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(54) **FOCUSING SYSTEM USING LIGHT SOURCE AND IMAGE SENSOR**

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See application file for complete search history.

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(57) **ABSTRACT**

An apparatus comprising a movable optical element having an optical axis and including one or more focusing elements, an image sensor positioned along the optical axis and substantially normal thereto, and a radiation source attached to the movable optical element, wherein the radiation source directs a beam of radiation onto the sensor at a selected angle relative to the optical axis. A process comprising positioning a sensor along, and normal to, an optical axis of a movable optical element, projecting a radiation beam onto the sensor from a radiation source attached to the movable optical element, wherein the radiation beam is at a selected angle relative to the optical axis, and adjusting the position of the movable optical element until the position where the radiation beam falls on the sensor corresponds to the position where the radiation beam is expected to fall on the sensor when the movable optical element is in focus. Other embodiments are disclosed and claimed.

40 Claims, 6 Drawing Sheets

