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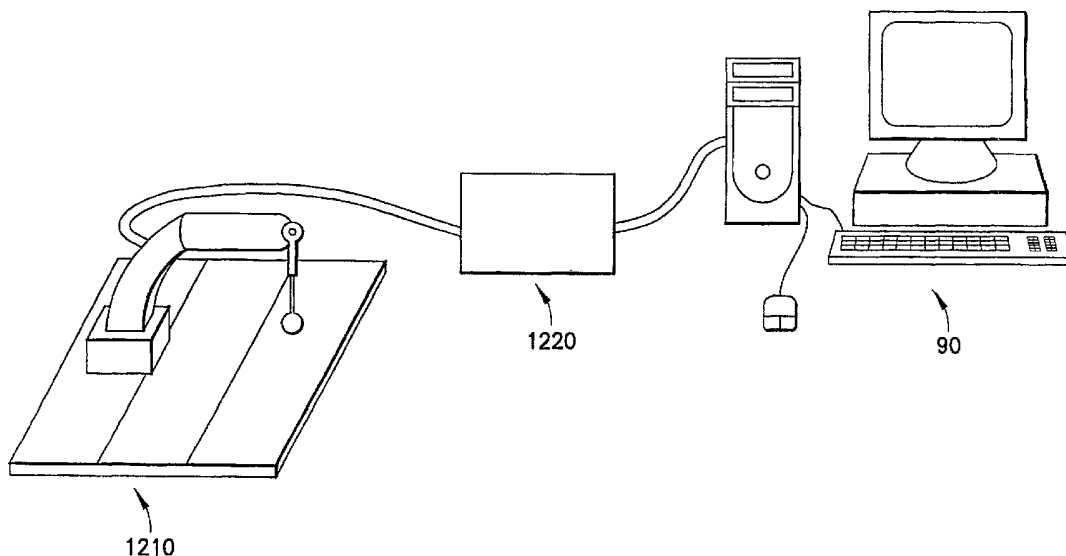
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[Continued on next page]

(54) Title: INPUT SYSTEM AND METHOD



(57) Abstract: Systems and methods for converting a signal representative of movement of an object in a first format into input device data of a second format that a computer application is configured to receive, are described. Certain embodiments of the invention include: a sensor unit including one or more sensors configured to measure movement of the object in one or more directions and create a signal representative of the movement of the object in a first format, a transmitter configured to communicate the signal, and a user station having driver software configured to receive the signal, convert the signal into simulated input device data having the second format, and provide the simulated input device data to the computer application.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32224

| <p>A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : G06F 17/00 US CL : 463/37; 473/140 According to International Patent Classification (IPC) or to both national classification and IPC</p> | | | | | | | | | | | | | | | | | |
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| <p>B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 463/37, 03, 36, 38, 39; 473/140, 202, 221, 409 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched None Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) None</p> | | | | | | | | | | | | | | | | | |
| <p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X, P --- Y, P</td> <td>US 6,767,282 B2 (MATASUYAMA et al.) 27 July 2004 (27.07.2004), entire document.</td> <td>1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 ----- 2-4, 11-14, 18-42, 49-50, 52, 60, 63</td> </tr> <tr> <td>X --- Y</td> <td>US 2003/0078086 A1 (MATASUYAMA et al.) 24 April 2003 (24.04.2003), entire document.</td> <td>1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 ----- 2-4, 11-14, 18-42, 49-50, 52, 60, 63</td> </tr> <tr> <td>Y</td> <td>US 6,162,123 A (WOOLSTON) 19 December 2000 (19.12.2000), entire document.</td> <td>2-4, 11, 12, 20-30, 33, 34</td> </tr> <tr> <td>Y</td> <td>US 6,189,053 B1 (YASUE et al) 13 February 2001 (13.02.2001), column 6, lines 51-60.</td> <td>13, 14, 31, 32, 39, 40, 49, 50, 60</td> </tr> </tbody> </table> | | | Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | X, P --- Y, P | US 6,767,282 B2 (MATASUYAMA et al.) 27 July 2004 (27.07.2004), entire document. | 1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 ----- 2-4, 11-14, 18-42, 49-50, 52, 60, 63 | X --- Y | US 2003/0078086 A1 (MATASUYAMA et al.) 24 April 2003 (24.04.2003), entire document. | 1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 ----- 2-4, 11-14, 18-42, 49-50, 52, 60, 63 | Y | US 6,162,123 A (WOOLSTON) 19 December 2000 (19.12.2000), entire document. | 2-4, 11, 12, 20-30, 33, 34 | Y | US 6,189,053 B1 (YASUE et al) 13 February 2001 (13.02.2001), column 6, lines 51-60. | 13, 14, 31, 32, 39, 40, 49, 50, 60 |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | | | | | | | | | | | | | | | |
| X, P --- Y, P | US 6,767,282 B2 (MATASUYAMA et al.) 27 July 2004 (27.07.2004), entire document. | 1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 ----- 2-4, 11-14, 18-42, 49-50, 52, 60, 63 | | | | | | | | | | | | | | | |
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| Y | US 6,189,053 B1 (YASUE et al) 13 February 2001 (13.02.2001), column 6, lines 51-60. | 13, 14, 31, 32, 39, 40, 49, 50, 60 | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. | | <input type="checkbox"/> See patent family annex. | | | | | | | | | | | | | | | |
| <p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table> | | | "A" document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention | "E" earlier application or patent published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone | "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art | "O" document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family | "P" document published prior to the international filing date but later than the priority date claimed | | | | | | |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention | | | | | | | | | | | | | | | | |
| "E" earlier application or patent published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone | | | | | | | | | | | | | | | | |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art | | | | | | | | | | | | | | | | |
| "O" document referring to an oral disclosure, use, exhibition or other means | "&" document member of the same patent family | | | | | | | | | | | | | | | | |
| "P" document published prior to the international filing date but later than the priority date claimed | | | | | | | | | | | | | | | | | |
| Date of the actual completion of the international search 18 March 2005 (18.03.2005) | | Date of mailing of the international search report 03 AUG 2005 | | | | | | | | | | | | | | | |
| Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 | | Authorized officer Xuan Thai <i>Diane Smutek</i> Telephone No. 703-308-1148 | | | | | | | | | | | | | | | |

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Y | US 5,623,545 A (CHILDS et al) 22 April 1997 (22.04.1997), column 3, lines 53-49. | 18, 35 |
| Y, T, E | US 2004/0224763A1 (LUM et al) 11 November 2004 (11.11.2004), paragraphs 7-10. | 19 |
| X | US 4,958,836 A (ONOZUKA et al) 25 September 1990 (25.09.1990), entire document. | 69-73 |
| --- | | 74, 75 |
| Y | US 6,257,989B1 (TORTOLA et al) 10 July 2001 (10.07.2001), entire document. | 74, 75 |
| A, P | US 6,786,831 B1 (WU) 07 September 2004 (07.09.2004), entire document. | 69-75 |
| A | US 2003/0040349 A1 (IMAEDA et al) 27 February 2003 (27.02.2003), entire document. | 1-55, 57-68 |
| X | US 6,312,335 B1 (TOSAKI et al) 06 November 2001 (06.11.2001), entire document. | 1, 5-10, 15-17, 43-48, 51, 53-55, 57-59, 61, 62, 64-68 |
| --- | | 2-4, 11-14, 18-42, 49- 50, 52, 60, 63 |
| Y | | |

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-68, drawn to a system for configuring data from a second input device to a format of a first input device.

Group II, claim(s) 69-75, drawn to a system for determining the direction and speed of movement for a golf ball using a swing arm apparatus.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I deals with a system for configuring the data acquired from accelerometer sensors on a golf club to a first input device format for a video game. Therefore, the special technical feature is the configuration of the input data from the golf club. Group II involves a different system for determining the speed and direction of a golf ball when hit with a club. In this invention the special technical feature is the swing apparatus for measuring the speed and direction of the golf ball. The two groups do not have the same corresponding special technical feature.