

SNEHKUMAR SABHAYA

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EDUCATION

National Institute of Technology, Tiruchirappalli

Dec 2021 – May 2025

B.Tech in Mechanical Engineering

CGPA - 7.28 - upto 6th sem

Courses : Engineering Drawing, Manufacturing Technology, Mechatronics, Design of Machine Elements

TECHNICAL SKILLS

Programming Languages: Python, MATLAB

Libraries: NumPy, Matplotlib, OpenCV, Tensorflow

Robotic Simulation Software: Gazebo, MuJoCo

Design Software: SolidWorks, Onshape, Fusion360, AutoCAD

Framework: Linux, ROS2, Arduino

EXPERIENCE

Mowito Automation

May 2023 – July 2023

Mechanical Intern

Bangalore, India

- Objective: Develop a **Robot-Automated Microwarehouse** within a 320sq.ft. Shipping Container.
- Worked on small modules of the project to achieved **1000** products in a shipping container, reducing operational costs by **40%** and cutting order fulfillment time **16 seconds**.

PROJECTS

Quadruped RL control

July 2024 - Present

- Objective: Implement RL algorithm like **Proximal Policy Optimization** and **Soft Actor-Critic** to control basic movements of **Unitree Go 2**, 12-DOF quadrupedal robot, in **MuJoCo** environment.
- Developed a simulation custom environment in MuJoCo, defining state and action spaces while researching end-to-end reinforcement learning policies to implement RL control algorithms.

Rover | ISRO Robotics Challenge 2024(IRoC-U2024)

Dec 2023 - Present

- Objective: Develop an fully **autonomous six-wheeled rover** capable of navigating a uneven terrain while mapping the environment using depth camera and sensors. Rover also has a **5 DOF robotic arm** and a gripper for collecting samples.
- Worked on design and development of 5 DOF robotic arm and designed Rocker-Bogie suspension for rover in **SolidWorks**. Assisted with low level actuation control and steering.

AstroTinker Bot | e-Yantra Robotics Competition (eYRC) - IITB

Aug 2023 - Feb 2024

- Objective: Build a path-planning line-following robot capable of navigating through an arena, detecting faults, and implementing corrective measures.
- Worked on **Dijkstra algorithm** for path planning on a given nodal map and tuning of **PID** control logic.

Hexapod | Smart India Hackathon

May 2023 - Dec 2023

- Objective: A six legged **18-DOF** ground based robot having the ability to navigate through the various terrain. Hexapod has Jetson Nano as on-board computer and Xbox Kinect v1 and is capable of level 3 autonomy.
- Design and develop Hexapod chassis in **Fusion360**. Assisted in interchangeable gait mechanism for motion algorithm and inverse kinematics for estimating pose.
- Achieved **200** metres walking in tripod gait in **19 min 12sec** and climbing up and down the staircase of **6 inches** with a maximum speed of **17cm/s**.

POSITION OF RESPONSIBILITY

Robotics and Machine Intelligence (RMI)

May 2023 - Present

Robotics Engineer

Trichy

- RMI is the official Robotics Research Club of the institute, hosting research and technical projects covering ranging from assistive and mobile robotics, humanoid robotics, human-robot interaction, etc.
- As an active researcher, worked on several projects, participated in various competitions, mentored juniors in mechanics, design and controls, and organized workshops on line follower robot.

ACHIEVEMENTS

- Achieved recognition for the novel 'Hexapod' as the winning project at the Smart India Hackathon'23, a prestigious national-level hardware hackathon featuring over **40,000** participating teams.
- Pre-finalists of eYRC'23 conducted by IIT-Bombay from over **500+** participating teams, making it to the penultimate round along with **9** other teams.