

SOURABH TIWARI

Robotics Software Engineer – Navigation & Perception Systems

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CAREER SUMMARY

Robotics Software Engineer with 5 years of experience building real-world autonomous systems for mobile robots, forklifts, and UAVs. Specialized in ROS2-based autonomy stacks, perception-driven navigation, and sensor fusion for reliable operation in dynamic indoor and outdoor environments. Led deployment of production robots in warehouse and logistics settings, focusing on robust localization, obstacle avoidance, and system integration. Strong hands-on background in C++, Python, and real robot testing.

TECHNICAL SKILLS

Core Robotics - ROS2, Nav2, SLAM, Sensor Fusion, Autonomous Navigation, Perception Systems

Programming - C++, Python

Perception & Optimization- OpenCV, YOLO, Depth Cameras, CUDA/TensorRT

Systems- Linux, Git, Embedded Integration

PROFESSIONAL EXPERIENCE

ROBOTICS SOFTWARE ENGINEER — PEYKBOT (UAE)

Dec 2024 – Dec 2025

- Developed ROS2-based autonomy stack for outdoor delivery robots combining GPS, IMU, LiDAR, and vision
- Built sensor fusion pipelines for stable localization in mixed indoor–outdoor environments
- Designed dynamic obstacle avoidance and cost-map updates for real-world navigation
- Integrated perception outputs into navigation planning for safer urban operation
- Worked on fleet telemetry and real-time robot monitoring systems

SENIOR ROBOTICS SOFTWARE ENGINEER — CONTROL ONE AI (INDIA)

Jun 2023 – Nov 2024

- Led development of full autonomy stack for autonomous forklifts in warehouse environments using ROS2 & Nav2
- Built vision-based dynamic cost-maps fused with depth sensors to navigate narrow corridors with moving obstacles
- Implemented sensor fusion (IMU, visual SLAM, LiDAR) achieving ~10–20 cm localization accuracy in GPS-denied spaces
- Designed real-time obstacle detection, tracking, and reactive avoidance behaviors
- Deployed systems in live warehouse operations handling pallet pickup and transport.

ROBOTICS SOFTWARE ENGINEER — VECROS (IIT DELHI)

Oct 2022 – May 2023

- Worked on ArduPilot-based autonomous drone systems using MAVLink & companion computers
- Developed obstacle avoidance pipelines using depth cameras and onboard perception
- Integrated SLAM and navigation workflows in simulation and real hardware
- Contributed to multi-sensor data handling and flight autonomy testing

ROBOTICS ENGINEER — ABA AIOT PVT LTD

Apr 2021 – Sept 2022

- Built motor control systems for mobile robots using ROS and microcontrollers
- Integrated encoders, IMU, and sensor feedback for closed-loop control
- Developed robot simulations in Gazebo and hardware-software interfaces

PROJECTS

VISION-BASED DYNAMIC COSTMAP FOR REAL-TIME NAVIGATION

Built real-time free-space segmentation fused with depth data to generate dynamic occupancy grids at 30Hz, enabling robots to avoid moving obstacles in tight warehouse spaces.

AUTONOMOUS PALLET DETECTION & ALIGNMENT SYSTEM

Implemented 3D pallet pose estimation for forklift alignment using perception models, enabling precise autonomous pickup in unstructured layouts.

UAV DEPTH-BASED OBSTACLE AVOIDANCE FRAMEWORK

Real-time depth-based collision prevention integrated with ArduPilot & MAVLink on Jetson

EDUCATION

BACHELOR'S DEGREE | Electrical and Electronics Engineering | GGSIPU Delhi, India

2017 – 2021