Patent Search

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Abstract:

The present invention relates to an autonomous vehicle navigation system that leverages advanced machine learning techniques to improve navigation accuracy, effi safety. The system comprises a sensor suite, including LiDAR, cameras, radar, and ultrasonic sensors, for comprehensive environmental perception. A machine learni processes this sensory data, predicts vehicle trajectories using deep learning and recurrent neural networks, and makes real-time navigation decisions through reinfc learning algorithms. The control unit executes precise navigation commands such as steering, acceleration, and braking. The system also incorporates adaptive learn enhance its decision-making algorithms continuously based on new data and experiences, ensuring dynamic obstacle avoidance and robust navigation in diverse env
Accompanied Drawing [FIGS. 1-2]

Complete Specification

Description:[001] The present invention pertains to the field of autonomous vehicle technology, specifically focusing on the development and implementation of ad navigation systems. As autonomous vehicles become increasingly prevalent, the need for sophisticated navigation solutions that ensure safety, efficiency, and reliab various driving conditions is paramount. This invention addresses these needs by leveraging advanced machine learning techniques to enhance the autonomous ve ability to interpret and respond to its environment.

[002] Autonomous vehicle navigation systems are responsible for guiding the vehicle from one location to another without human intervention. These systems mus process vast amounts of data in real-time, including inputs from sensors that detect road conditions, obstacles, traffic signals, and other vehicles. The complexity of requires robust algorithms capable of making accurate predictions and decisions under dynamic and often unpredictable conditions.

[003] The invention integrates state-of-the-art machine learning algorithms with traditional navigation technologies to create a comprehensive system that improve vehicle's decision-making processes. By utilizing techniques such as deep learning, reinforcement learning, and neural networks, the system can better understand surroundings, predict potential hazards, and navigate safely and efficiently. This invention thus represents a significant advancement in the field of autonomous veh navigation, providing a more reliable and adaptable solution for modern transportation challenges.

BACKGROUND OF THE INVENTION

[004] Autonomous vehicles are rapidly transforming the transportation landscape by offering a safer and more efficient alternative to traditional human-operated v Despite significant advancements, the challenge of navigating complex and ever-changing environments remains a formidable obstacle. Current navigation systems fall short in real-time decision-making, especially when confronted with unforeseen obstacles or dynamic changes in the environment. This limitation can comprom

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