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Autonomous Navigation System for Space Vehicle - Rover

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Abstract: *Exploration in extraterrestrial environments requires autonomous systems that can navigate unpredictable and unstructured terrain. This paper proposes a machine learning-powered autonomous navigation system for space vehicles. It incorporates LiDAR and ultrasonic sensors for real-time obstacle detection and adaptive movement. The system aims to boost mission efficiency, improve rover autonomy, and minimize reliance on human input during planetary operations.*

Keywords: Autonomous Navigation, AI-based Rover, LiDAR, Planetary Exploration, Machine Learning, ROS-2 Humble

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