International J. of Engg. Research & Indu.Appls.
ISSN 0974-1518,(IJERIA), Vol.1, No.I (2008), pp 1-12

VIBRATION ANALYSIS FOR FREE AND FORCED VIBRATIONS OF MEMS GYROSCOPE USING POLES AND EIGENVECTORS FOR AN AUTOMOTIVE APPLICATION

V. USHA SHREE, P. CHANDRASEKHAR REDDY & K. HEMA CHANDRA REDDY

ABSTRACT

This paper deals with developing a method to obtain the vibration of a novel micro machined gyroscope analyzed as a 2-DOF rigid body system with damping. The focus of the vibration analysis is to obtain the poles and eigenvectors of the system. The concept is implemented using MEMS technology. By utilizing the disturbance-rejection capability of the inertial system, improved robustness is achieved without sophistication in control electronics. All these advantages of the proposed design might relax strict fabrication tolerances and packaging requirements, reducing production cost of micro machined gyroscopes.

Keywords : 2-Dof, micro machined gyroscope, vibration analysis, poles and eigenvector.