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(54) **STRUCTURED LIGHT 3D SENSORS WITH VARIABLE FOCAL LENGTH LENSES AND ILLUMINATORS**

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(58) **Field of Classification Search**
None
See application file for complete search history.

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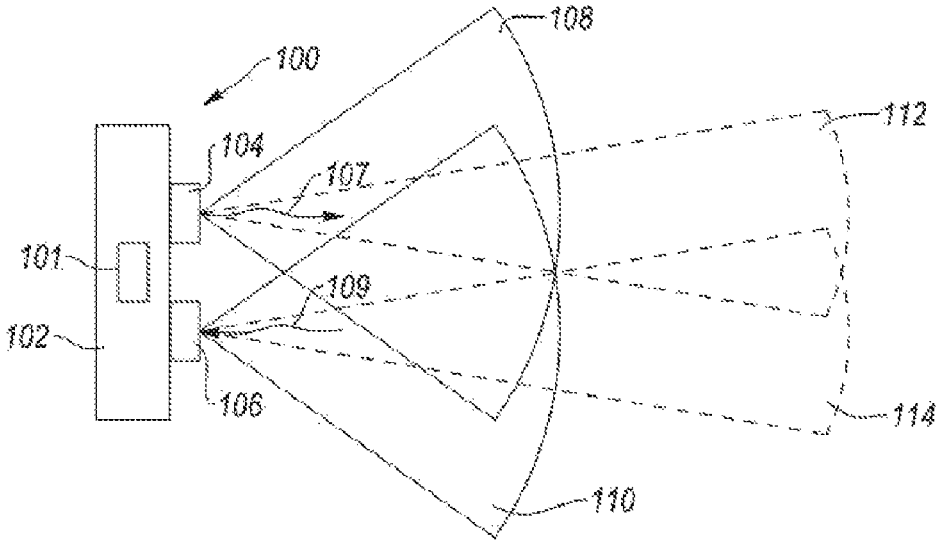
(57) **ABSTRACT**

A method for three-dimensional imaging includes emitting an output light with a structured light illuminator in a structured light pattern, receiving a trigger command, changing a field of illumination of the illuminator, and changing a field of view of an imaging sensor. The field of view and the field of illumination are linked, such that the field of view of the imaging sensor is the same as the field of illumination of the illuminator at a short throw field of view and a long throw field of view. The method further includes detecting a reflected light with the imaging sensor and measuring a depth value by calculating a distortion of the structured light pattern.

20 Claims, 9 Drawing Sheets