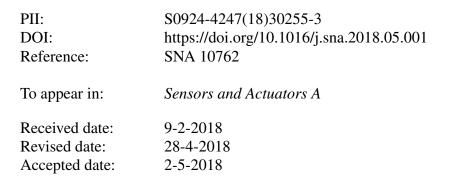
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ACCEPTED MANUSCRIPT

A Broadband Electromagnetic Type Energy Harvester for Smart Sensor Devices in Biomedical Applications

Muneeb Ullah Anjum^a, Adnan Fida^a, Iftikhar Ahmad^b and Adnan Iftikhar^a

^aElectrical Engineering Department, COMSATS Institute of Information Technology, Islamabad (45550), Pakistan

^bFaculty of Mechanical Engineering, Ghulam Ishaq Khan Institute of Engineering Science and Technology, Topi (23460), KPK, Pakistan

Highlights

- The EM-EH, capable of delivering multiple output voltages at different acceleration levels is designed and fabricated.
- The prototype is capable to charge a fully discharged lithium ion battery in one and half hours using simple human body motions
- The proposed prototype has novelty in terms of its ability to generate power in a wide bandwidth. This provides a continuous power supply even at low body motions

Abstract

This paper presents the design, fabrication and experimentation of a low power Electromagnetic Energy Harvester (EM-EH) having a broader bandwidth. The proposed prototype exploits the human body motion to generate power for the low profile smart biomedical devices. The working of the proposed EM-EH is illustrated in both laboratory and in the real-time environment. The prototype of EM-EH is fabricated through computer numerical control milling and turning machines. The device is tested in-laboratory at different acceleration levels, and it was inferred that the EM-EH when excited at 3 g induces a maximum voltage of 3800 mV at a resonant frequency of 20 Hz. The

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