HARSH ALOK SHAH

Bachelor of Technology
in Mechanical Engineering
Indian Institute Of Technology, Ropar

+91-7575871684
2023meb1344@iitrpr.ac.in
GitHub
linkedin.com/in/harsh-shah-434083312

Education

Degree	Institute/Board	CGPA/Percentage	Year
Bachelor of Technology	Indian Institute of Technology, Ropar	6.97 (Till 4th Sem)	2023-2025
Senior Secondary	Central Board of Secondary Education	87%	2023
Secondary	Central Board of Secondary Education	92%	2021

Projects

- **Line Follower Robot** *July 2023 - November 2023*
  Physics Lab **Github**
  - This project implements an autonomous Line Follower Robot using an Arduino microcontroller as its core processing unit.The robot navigates predefined paths by detecting contrast variations through infrared sensors.
  - Sensor data is processed in real-time by the Arduino, which adjusts the motor dynamics to maintain accurate trajectory alignment.
- **3D CAD Model- Turbocharger** *July 2024 - November 2024*
  Dr Jitendra Prasad **Github**
  - This project involved designing a highly detailed 3D CAD model of a turbocharger using SolidWorks, adhering to industry-standard engineering practices.
  - The model accurately replicates the geometry, kinematics, and functional relationships of a real-world turbocharger.
- **Automatic Door Mechanism** *January 2025 - April 2025*
  Dr Satwinder Jit Singh **Github**
  - This project implements a space-efficient double door using a four-bar linkage. Its key innovation is automatic switching between single-door and double-door swing modes.
  - A camera with computer vision detects the number of people approaching, and the system dynamically selects the optimal configuration to streamline entry flow.
- **Hand Gesture Controlled Car** *January 2025 - April 2025*
  Dr Basant Subha **Github**
  - This project implements a hand gesture-controlled car using an accelerometer to translate tilt motions into directional movement.
  - Advanced pivoting for precise navigation in tight spaces, combining intuitive control with adaptive safety features.

Technical Skills

- **Programming Languages**: Python, Basic C++(Arduino Uno)
- **Technical Skills**: Electronics(Using Arduino, DC Motors, Esp32, Motor drivers, Bluetooth module and sensors like IR sensor, ultrasonic sensor, LIDAR, cameras, microwave sensor, PIR sensor, LCD display, etc.), Finite Element Analysis, Failure Analysis(Stress, Strain, torsion, bending and buckling), Fluid Dynamics, Thermal Analysis, Automotive Sector(Engines, Motors, Gears, Braking System, Mechanisms, Steering System, etc.)
- **Softwares**: SolidWorks, Ansys, Abaqus, TinkerCad, 3dExperience, Arduino Uno, Canva, LaTeX, Visual Studio Code

Key courses taken

- **CSE & Maths**: Basic Computing & Data Structure and Algorithms, Calculus, Linear Algebra, Differential Equations, Probability And Statistics
- **Core Mechanical**: Material Science, Solid Mechanics, Fluid Mechanics, Thermodynamics, Machine Drawing, Mechanics, Machine Theory, Mechanical Workshop,
- **Other Courses**: Basic Chemistry, Physics for Engineers, Economics, Tinkering Lab, Basic Electronics, Introduction To Electrical Engineering, History of Technology, Human Geography, Professional English Communication

Positions of Responsibility

- **Coordinator**, Automotive Club, IIT Ropar *April. 2024 - April. 2025*
- **Co Head**, Advitiya'25, IIT Ropar *December. 2024 - Febuary. 2025*
- **Event Management Team Member**, Advitiya'24, IIT Ropar *December. 2023 - Febuary. 2024*
- **Media and Publicity Team Member**, Advitiya'24, IIT Ropar *December. 2023 - Febuary. 2024*

Miscellaneous

- **Qualified JEE Advanced**, Secured a rank of 8055 *2023*
- **Qualified Round 1-AAKRUTI'24**, Presented innovative sustainable development concept with 3D CAD model *2024*
- **Qualified PRMO**, a National-level math Olympiad's first-stage exam in India *2021*