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Electricity Generation Using Piezoelectricity

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Abstract: *Due to the increasing demand for electrical energy and the depletion of conventional energy resources, there is a strong need to develop alternative and renewable sources of power. Electricity generation using piezoelectricity is one such innovative method. Piezoelectric materials produce electrical energy when mechanical pressure or vibration is applied to them. This principle can be used to generate electricity from everyday activities such as walking, vehicle movement, and mechanical vibrations. In this project, a piezoelectric-based system is developed to convert mechanical energy into electrical energy. The generated power is stored using suitable circuits for later use. Although the power output is small, it is sufficient for low-power applications like LED lighting, sensors, and small electronic devices. This method is eco-friendly, cost-effective, and suitable for sustainable energy generation. The project demonstrates the practical application of piezoelectric technology for future energy-saving solutions.*

Keywords: Piezoelectricity, Energy Harvesting, Renewable Energy, Mechanical Vibrations, Power Generation, Piezoelectric Sensors, Sustainable Energy

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