

ENERGY GENERATION THROUGH COIL SUSPENSION

MINI PROJECT REPORT

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In partial fulfilment of the requirements for the award of the Degree of

BACHELOR OF ENGINEERING

in

MECHANICAL ENGINEERING

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CERTIFICATE

Certified that the project work entitled **ENERGY GENERATION THROUGH COIL SUSPENSION** is a bona fide work carried by **NAVANEETH.H. SHETTY(4AL21ME009)** and **DHARSHITH (4AL21ME004)** are bona fide student of Mechanical Engineering Alva's Institute of Engineering and Technology in partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **MECHANICAL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2023–2024. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Prof.VEERENDRA KUMAR

Mini project Guide

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ABSTRACT

The energy generation method through coil suspension explores the use of mechanical vibrations to generate electrical power without relying on traditional induction coils. This approach utilizes the suspension of a coil structure, which oscillates due to external mechanical forces, such as wind, movement, or vibrations. The system relies on the mechanical motion of the suspended coil itself, typically in conjunction with a magnetic field, to generate energy. In this setup, the coil is mechanically suspended and subjected to oscillatory motion. As the coil moves or swings in response to external stimuli, the mechanical energy of the motion is transformed into electrical energy through the interaction of the coil's movement with either a stationary or oscillating magnetic field. This method does not depend on a traditional induction process but rather the physical displacement and suspension of the coil to achieve energy generation. This innovative design is particularly suitable for applications where small-scale, decentralized energy generation is needed, such as in isolated environments, wearable technologies, or in structures experiencing constant mechanical vibrations. The key advantages of this system include its simplicity, minimal environmental impact, and ability to function in low-energy environments. The key benefits of this system include its simplicity, scalability, and minimal reliance on external power sources. It can be deployed in remote or off-grid areas where traditional energy generation systems may not be feasible. The suspended coil setup also reduces maintenance requirements and environmental impact compared to conventional energy harvesting technologies. Ongoing research focuses on improving the efficiency of the coil suspension, optimizing materials, and fine-tuning the mechanical and electrical coupling to increase energy yield, making it a promising solution for sustainable and decentralized energy generation.

Keywords: - Coil suspension, rack and pinion.