# Exhibit P

US008405604B2

## (12) United States Patent
### Pryor et al.

(10) **Patent No.:** **US 8,405,604 B2**

(45) **Date of Patent:** **Mar. 26, 2013**

(54) **ADVANCED VIDEO GAMING METHODS FOR EDUCATION AND PLAY USING CAMERA BASED INPUTS**

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( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1063 days.

(21) Appl. No.: **11/980,716**

(22) Filed: **Oct. 31, 2007**

(65) **Prior Publication Data**

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**Related U.S. Application Data**

(60) Continuation of application No. 11/429,305, filed on May 8, 2006, which is a division of application No. 10/622,812, filed on Jul. 21, 2003, now Pat. No. 7,042,440, which is a division of application No. 09/138,285, filed on Aug. 21, 1998, now Pat. No. 6,720,949.

(60) Provisional application No. 60/056,639, filed on Aug. 22, 1997, provisional application No. 60/059,561, filed on Sep. 19, 1997.

(51) **Int. Cl.**
**G09G 5/00**                (2006.01)

(52) **U.S. Cl.** ........................................ **345/156**; 345/173

(58) **Field of Classification Search** ........... 345/156–158
See application file for complete search history.

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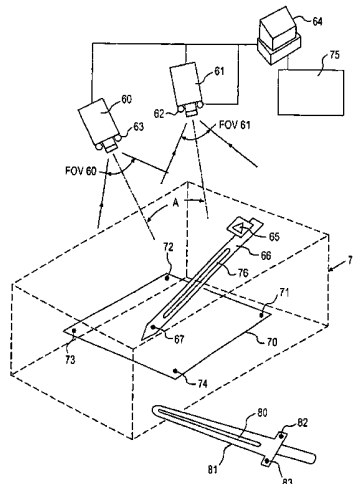| | | | | |
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(57)                **ABSTRACT**

This application discloses active movement based and other video games which may be played over the internet as well in the home or elsewhere. One or two or more persons can play, generally using one or more cameras to determine the relation of an object or a part of a person to a video display on which game related graphics are displayed. Determination of object position and orientation in up to 6 degrees of freedom is disclosed, at data rates sufficient to make game play rewarding.

**14 Claims, 33 Drawing Sheets**

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**FIG. 1a**

# FIG. 1b

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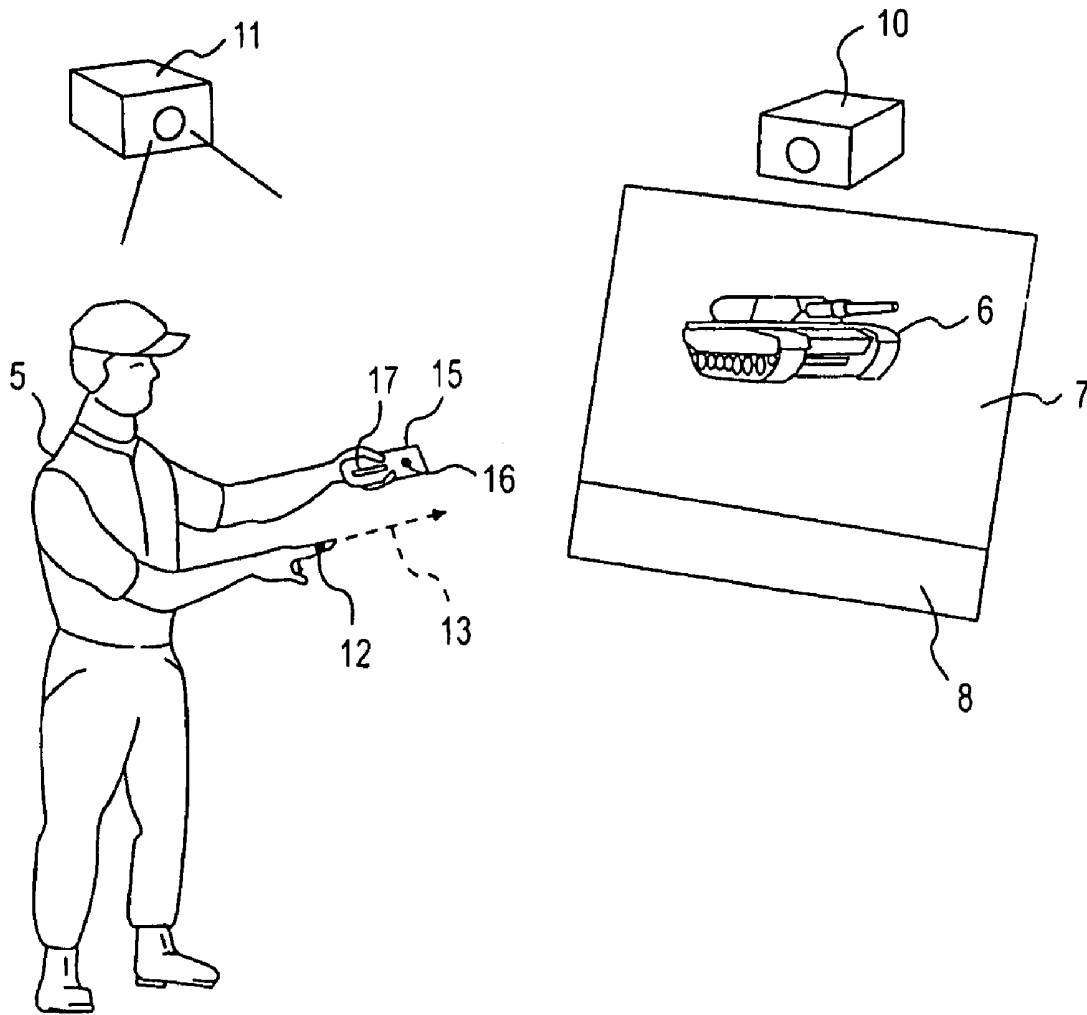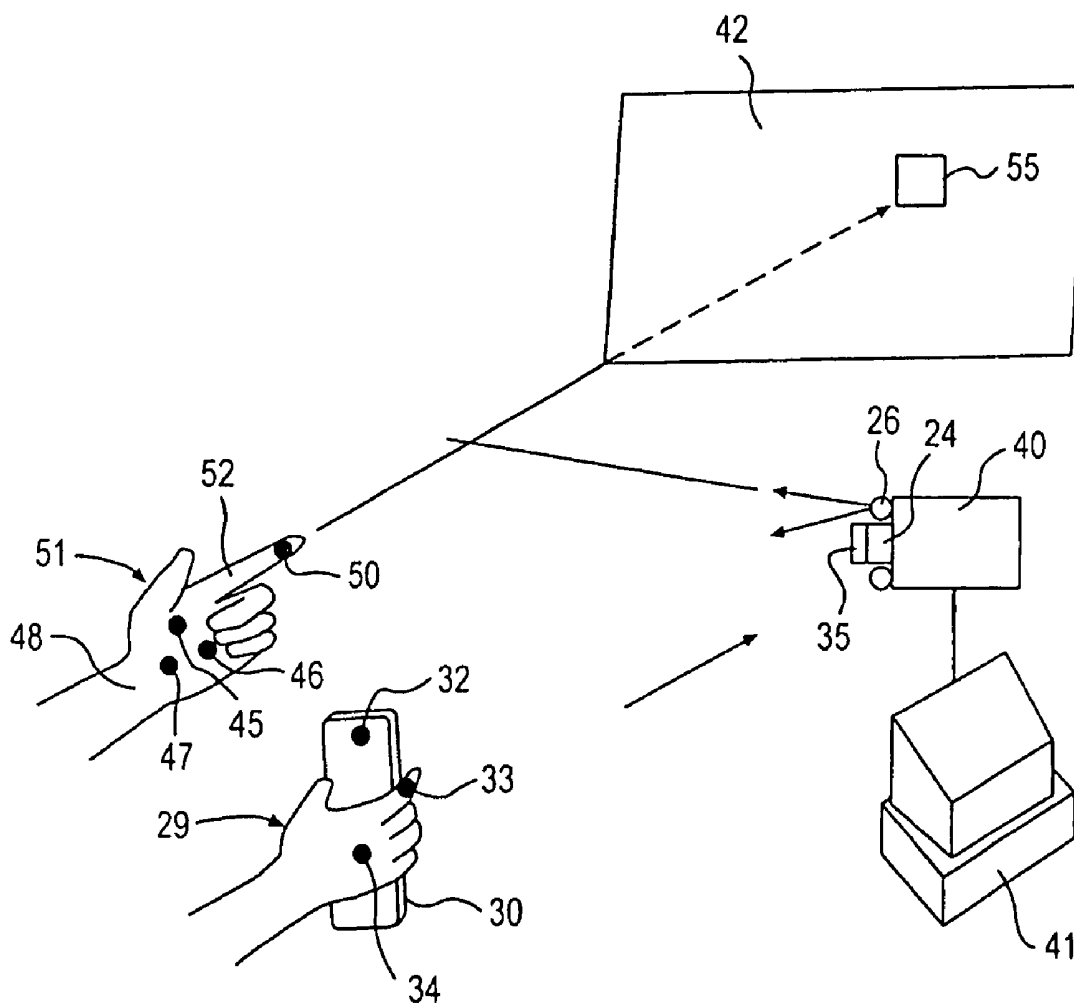
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