Abstract

A considerable attention has been given to the energy harvesting system, as the energy obtained from this system is used for powering up small electronic devices instead of using batteries. Battery manufacturers make batteries of required size with long life of usage. However, it is difficult to replace such batteries once its life is expired. This difficulty can be partially overcome by using the energy produced from a suitable energy harvesting system. The input to the energy harvesting system is the ambient energy from the environment as external sources. One of the external sources considered for this investigation is vibration. Vibration can be converted to voltage by using piezoelectric sensors which are fixed on the vibrating structure or unit, and the energy produced by piezo sensors can power up small electronic devices. As a result, electronic system becomes the self powered system or uses less battery. In order to obtain greater power and efficiency from the piezo sensors, a study has been made for selection of a suitable sensor depending upon the structure or unit. In this present work an aluminum beam has been taken as a structural membrane. Both the beam and the sensor thickness are varied and the experiments are conducted to find the best suitable sensor. It is observed that more energy is harvested using a thin sensors on a suitably thin structure as compared to stiff/thick structures.

References

- http://en. wikipedia. org/wiki/Piezoelectric_sensor


**Index Terms**

Computer Science

Power Systems

**Keywords**

Energy Harvesting System; Piezoelectric Sensors; Cantilever Beam