

하이브리드 마운트를 이용한 빔구조물의 진동제어

김승환* (인하대학교 대학원) · 홍성룡* (인하대학교 대학원) · 최승복** (인하대학교 기계공학과)

Vibration Control of a Beam Structure Using Hybrid Mounts

Seung-Hwan Kim, Sung-Ryong Hong and Seung-Bok Choi

Key Words : Hybrid Mount(하이브리드 마운트), Elastic Rubber, Piezostack Actuator(적층형 압전작동기), Active Vibration Control(능동진동제어)

Abstract : A hybrid mount featuring elastic rubber and piezoelectric material is devised and applied to the vibration control of a beam structure. The governing equation of the beam structure associated with the hybrid mount is derived. Subsequently, a robust sliding mode controller is designed to attenuate the vibration of the beam structure due to external excitation. The controller is then simulated and control responses such as displacement and transmitted force are evaluated in time and frequency domains.

척수마비환자 재활훈련용 보행보조기의 인체진동을 고려한 무릎관절 시스템 진동제어(II)

김명회* (대불대학교)·양현석*(연세대학교)·백윤수**(연세대학교)·박영필*** (연세대학교)·박창일**** (연세대학교)

Vibration Control of a Knee Joint considering Human Vibration of the Biped Walking RGO for a Training of Rehabilitation (II)

Myung-Hoe Kim, Hyun-Seok Yang, Yun-Soo Baek, Young-Pil Park, Chang-Il Park

Key Words : Human Vibration (인체진동), RGO (Robotic Gait Orthosis: 왕복보행보조기), Strain Analysis (스트레인 응력해석), FEM (유한 요소 해석), FFT Analyzer (주파수분석기), 3-Axis Accelerometer (3축가속도계)

ABSTRACT: This paper presented a design and a Vibration control of a biped walking RGO(Robotic Gait Orthosis) and walking simulation by this system. The vibration evaluation of the Knee Joint Mechanism on the biped walking RGO(Robotic Gait Orthosis) was used to access by the 3-axis accelerometer with a low frequency vibration for the spinal cord injuries. It will be expect that the spinal cord injury patients are able to recover effectively by a biped walking RGO. It was designed according to a human wear type and was able to accomodate itself to a environments of S.C.I. Patients.