RAGHAVENDRA PANDURANG JADHAV

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EDUCATION

National Institute of Technology Karnataka, Surathkal **Dec 2021 – May 2025**
Bachelor of Technology in Mechanical Engineering Major CGPA: 7.65/10
With a Minor Degree in Electronics & Communication Engineering Minor CGPA: 7.40/10

ACADEMIC PROJECTS

Unmanned Surface Vessel [NITK Surathkal] **Apr 2024 – May 2025**
Team Size: 5 **Role**: Team Member

- Developed a modified fishing canoe with an onboard compute module for autonomous navigation, tailored for search and rescue operations and maritime surveillance tasks.
- Devised a custom canoe trailer in SolidWorks, with a half-ton capacity and an automated canoe loading feature.
- Built a ROS–Gazebo simulation environment for the canoe to test control algorithms and autonomous navigation.
- Designed the motor steering mechanism; developing control systems enabling RC operation on the canoe powered by a petrol and an electric motor for optimized performance.

Autonomous Mobile Robots for Object Manipulation [NITK Surathkal] **Aug 2023 – July 2024**
Team Size: 32 **Role**: Team Lead

- Designed and built autonomous four-wheel holonomic robots for ABU Robocon 2024, integrating navigation, object manipulation, and task-specific mechanisms for competition challenges.
- Developed IMU & encoder-based odometry, computer vision pipelines for colour-based object detection, and custom control algorithms for autonomous navigation and task execution.
- Led engineering across mechanical and electrical design, embedded electronics, control systems, prototyping, fabrication, assembly, testing, and system integration, taking robotic systems from concept to functional deployment.

15KG Combat Robot – GNARLY [NITK Surathkal] **July – Oct 2023**
Team Size: 15 **Role**: Team Lead

- Established NITK's first combat robotics program and led the development of a high-performance 15 kg combat robot for Engineer'23, the institute's flagship technical festival.
- Secured over $3,000 in funding through a competitive management proposal and developed one of India's few four-wheel-drive (4WD) 15 kg combat robots featuring a vertical bar spinner and chain-driven drivetrain.
- Led the end-to-end engineering lifecycle, including mechanical design (SolidWorks), drivetrain and power transmission design, structural optimisation, material selection, manufacturing, assembly, and testing using CNC machining, laser cutting, welding, and conventional machining.

Ring Shooting Holonomic Mobile Robots [NITK Surathkal] **July 2022 – June 2023**
Team Size: 12 **Role**: Team Member

- Designed and developed 2 three-wheeled holonomic robots for the ABU Robocon 2023 competition, capable of omnidirectional navigation, ring collection, and precision shooting at multiple target heights.
- Engineered a spring-loaded catapult, a dual-flywheel launcher with a custom gearbox, and two custom PCBs for power distribution and hardware integration.
- Implemented a NodeMCU-based wireless control system with custom navigation algorithms.
- Leveraged Fusion 360, PCB design, CNC milling, laser cutting, polymer 3D printing, TIG welding, soldering, and mechanical assembly to deliver a competition-ready robotic platform.

Pharma Bot [NITK Surathkal] **July 2022 – June 2023**
Team Size: 4 **Role**: Team Lead

- Engineered an autonomous medicine-delivery robot by integrating OpenCV-based perception, QR code and ArUco marker localization, and autonomous navigation in a structured environment.
- Developed a vision-based localization framework using an overhead camera to estimate the robot's pose and synchronize its real-time state with CoppeliaSim for digital twin visualization.
- Implemented constrained path planning and task scheduling algorithms. Ranked among the Top 16 teams in the e-Yantra Robotics Competition.

WORK EXPERIENCE

Assistant Executive – Site Engineer, Bharat Petroleum Corporation Ltd., Navi Mumbai **June 2025 – Present**

- Contributing to BPCL's USD 184.84M refrigerated LPG import terminal expansion by coordinating multidisciplinary engineering and mechanical construction, increasing terminal capacity from 1.2 to 3.0 MMTPA.
- Managing design, statutory approvals, fabrication, installation, testing, and pre-commissioning of a USD 3.11M railway overbridge package in coordination with Indian Railways, consultants, contractors, and BPCL stakeholders. Ensuring compliance with engineering specifications and OISD standards throughout project execution.

INTERNSHIP

Summer Intern, Manufacturing Division, Bajaj Auto Limited, Pune **May – July 2024**

- Analysed assembly line workflow, work content distribution, and task sequencing across four motorcycle models, performing time studies and line balancing to eliminate production bottlenecks.
- Redistributed 9.25 minutes of work content across four conveyor systems, increasing production throughput from 360 to 546 vehicles per shift (51%) through process optimisation and improved resource utilisation.

TECHNICAL SKILLS

- **Software and Programming:** SolidWorks, Fusion 360, AutoCAD, Ansys, Altium, Eagle, Ultimaker Cura, MATLAB and Simulink, Python, C/C++, Bash, Cloudflared
- **Hardware:** Raspberry Pi, Arduino, Soldering, PCB Manufacturing, 3D Printing, CNC Machining, Laser Cutting, Manual Machining

CERTIFICATIONS/WORKSHOPS/ADDITIONAL COURSES

Modern Robotics: Robot Kinematics | Northwestern University **Oct 2026**
Aerial Robotics | University of Pennsylvania **Sept 2026**
Basics of Embedded Systems and Robotics | e-Yantra, IIT Bombay **July 2023**
Data Structures in C++ | Coding Ninjas **Nov 2022**
CSWA – Certified Solidworks Associate **Sept 2022**

PATENTS

1. Dr. Khyati Verma, Dr. Siddharth R, Dr. Ajay Rai E, **Raghvendra Pandurang Jadhav**, Dhiren V Bhandary, Dr. Ganagadharan K V, Dr. Rohan Mascarenhas, "An automated ergonogauge device for measuring three-dimensional spatial data", Application No. 202541029107 (Filed on 27/03/2025) – *Currently under Examination.*
2. Dr. Priyalakshmi, Dr. Khyati Verma, Dhiren V Bhandary, **Raghvendra Pandurang Jadhav**, Dr. Ganagadharan K V, Dr. Praveena Shetty, Dr Greeshma Kannan, "Orthodontic Appliances to Prevent Tongue Thrusting Habit", Application No. 202541032533 (Filed on 02/04/2025) – *Currently under Examination.*

ACHIEVEMENTS/CO-CURRICULAR/EXTRACURRICULAR

- Placed 3rd in Robowars at VIT Vellore's Gravitas 2024, serving as the primary robot driver during combat matches.
- Achieved runners-up in the IEEE NITK-hosted Embaddethon 2024 focused on Computer Vision and Sensor Fusion.
- Qualified for the national round of ABU Robocon in 2023, 2024 & 2025, ranking among the top teams with scores of 96, 95 & 88 out of 100 in the Robot Design Documentation category.
- Advanced to the semi-finals of TECHFEST'23 IIT Bombay International Robowars in the under-15 kg category.
- Earned runners-up in the Robowars contest held during Manipal's Technical fest TECHTATVA'23.
- Won the Open Innovation Track at Technica'22, a national hackathon hosted by ISTE-VIT

LEADERSHIP ROLES

Vice-Captain – CSD Robocon NITK, NITK Surathkal July 2024 – May 2025

- Led a 40-member robotics team representing the institute at the international ABU Robocon 2025 competition.
- Managed team operations and finances, fundraising, treasury management, procurement, & scheduling of activities.

Co-Founder & Lead – Team GNARLY, NITK Surathkal Sept 2023 – May 2025

Led a 15-member combat robotics team, driving design, funding and participation in inter-university competitions.

Media & Web Head - CSD Robocon NITK, NITK Surathkal Jan 2023 – July 2024

Revamped the team's digital presence by redesigning websites and outreach platforms.

COMMUNITY INVOLVEMENT

- Contributed to community well-being by organizing a hygiene drive for 500+ workers, including awareness sessions and hygiene-kit distribution, July 2026.
- Organized a robotics outreach showcase through interactive demonstrations of line-following, pick-and-place, and autonomous robotic systems to promote STEM and robotics education, ENGINEER'24 (NITK), Oct 2024
- Conducted a Knowledge Sharing Session – Aero Trivia, for 10th-class students about the Engineering behind Drones and their applications, Aug 2021