

Autonomous Mobile Robots

Features

Docker-based ROS environment setup as part of CI/CD workflow

Teleoperation (WiFi based steering & throttle control)

Mapping using 2D Lidar based SLAM (Gmapping/Hector SLAM)

Autonomous Navigation
Probabilistic Path Planning (A* with Local Dynamic Window Approach)
Localization (Particle Filter)

Dynamic Obstacle Detection & Avoidance
Odometry – Sensor Fusion with IMU,
Wheel Odometry, 2D Lidar
Integrated with Camera [D435i]



Platforms

- NVIDIA AGX
- TI Jacinto 7



Parameter	Observations
Max Speed	.5 m/s
Obstacle Clearance	Depends on environment and navigation stack parameters
Max Payload	Tried for upto 3 Kg
Max rotational Speed	180 degree/s