

# MD KASHIF ALAM

## Robotics Software Engineer

### CONTACTS & PORTFOLIO

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Portfolio: [kashifalam407.github.io/Portfolio/](https://kashifalam407.github.io/Portfolio/)

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GitHub: [github.com/KashifAlam407](https://github.com/KashifAlam407)

YouTube: [www.youtube.com/@electroboticsAi](https://www.youtube.com/@electroboticsAi)

### SUMMARY

Robotics Software Engineer specializing in motion planning, navigation, and control using ROS2. I have hands-on experience building real-time autonomous robotic systems, including path planning, trajectory tracking, and obstacle-aware navigation. My work focuses on designing and tuning control algorithms, integrating localization and planning modules, and ensuring smooth robot motion in dynamic environments. I also work on combining embedded systems with ROS2 to build reliable, real-world robotic solutions. I document technical experiments and implementations through my **portfolio** and my Youtube **Electrobotics AI** platform.

### EDUCATION

- **Bachelor of Science (BS)**, Artificial Intelligence and CyberSecurity | IIT Patna

### SKILLS

- **Robotics Frameworks:** ROS2 (Humble), Nav2 Stack, MoveIt2, URDF Modeling, TF2, SLAM
- **Programming Languages:** C++ (OOP), Python, MicroPython, Bash Scripting
- **Computer Vision & AI:** OpenCV, YOLO, MediaPipe, TensorFlow
- **Embedded Systems:** ESP32, STM32, Raspberry Pi, Arduino, PCA9685
- **Control & Kinematics:** PID Tuning, Inverse Kinematics, Gait Dynamics, State Estimation
- **Hardware Communication:** UART (Serial), I2C, SPI, CAN Bus (Basics)
- **Simulation & Modeling:** Gazebo, RViz2, Fusion 360 (CAD), MATLAB/Simulink, OpenVSP
- **Development Tools:** Linux (Ubuntu), Git/GitHub, VS Code, WSL2, Docker

### EXPERIENCE

- **Technical Intern — India Space Lab (ISL)** *Jan 2026 – Present | Remote*
- **AI & LLM Engineer Intern – Springer Capital** *Feb 2026 – Present | Remote*

### PROJECTS

- **ROS2 Nav2 Autonomous Navigation Stack**
  - Implemented end-to-end autonomous navigation using ROS2 Nav2 with AMCL localization, global planning, and DWB-based local control
  - *GitHub:* <https://github.com/KashifAlam407/ros2-nav2-navigation-stack>
- **Trajectory Tracking Controller**
  - Developed a ROS2-based trajectory tracking controller to follow waypoints using real-time odometry and velocity control
  - *GitHub:* <https://github.com/KashifAlam407/ros2-trajectory-control>
- **Industrial Robot Setup – Fanuc CRX-10iA (ROS2 & MoveIt)**
  - Configured Fanuc CRX-10iA with MoveIt2 for motion planning and trajectory execution.
  - *GitHub:* <https://github.com/KashifAlam407/fanuc-crx10ia-moveit-task1>
- **Custom DWA Local Planner (ROS2)**
  - Developed a custom DWA-based local planner in ROS 2 for obstacle-aware motion planning using LiDAR and odometry.
  - *GitHub:* [https://github.com/KashifAlam407/Custom\\_DWA\\_Planner-ROS2](https://github.com/KashifAlam407/Custom_DWA_Planner-ROS2)
- **Autonomous Mobile Robot (AMR)**
  - Built an AMR using Raspberry Pi and RPLIDAR with ROS 2, capable of basic path planning and autonomous navigation.
  - *GitHub:* <https://github.com/KashifAlam407/AMR>
- **Quadruped Robotic Dog**
  - Engineering an autonomous quadruped robot capable of walking, running, and turning, with future integration of AI-based navigation, mapping, and localization.
  - *GitHub:* [https://github.com/KashifAlam407/Quadruped\\_Robot](https://github.com/KashifAlam407/Quadruped_Robot)