

Generation of Electricity by Using Speed Breaker

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Abstract: The generation of electricity by using a speed breaker is an innovative approach to harness waste mechanical energy produced by moving vehicles on roads. Every time a vehicle passes over a speed breaker, a significant amount of kinetic energy is dissipated as heat and vibration. This project aims to capture and convert that otherwise wasted energy into useful electrical power.

In this system, mechanical components such as rollers, springs, rack-and-pinion mechanisms, or piezoelectric sensors are installed beneath the speed breaker. When a vehicle moves over the hump, the applied pressure causes mechanical motion or stress, which is converted into electrical energy using generators or piezoelectric materials. The generated electricity is then stored in batteries and can be used for low-power applications such as street lighting, traffic signals, road signage, or charging small electronic devices.

This method of power generation is environmentally friendly, renewable, and does not require additional fuel or large infrastructure. It is especially suitable for high-traffic areas such as highways, toll plazas, parking areas, and urban roads. Although the amount of power generated from a single speed breaker is limited, large-scale implementation across multiple locations can contribute significantly to decentralized energy generation. Thus, electricity generation using speed breakers offers a sustainable and cost-effective solution to meet growing energy demands while promoting green technology..

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