

Design and Simulation of MEMS-based Sensor for Artificial Hand

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Abstract

An artificial hand is the one that replaces the hand lost through trauma, disease, or congenital conditions. The proposed design is to simulate a sensor, used in prosthetic hand so as to measure the pressure required to hold the object, using COMSOL Multiphysics®. The physical parameters such as size, shape and mass of the object were optimized so as to hold an object. The weight of the object is taken as the input (in terms of load on finger), and its corresponding output is taken as electrical signal. The materials exhibiting direct and reverse piezoelectric effect can be implemented for measuring the above parameters.

Figures used in the abstract

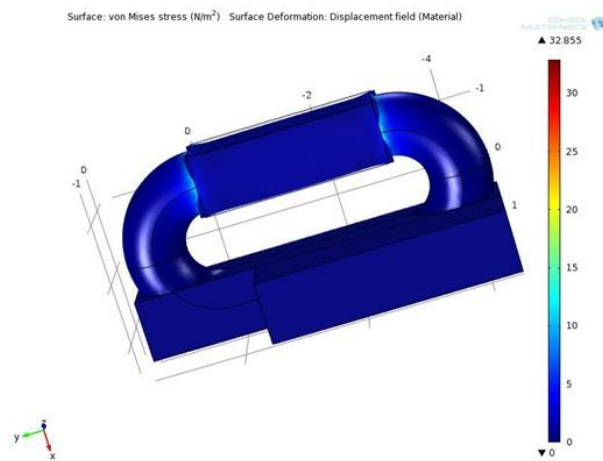


Figure 1: Schematic of thumb and index finger holding a box