ABSTRACT

Electrodynamic vibration energy harvesting is the process of harvesting vibration energy and converting it into electrical energy using the working principle of magnetic induction and Faraday's Law. In this final project simulation is done using FEA Comsol 4.3 software and device characterization. There are three components in this energy harvest namely; Fixed coils, magnets and membranes. In this final project, compare the resonance frequency that occurs in the two cantilever membranes when using one and two magnets. The two cantilever membranes are made of FR4 material that has a thickness of 100 µm with an elastic modulus of about 18.9 Gpa. While the magnet using NdfeB material with a height of 1.88 mm and an area of 19.82 mm2. Results obtained from the FEA simulation obtained resonance frequency values of 70.68 Hz and 5.95 Hz for each one and two magnets. While based on the characterization results obtained membon membrane frequency values using one and two magnets respectively are 69 Hz and 51 Hz. Based on these results it can be concluded that based on FEA simulation results and characterization obtained the difference of 1 Hz.

Keywords: *Energy harvesters, FR4 membranes, resonant frequency.*