Arjun Paan

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Education

Indian Institute of Technology Gandhinagar B.Tech in Mechanical Engineering with Minors in Robotics, CPI: 7.32/10 2023 – 2027 Gandhinagar, Gujarat

Coursework

Mechatronics • Statics and Dynamics • Fluid Dynamics • Vibration • Thermodynamics • Application of Electrical Engineering • Engineering Graphics • Design and Innovation

Experience

Research Project – Soft Robotics & Teleoperation Under Prof. Madhu Vadali, IIT Gandhinagar

January 2025 – Present

- Developing a Teleoperated Minimally Invasive Flexible Surgical Robot (MIFSR) to enhance surgical precision.
- Designing cable-driven tentacle-like actuators for improved dexterity and control.
- Implementing joystick-based teleoperation for real-time movement of six servos.
- Integrating Raspberry Pi 4 with ROS 2 humble for motion control and feedback.

Projects

Autonomous Rover: Robofest 4.0 Competition, Science City, Gujarat Under Prof. Madhu Vadali

March 2024 – October 2024

- Built an autonomous rover with GPS navigation and **Y**OLOv5-based obstacle detection.
- Used Jetson Nano™ for real-time processing and a **w**ebcam for live visual navigation.
- Successfully showcased in Robofest 4.0 Round 2 (24 October 2024).
- Achieved 2nd place in Ideation Round and awarded 50,000 for the demonstration round.

Fire Fighting Robot: August 2024 - Nov 2024 *Mechatronics Course, Professor Madhu Vadali*

- Designed a fire-detection robot with a 45° tilt nozzle for precise fire extinguishing.
- Used Raspberry Pi & Kaggle-trained model for fire detection & segmentation.
- Developed a **w**ireless control system for safe, remote operation.

Achievements

- Secured **1**2998 rank in JEE Advanced
- Secured **9**826 rank in JEE Mains
- Scored **2**74/390 in **B**ITSAT
- Selected for the Robofest 4.0 demonstration round and awarded 50000 by Science City Gujrat Robofest 4.0 (Team Project)

- BIS Build-a-Thon 2.0 – Winner, awarded prizes worth 15,000 (IIT Gandhinagar Business Prototype Event, Team Project)
- Selected for DD Robocon 2025 Round 1 (Team Project, Ideation Round)

Skills

Technologies: OpenCV, YOLOv5, ROS 2 Humble(Basics)

Simulations and Design: MATLAB, Fusion 360, 3D printing tools(Creality)

Hardware Used: Arduino, Raspberry Pi, Jetson Nano (Software: Ubuntu 22.04 lts)

Languages: Python

Other Skills Presentation Skills