

AI-Enhanced Rover for Intelligent Oil Spill Cleanup

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Abstract— This project is dedicated to the development of an autonomous, AI-powered rover tailored specifically for oil spill cleanup in aquatic environments. Guided by sophisticated artificial intelligence, the rover is engineered to autonomously navigate various water bodies and accurately locate oil spill incidents. Its core functionality revolves around a meticulously designed multi-disc oil skimmer, intricately controlled by the AI system, enabling efficient separation and collection of oil from the water surface. Additionally, the rover is outfitted with advanced image detection capabilities, facilitating autonomous identification and navigation towards areas affected by oil spills. The primary objective of this initiative is to construct a prototype showcasing the seamless integration of these advanced features. By leveraging innovative technology, this project aims to provide a robust and efficient solution for oil spill cleanup operations. Through the minimization of human intervention and the swift response enabled by the AI-driven rover, significant strides are anticipated in mitigating the environmental impact of oil spills on aquatic ecosystems.

