



Abstract

An Israeli Mechanical Engineering university researcher developed a micro-mirror device which greatly reduces the cost of laser video projection. Laser projection is a promising field for mobile devices, but it requires costly, power-hungry lasers. The MEMS (Micro-Electro-Mechanical) mirror vibrates at a constant speed, enabling 35% increase in brightness. Industrial partners from the fields of mobile electronics, MEMS or projection equipment sought to implement the technology in their products.

production calibration option

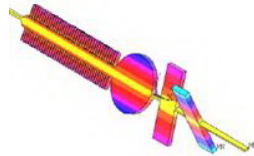
- Flexible design adaptable to different methods of actuation

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Description

Today's scanning micro-mirrors vibrate at a varying speed like a pendulum, and are not suitable for video projection applications, which require constant



mirror speeds. The Israeli technology is a mirror that naturally vibrates at a constant speed. The keys to the technology are two more masses which are added in line with the mirror and act together as a set of tuned springs. The overall mass-spring combination naturally vibrates so that it does not slow down before changing its direction. Advantages over current technology include drastically reduced actuation forces and energy consumption, lower voltage, up to 35% increase in luminosity and 20% increase in field of view using the same laser. Also described in the patent are design methods which help reduce sensitivity to inaccuracies in production, and ways to evaluate and calibrate performance after production and during operation.

Innovations and advantages of the offer

Mass-spring resonant micro mechanism, design process, production and calibration process:

- 35% increase in light output and 20% increase in field of view using the same laser
- Low voltage requirements suitable for mobile devices
- Great image stability resulting from operation at resonance
- Simple design especially suited to common lithographic production methods
- Resistance to inaccuracies in manufacturing, post