EXHIBIT A

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Kruglick

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(54) **AUTOMATIC FLIGHT CONTROL FOR UAV BASED SOLID MODELING**

(75) Inventor: **Ezekiel Kruglick**, Poway, CA (US)

(73) Assignee: **Empire Technology Development LLC**, Wilmington, DE (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 97 days.

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CPC *B64C 19/00* (2013.01); *B64C 39/024* (2013.01); *G05D 1/0094* (2013.01); *G05D 1/101* (2013.01); *G06T 17/05* (2013.01); *G06T 17/10* (2013.01); *B64C 2201/127* (2013.01); *B64C 2201/146* (2013.01)
USPC **701/2**; 701/3; 701/13; 244/75.1

(58) **Field of Classification Search**
CPC B64C 19/00; B64C 2201/127; B64C 2201/146; B64C 39/024; G05D 1/101; G06T 17/05

USPC 701/2, 3, 13, 24, 36, 31.4, 300; 244/75.1
See application file for complete search history.

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Primary Examiner — Gertrude Arthur Jeanglaude
(74) *Attorney, Agent, or Firm* — Turk IP Law, LLC

(57)   **ABSTRACT**

Technologies are generally described for controlling a flight path of a UAV based image capture system for solid modeling. Upon determining an initial movement path based on an estimate of a structure to be modeled, images of the structure to be modeled may be captured and surface hypotheses formed for unobserved surfaces based on the captured images. A normal vector and a viewing cone may be computed for each hypothesized surface. A set of desired locations may be determined based on the viewing cones for the entire structure to be modeled and a least impact path for the UAV determined based on the desired locations and desired flight parameters.

21 Claims, 11 Drawing Sheets
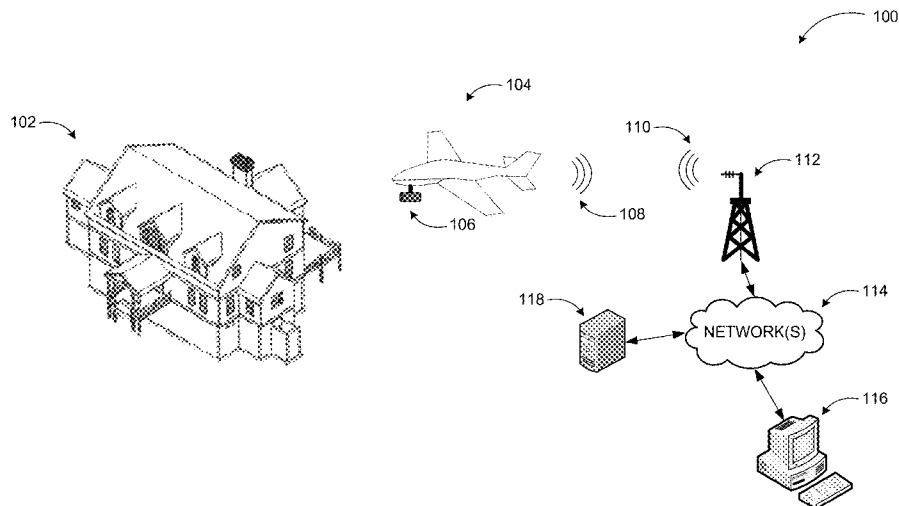
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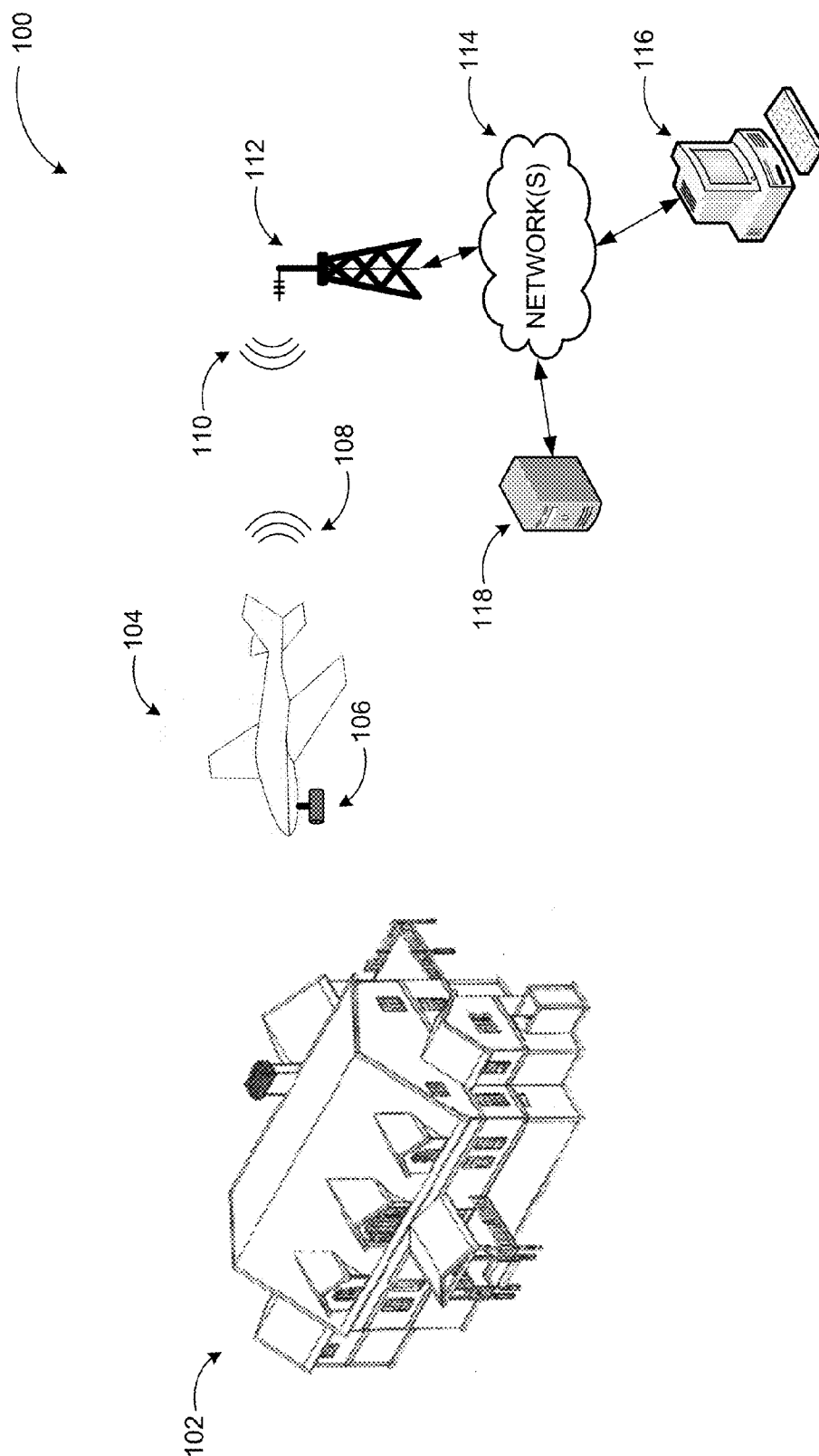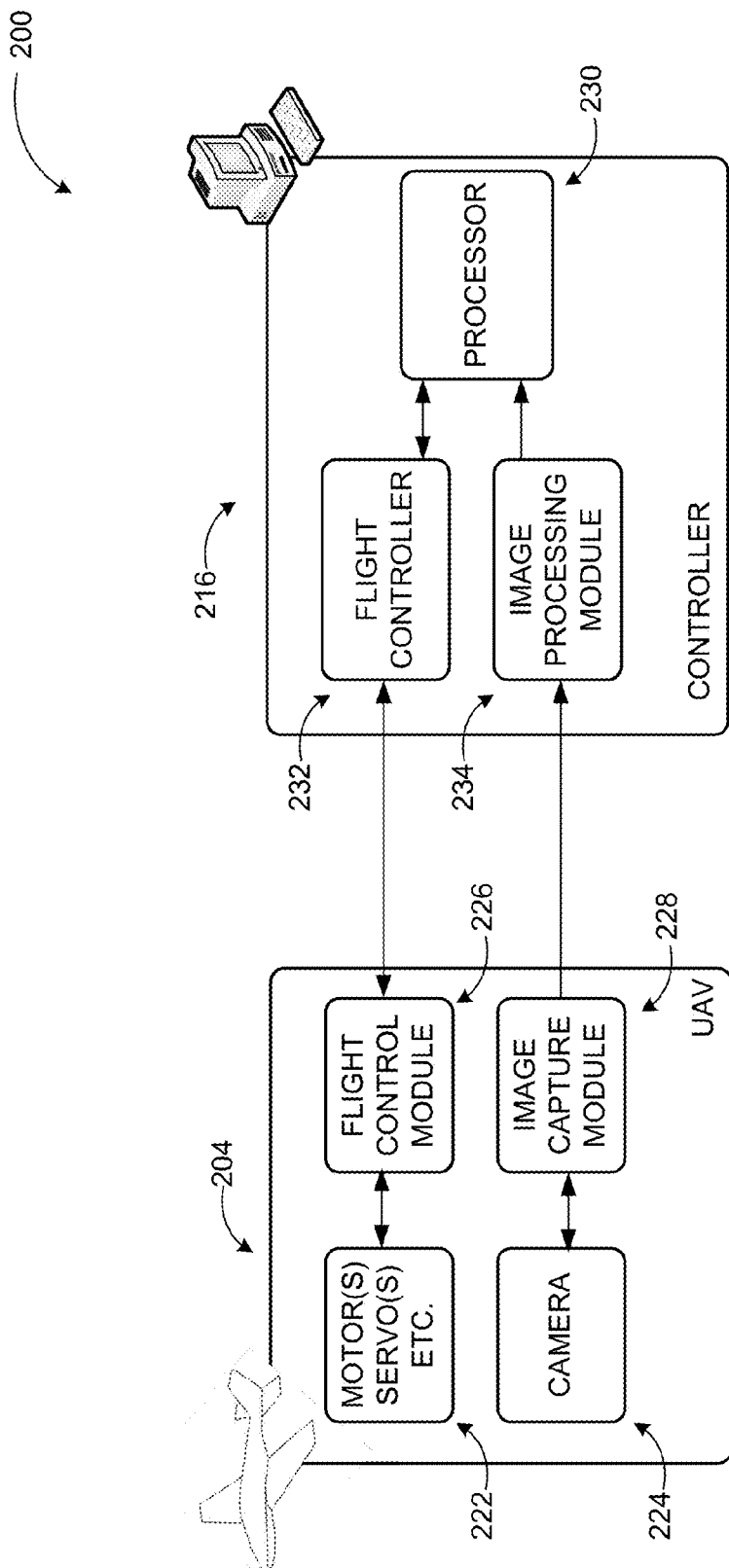
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FIG. 1

FIG. 2

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