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November 2022

MULTI FIELD-OF-VIEW WEB CAMERA SHITTER

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Recommended Citation

INC, HP, "MULTI FIELD-OF-VIEW WEB CAMERA SHITTER", Technical Disclosure Commons, (November 04, 2022)

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Multi Field-of-View Web Camera Shutter

Abstract: A webcam provides multiple fields of view using a single image sensor with a lens that is position able over the image sensor at the discretion of the user.

This disclosure relates to the field of portable computers.

A technique is disclosed that provides a webcam with multiple fields of view using a single image sensor.

Current clamshell type notebook computers typically include a camera (webcam) image sensor. The webcam is often used in conjunction with attending on-line meetings, such as for example Zoom meetings. This webcam usually has a metal or plastic thin sheet, which typically is slidable or removable, attached to the notebook over it. The sheet has a transparent aperture that is position able over the image sensor when the user wishes to use the webcam, and a non-transparent area that the user can position over the image sensor for privacy or when the webcam is not in use.

However, current notebook webcams provide only a single, fixed, field of view. In some situations, a different field of view is desirable. In one example, the standard view may be a direct frontal view of the user which occupies the majority of the captured image. But in a different situation, a wider-angle view that also images, for example, the background behind the user may be desired. However, current notebook webcams can't do so. Some cell phones provide such capability; however, they use 2 or 3 different image sensors at added cost and complexity to accomplish this.

According to the present disclosure, and as understood with reference to the Figure, a multiple field of view webcam is implemented using a single image sensor. The thin, movable sheet 10 that covers the image sensor is provided with two holes. The first 20 is the usual transparent hole for the image sensor of the webcam. The second hole has an attached convex lens 30, such as for example a wide-angle lens or fish-eye lens. To accommodate the second hole and lens 30, the length of the sheet 10 is extended in the direction of sliding movement 40 to provide space for allowing either the hole 20 or lens 30 to be positioned over the image sensor. During operation, when a wider field of view is desired, the user simply and easily moves or slides the thin sheet 10 from the position where the normal hole 20 is over the webcam image sensor to the position where the wider-view lens is 30 over the webcam image sensor.

In alternative implementations, one or more additional lenses that provide differing fields of view can be added to the sheet, limited only by the maximum sheet length that can be accommodated by the notebook.

The disclosed technique can advantageously be implemented at low cost because the additional field of view is provided by the same webcam imaging sensor as the normal field of view, rather than by adding a second camera that adds cost and complexity to the notebook. Extending the metal sheet and adding the convex lens thereto can be accomplished at much lower cost. There is no impact on the hardware or software of the notebook, and the field of view can be changed easily and intuitively by the user of the notebook.

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