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Electric Highway with Pantograph System (EHPS)

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Abstract: This project, titled "ESP8266-Based Robot for Electric Highway Integration Using Pantograph Mechanism," focuses on the design and development of a self-operating electric vehicle tailored for highway freight transport. The system incorporates a pantograph mechanism that enables real-time battery charging from overhead electric lines while the vehicle is in motion. Central to the system is an Arduino microcontroller, programmed to autonomously navigate pre-defined routes and avoid obstacles using sensor input. The vehicle is also equipped with sensors to track its speed, monitor battery status, and detect surrounding objects. By combining automation with sustainable power delivery, this solution seeks to offer a viable alternative to traditional fossil-fueled transportation, promoting both energy efficiency and environmental preservation.

Keywords: electric vehicle

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