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(57) Abstract :

This patent application introduces a revolutionary autonomous robotic navigation system, "Vanguard," specifically designed for deployment in conflict zones and hazardous environments. The system features an advanced robotic vehicle equipped with an array of sensors and controlled by an ESP32 microcontroller, enabling precise and autonomous navigation. Vanguard is designed to operate in collaboration with aerial surveillance drones that provide real-time data and imagery, enhancing the robot's situational awareness and decision-making capabilities. The integration of machine learning algorithms and Dijkstra's algorithm allows Vanguard to effectively perform pathfinding, obstacle avoidance, and adaptive navigation in dynamic and challenging terrains.

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