

ABSTRACT

The research is about design and fabrication energy harvesting of electrodynamic vibration using repulsive magnetic force. The research begin with making a design of the device and simulating it to obtain voltage for the fabrication of the device. Device consists of fixed magnet, moving magnet, core, coil and housing. The moving magnet using double-repulsion configuration. Core made with a shape resembling the letter "H" each between magnets. The fixed magnet arranged with the same pole against a moving magnet as a spring. The result of the research on a coil with a diameter of 0.1 mm with a number of turns of 6000 windings and coils with a diameter of 0.25 mm with 1100 windings have an output of 1.8 V and 0.32 V in the simulation. The process of charracterization using speakers as a vibration source produces a resonance frequency of 23 Hz and voltage 2.184 V at an acceleration of 2.1g and generate 0.39 mW at an acceleration of 1.9g , while in 0.25 mm coils produced a resonance frequency of 20 Hz and voltage 1,253 V at an acceleration of 2g and generate 0.0051 mW at an acceleration of 1.9g.

Keywords : vibration energy harvesting, electrodynamic, repulsive magnetic force, resonance frequency.