

Smart Modular Magnetic Energy-Harvesting Road System (SMMEHR)

Abstract

A smart modular road system integrating piezoelectric energy harvesting, solar energy, wireless inductive charging, magnetic interaction, and AI-based monitoring.

Background of the Invention

The rapid growth of electric mobility and smart infrastructure demands innovative road systems capable of energy generation, vehicle interaction, and reduced maintenance. Traditional roads lack energy efficiency, adaptability, and intelligence.

Summary of the Invention

The invention provides a modular, intelligent road system integrating energy harvesting, wireless charging, magnetic interaction, and self-healing materials, controlled by AI.

Detailed Description

Each module consists of multiple engineered layers designed for energy generation, structural durability, and intelligent interaction with vehicles. The system enables continuous monitoring, predictive maintenance, and scalable deployment across transportation networks.

Claims

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FIG A: Cross Section



FIG B: Exploded Module View

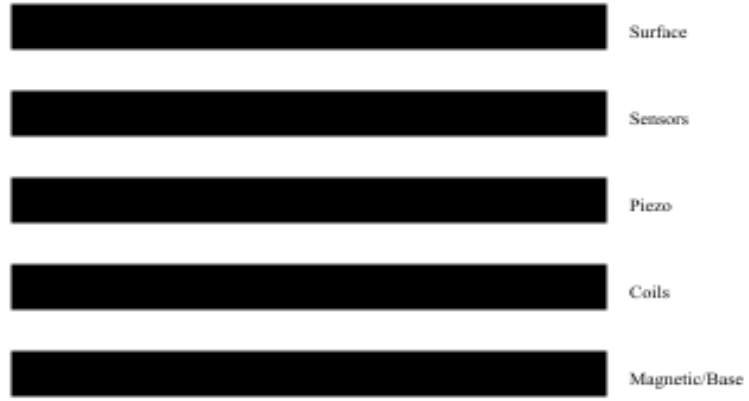


FIG C: System Layout

