Fiber Optic Accelerometer

Introduction

L3-Chesapeake Sciences Corporation specializes in the development, test and integration of sonar sensor systems. L3-Chesapeake Sciences Corporation has a product portfolio that includes fiber optic sensing technologies.

Project Description

The general objective of the project is to design, assemble and test a fiber optic accelerometer. The sensor will be a mechanical system combined with an optical measurement technique known as interferometry. The sensor will be designed using closed loop calculations of stress and strain. The sensor will be evaluated using a shaker and accelerometer with spectral analysis equipment.

The project will begin with the team researching the literature base and conducting trade studies between various design approaches. The effort will then continue with a design of the fiber optic accelerometer.

Learning Objectives

- Conduct trade studies for various sensor design approaches
- Design the product
- Fabricate and test the design

Project Team and Skills

This project will require one Electrical Engineering Student and one Biomedical/Computer Engineering Student, with mechanical engineering skills and interests. The Electrical Engineering student will be Mike Bastien, who already is employed by the company, and has extensive experience in fiber optics, optical interferometry and lab equipment.

The team members should have interest in the following topics related to this project:

- Fiber optics
- Optical interferometry
- Stress and strain analysis
- Mass spring systems
- Lab equipment

Contact Information

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