Title: EXPERIMENTAL STUDY ON A PIEZO COUPLED CANTILEVER BEAM ENERGY HARVESTER

Ref: VIBHAR2

Type: Individual

Vacancy: 1 student

Duration: 1 semester

Project Description:

Small scale energy harvesting devices become widespread with the contemporary use of power efficient circuitry, such as the ones used for wireless sensor networks. One of the basic structure in order absorb energy from ambient vibration is a cantilever beam that vibrates at fundamental natural frequency. An Aluminium cantilever beam with an MFC (Macro-fiber composite) piezoelectric patch is going to be used as the energy harvester. The objective is to determine the natural frequency and the damping ratio of the beam and the generated voltage on the MFC.

Work Description:

1. Experimental setup design and construction (mechanical and electrical work)
2. System test with given input conditions
3. Post-processing of the data acquired from the system
4. Determine the effect of design parameters

Qualification and Skills:

1. Interest and background in mechanical vibrations and experimental study
2. Should be eager to design and turn out experiments
3. Basic knowledge of electrical circuits and data acquisition