

# **Harnessing Footstep Energy: Piezoelectric Power Generation in Bangladeshi Shopping Malls**

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## **Abstract**

Our analysis in this paper investigates the possibility of installing piezoelectric materials in Dhaka shopping malls to capture renewable energy from human footsteps. Micro and macro harvesting technologies are crucial for sustainable energy solutions as the demand for electricity in cities augments with depleting fossil fuels. When situated in congested traffic points, piezoelectric tiles convert mechanical stress from foot traffic into electrical energy. The viability of this experiment is demonstrated via a prototype circuit that consists of piezo plates, a rectifier, a capacitor, and a rechargeable battery. Thousands of piezoelectric units coupled together can produce a significant amount of electricity to run digital devices and lighting, according to calculations based on Bashundhara City Mall. The results help us conclude that piezoelectric energy harvesting has the potential to be economically and environmentally feasible for Bangladesh's energy infrastructure.

## **Keywords**

Piezoelectric energy, Footstep power generation, Renewable energy, Micro-energy harvesting, Sustainable urban development

## **Biographies**

**Kazi Samia Fairuj Sejuti** is a student in the Department of Naval Architecture and Marine Engineering at BUET. Her research interests include recycling and sustainability.

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