

基于MEMS加速度计的输入系统的研究

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摘要:

本文介绍了一种新的电脑无线输入系统, 使用MEMS微加速度计作为系统的敏感元器件, 并利用无线射频传输和USB接口来实现系统的功能。该输入系统包括发射端和接收端两个子系统。文章分别工作原理、软硬件设计等方面介绍了该输入系统, 包括所使用的微加速度计、微处理器和传输模块, 并给出了输入系统的第一代实际PCB原型。并且在二维的基础上扩展了微加速度计在三维的应用, 设计了一个新的三维模型, 并进行了试验的验证。

关键词: 输入系统; MEMS; 加速度计; 三维模型; 微处理器

Study of Input System based on MEMS accelerometers

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Abstract:

This paper introduces a new computer input device system. The system uses accelerometers as sensitive sensor, and the technology of wireless data transmitting and Universal Serial Bus (USB) are used to implement the system. This system includes two subsystems: transmitting subsystem and receiving subsystem. The paper describes work principle, the software design and hardware design of the input system, which include the used accelerometers, the microprocessor and the transmitting module. And the first generation of prototype is also given in this paper. Lastly, we give a design about 3D model based on accelerometers and validate it by experiment.

Keywords: MEMS; input system; MEMS; accelerometers; 3D model; microprocessor

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