

SUTHARSAN K

Junior ROS2/Autonomous Robotics Engineer

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PROFESSIONAL SUMMARY

Junior ROS2 Developer with hands-on experience building and maintaining autonomous robotic systems using ROS2. Strong expertise in Nav2-based navigation, ros2_control hardware integration, perception, mapping, and localization. Experienced in working with LiDAR, RGB-D cameras, and real robots, writing modular ROS2 nodes in Python and C++, and debugging system-level issues in production environments.

EXPERIENCE

Spotless AI, Junior ROS Developer

07/2025 – Present

- Developing and maintaining ROS2-based autonomous mobile robots for real-world deployment.
- Implemented autonomous navigation using Nav2, integrating SPBL (global planner) and DWB (local planner) for stable and collision-free robot motion.
- Worked with ros2_control to interface robot hardware, manage controllers, and integrate actuators with ROS2 control frameworks.
- Built perception pipelines using OpenCV, Python, YOLO, and PointCloud2 for object detection, segmentation, and 3D perception.
- Implemented RGB + Depth sensor synchronization, point cloud filtering, and semantic feature extraction.
- Developed mapping pipelines using Occupancy Grid Maps, Gmapping, and semantic grids.
- Integrated LiDAR, depth cameras, and RGB sensors for mapping, localization, and room boundary detection.
- Implemented edge and corner detection, map modification, and smoothing to improve navigation reliability.
- Debugged and optimized robot performance by resolving TF/TF2 mismatches, sensor noise, timing issues, planner failures, and CPU overuse.
- Wrote clean, modular ROS2 nodes in Python and C++, interacting with topics, services, actions, parameters, TFs, and custom messages.
- Actively used Git and GitHub for version control, feature development, and code main- maintenance.

Logical Minds IT Services, ROS Trainee

12/2024 – 06/2025

- Trained in ROS/ROS2 fundamentals, perception, mapping, navigation, and simulation.
- Contributed to production robotics projects in collaboration with Spotless AI, leading to a full-time transition.

EDUCATION

Bannari Amman Institute of Technology,

B.E., Mechatronics Engineering

09/2021 – 06/2025

SKILLS

ROS & Robotics — ROS2 ROS1 Nav2 (Navigation Stack) ros2_control TF / TF2 Topics Services Actions Occupancy Grid Mapping Gmapping Sensor Integration (LiDAR, RGB-D), **Perception** — OpenCV YOLO Point Cloud Processing (PointCloud2), **Programming** — Python C++, **Tools & Platforms** — Ubuntu Linux Gazebo RViz / RViz2 Git & GitHub

ROBOTICS PROJECTS

Flipkart GRID 2.0 (Team Project – Competition)

Developed computer vision modules as part of a national-level engineering competition.

- Implemented image segmentation and object recognition using **OpenCV and Python**.
- Applied image preprocessing and feature extraction techniques for vision-based tasks.

LabConnect – Role-Based Collaboration Platform (Team Project)

Developed a role-based web portal for lab management and collaboration in a Product Innovation Center.

- Designed UI/UX and dashboards for Admin, Faculty, Student, and Industry roles.
- Implemented lab registration, attendance, and discussion forum workflows.

Krishi Bot '22 - E-Yantra Robotics Competition

Developed robotic arm manipulation and perception modules using ROS.

- Implemented control logic and vision pipelines in Python + ROS.

Medical Drone (Team Project)

Developed vision modules for emergency-response drone applications.

- Used OpenCV and Python for image processing and object recognition.
- Focused on image segmentation for target identification.