



Tejashvi A H
Bachelor of Technology
in Mechanical Engineering
Indian Institute Of Technology, Ropar

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EDUCATION

Degree	Institute/Board	CGPA/Percentage	Year
Bachelor of Technology	Indian Institute of Technology, Ropar	7.38 (Till 4th Sem)	2023-2025
Senior Secondary	Karnataka Secondary Education Examination Board	85.8%	2022
Secondary	Central Board of Secondary Education	95.6%	2020

PROJECTS

- **Self balancing Bot:** Feb 2025 - May 2025
Dr. Manish Agrawal, Assistant Professor, IIT Ropar Github
 - Engineered a two-wheeled **self-balancing robot** based on the **inverted-pendulum** principle, integrating an **MPU-6050 IMU** and implementing **sensor fusion** of accelerometer and gyroscope data via a complementary filter for precise, real-time pitch estimation.
 - Developed and tuned a **PID control loop** (Kp, Ki, Kd) interfaced with **NEMA 17** stepper motors through DRV8825 drivers, converting filtered tilt measurements into accurate step pulses to achieve smooth, autonomous stabilization and bidirectional motion.
 - Optimized frame design via bending moment analysis (**SFD/BMD**) to ensure structural resilience under operational loads.
- **Face-Tracking Laser Turret Using OpenCV** Mar 2025 - May 2025
Dr. Basant Subba, Assistant Professor, IIT Ropar Github
 - Engineered an **Arduino**-controlled, two-axis laser turret using OpenCV for real-time **face tracking**.
 - **Programmed** dual SG90 servos with optimized pan-tilt actuation to translate camera coordinates into precise movements.
 - **Implemented** face detection and motion smoothing for consistently smooth, jitter-free tracking.
- **Worm Gear 3D model** Oct 2024
Dr. Rajendra Kumar Munian, Assistant Professor, IIT Ropar Github
 - **Designed** and developed a 3D Worm Gear mechanism using SolidWorks.
 - Created **detailed** parts and **assembled** them to ensure accurate fit and simulated the **motion** of the gear mechanism to analyze the performance.

TECHNICAL SKILLS

- **Programming Languages & Libraries** : C/C++, Python, OpenCV
- **Simulation & CAD Softwares** : Ansys, SolidWorks, Abaqus

KEY COURSES TAKEN

- **Mechanical Core:** Theory of Machines, Introduction to Material Science and Engineering, Fluid Mechanics, Engineering Mechanics, Solid Mechanics, Engineering Thermodynamics, Machine Design, Workshop practice.
- **Mathematics:** Probability and Statistics, Linear Algebra and Integral Transforms, Calculus, Differential Equations.
- **Others:** Introduction to Computing and Data Structures, Introduction to Electrical Engineering, Basic Electronics, Economics.

POSITIONS OF RESPONSIBILITY

- **Coordinator:** Automotive Club, IIT Ropar Apr. 2024 - Apr. 2025
- **Co-Head:** Event Management Team, Advitiya (Annual Technical Fest), IIT Ropar Feb. 2025 - Feb. 2025

MISCELLANEOUS

- **JEE Advanced Rank:** Achieved All India Rank 8617 2023
- **JEE Main Rank:** Achieved All India Rank 11035 2023
- **Chess player:** Participated in Aarohan (Annual sports fest), IIT Ropar and Chess.com Rapid Rating: 1600 2025