압전 발전기를 이용한 에너지 수확 장치 개발

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Development of the Energy Harvesting Device using Piezoelectric Generator

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Abstract : Nowadays, source of MEMS, USN, Hybrid parts pay attention to energy harvesting. On this paper, energy harvesting was studied using piezoelectric effect. And, piezoelectric generator was designed and fabricated. Generators were designed by FEM simulation program and generators were made by attaching cymbal type metal plates on upper and bottom sides of a disc type piezoelectric ceramic. Output AC power was rectified to DC power by full bridge circuit and converted to regular voltage power by DC-DC converter. The final output power was charged to Ni-Cd battery. Using fabricated generators, output voltages dependant on thickness of ceramic, displacement of vibration, frequency of vibration were measured.

Key Words : Energy harvesting, Piezoelectric generator, Cymbal

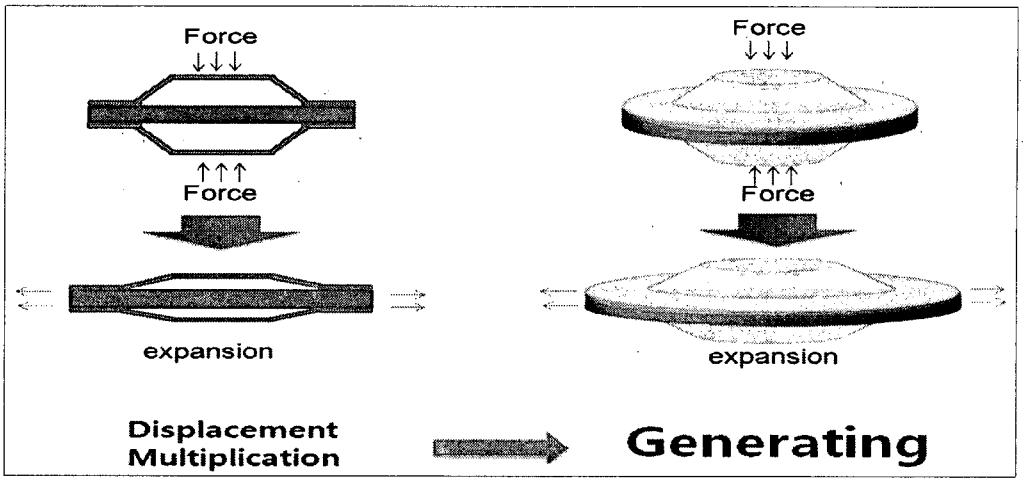

Fig 1. Cymbal structure.

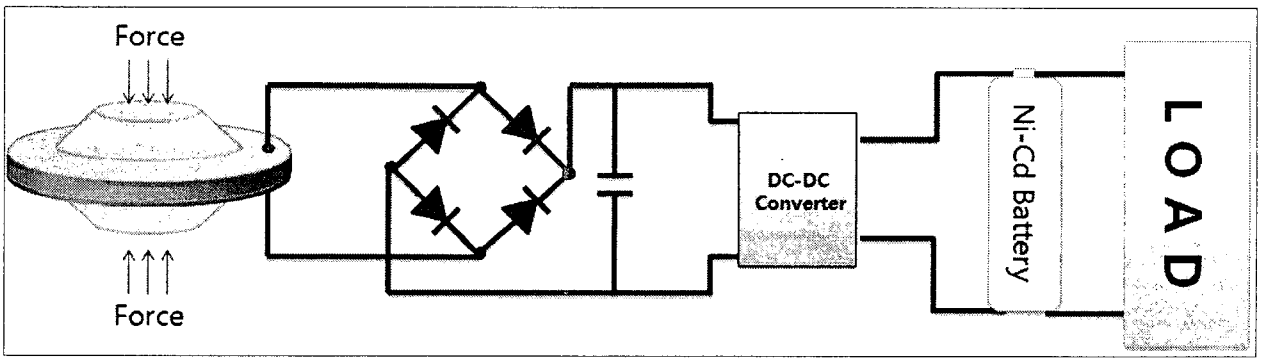

Fig 2. Energy harvesting system.

감사의 글

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