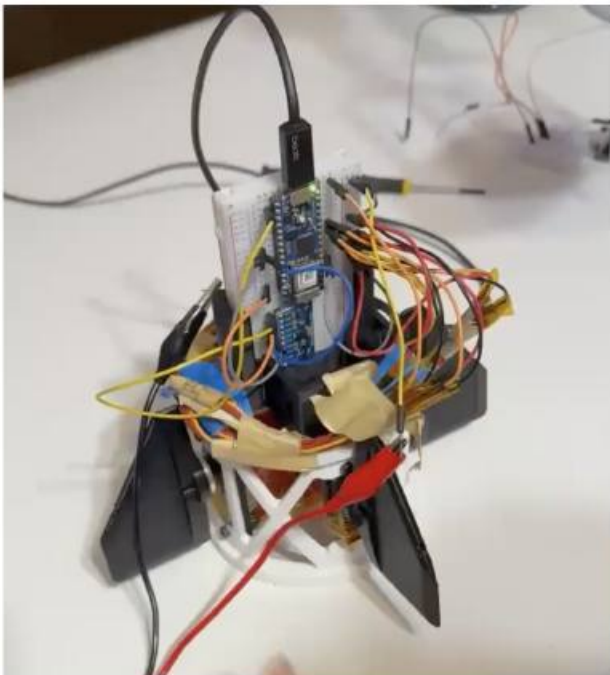
These are robots I didn't cad fully by myself but was heavily involved in.



For my engineering capstone class me and a group of 2 others were in-charge of creating a product. Being the hardware and electronics lead I was responsible for the creation(cad+building) of our idea.



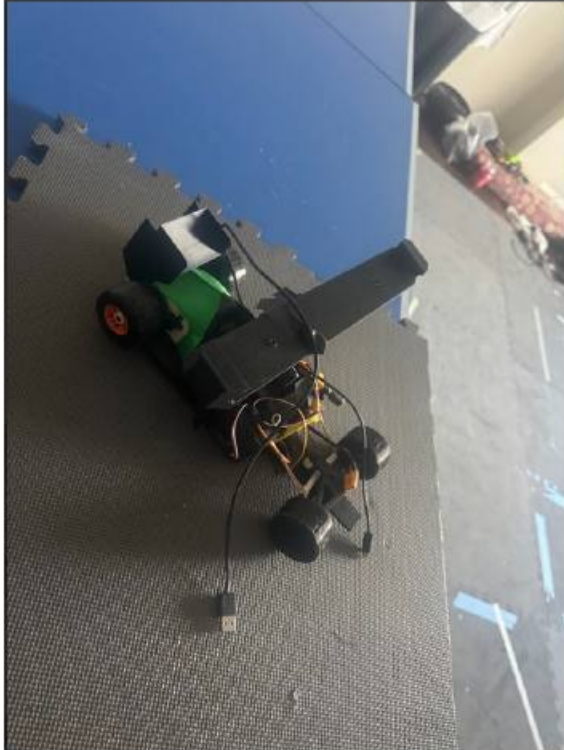
Auto Stabilization Rocket Mount



Video Link: <https://youtube.com/shorts/35XOU3estwM?feature=share>

Random Other Stuff:

Mini f1 rc car. *cad for this was opensource



R.C Boat

