FootPrint Energy: Paving the Way for Sustainable Power

T John Institute of Technology/ 1st SEM/

PROBLEM STATEMENT

How might we help the people from Inefficient Energy Utilisation from Moving Vehicles and Pedestrians on Roads Leading to Wastage of Kinetic and Mechanical Energy, Contributing to High Electricity Bills Dependent on Nonrenewable Sources

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INTRODUCTION

The kinetic energy generated by moving vehicles and the static energy from pedestrians remain largely untapped, leading to an alarming wastage of valuable resources. Concurrently, the burden of escalating electricity bills, predominantly fueled by nonrenewable sources, underscores the pressing need for innovative and sustainable energy solutions. This dual challenge calls for a transformative approach that not only captures the latent energy within our roadways and pathways but also provides a promising avenue to alleviate our dependence on finite and environmentally detrimental power sources.

IDEA GENERATION

Proposing an ingenious solution, we envision embedding piezoelectric sensors seamlessly into footpaths, roads, and parking areas, effectively harnessing the latent energy derived from the mechanical stress of moving vehicles and pedestrian footsteps. This innovative technology, strategically integrated as speed breakers and parking area surfaces, transforms overlooked areas into dynamic energy harvesters. Captured electric energy finds a reliable home in lithium-ion batteries, constituting a robust storage solution. While the initial investment may appear substantial, it is offset by the remarkable longevity of piezoelectric materials, exceeding a decade of efficient service. This revolutionary concept extends beyond thoroughfares, extending to residential buildings, where the technology offers an additional layer of energy backup, laying the foundation for sustainable urban development while mitigating the strain on conventional power sources.

PROTOTYPE IMAGES