

Power Generation System using Piezoelectric, 360° Wind Turbine and Solar Energy

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Abstract: *This paper proposes a novel power generation system that combines three renewable energy sources: piezoelectric materials, a 360° wind turbine, and solar energy. The system utilizes the piezoelectric effect to convert mechanical energy from vibrations or pressure into electricity. A 360° wind turbine design captures wind energy from all directions, maximizing wind energy capture compared to traditional turbines. Solar panels convert sunlight into electricity using the photovoltaic effect. The combination of these technologies offers a comprehensive solution for harnessing clean and sustainable energy from various environmental sources. The paper discusses the design principles and functionalities of each subsystem. It explores how the collected energy from each source is efficiently managed and potentially integrated for grid connection or localized power needs. Furthermore, the paper addresses challenges associated with this hybrid system, such as power conversion efficiency and system optimization. Finally, the potential benefits of this design, including its environmental sustainability and adaptability to diverse environments, are explored.*

Keywords: Piezoelectric energy harvesting, 360° wind turbine, Solar power generation, Multi-source power generation, Sustainable energy, Distributed generation, Power conversion efficiency, System optimization

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