Image stabilizing technology for video camera

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<Introduction>

In recent years, video cameras and other shooting devices have become smaller and lighter, and shooting has become more automated. However, as cameras have become smaller and lighter, the shaking of the captured image, known as "image vibration," has become a problem. Image vibration, especially during high-magnification zoom, can make viewers feel dizzy and tired when playing back the image. Traditionally, anti-vibration heads have been used to prevent face vibration in large broadcast and commercial video cameras for aerial shooting and marathon broadcasting. However, these types of devices are mechanical, using springs and dampers, or are based on a method of increasing the moment of inertia of the camera support system to stabilize it against vibration, or are based on a method of using a servo motor to prevent vibration from the head, so the devices are inevitably large and expensive, and cannot be applied to small video cameras. Currently, small video cameras are highly automated, with features such as auto iris, auto focus, and auto white balance, but there is a strong demand for the development of image shake prevention technology that automatically stabilizes image shake, which is a remaining issue.We have developed a prototype video camera that is composed of an angular velocity sensor that detects camera shake, a mechanism that supports the imaging unit including the optical system so that it can move freely, an actuator that drives the imaging unit, and a control circuit, and have developed a technology to prevent image shake.This article reports on the configuration and performance of the prototype video camera with image shake prevention function.