MULTI-SENSOR MONITORING OF ATHLETIC PERFORMANCE

Abstract: Athletic performance monitoring systems and methods, many of which utilize, in some manner, global positioning satellite ("GPS") data, provide data and information to athletes and/or to equipment used by athletes during an athletic event. Such systems and methods may provide route information to athletes and/or their trainers, e.g., for pre-event planning, goal setting, and calibration purposes. Such systems and methods optionally may provide real-time information to the athlete while the event takes place, e.g., to assist in reaching the pre-set goals. Additionally, data and information collected by such systems and methods may assist in post-event analysis for athletes and their trainers, e.g., to evaluate past performances and to assist in improving future performances.
Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
21 September 2006

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.
**INTERNATIONAL SEARCH REPORT**

**INTERNATIONAL PATENT APPLICATION**

**A. CLASSIFICATION OF SUBJECT MATTER**

| INV. | G01C22/00 | A63B24/00 |

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

| G01C | A63B |

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

**Electronic database consulted during the international search (name of database and, where practical, search terms used)**

EP0-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<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>
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<tbody>
<tr>
<td>X</td>
<td>EP 1 134 555 A (IN2SPORTS B.V) 19 September 2001 (2001-09-19) claim 1; figures</td>
<td>1-4</td>
</tr>
<tr>
<td>X</td>
<td>US 5 583 776 A (LEVI ET AL) 10 December 1996 (1996-12-10) column 4, line 12 - line 28 column 6, line 22 - line 49</td>
<td>1-4</td>
</tr>
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</table>

* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "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)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"X" 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

"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

"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.

**Date of the actual completion of the international search**

12 April 2006

**Date of mailing of the international search report**

21-07-2006

**Name and mailing address of the ISA**

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk
Tel: (+31-70) 340-2040, Tx: 31 651 epo nl, Fax: (+31-70) 340-3016

**Authorized officer**

Knoflacher, N
**INTERNATIONAL SEARCH REPORT**

**Box 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. [x] Claims Nos.: 18-20
   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:
   see FURTHER INFORMATION sheet PCT/ISA/210

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 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:

see additional 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. [x] 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.:
   1-4

**Remark on Protest**

□ The additional search fees were accompanied by the applicant's protest.

□ No protest accompanied the payment of additional search fees.
Continuation of Box II.2

Claims Nos.: 18-20

The initial phase of the search revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claims 18 to 20 may be said to define subject-matter for which protection might legitimately be sought (Article 6 PCT). For these reasons, claims 18 to 20 were not searched.

The subject matter of claims 18 to 20 is only "means for receiving input data", "means for displaying information" and "means for calculating". Every computer has these technical features.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPOGuideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4
   means for generating calibration data
   problem solved: calibration
   special technical feature: means for generating calibration data
   ---

2. claims: 5,7
   means for storing athlete's performance
   problem solved: storing data from first athletic performance monitor
   special technical feature: means for storing data
   ---

3. claim: 6
   altitude measuring system
   Problem solved: detecting the altitude of an athlete
   special technical feature: altitude measuring system
   ---

4. claims: 8,9
   means for determining the route
   problem solved: recognition of already used route
   special technical feature: means for determining if a route has been used before
   ---

5. claims: 10,11
   means for assigning a route difficulty rating
   problem solved: classifying a route
   special technical feature: means for assigning a route difficulty rating
   ---

6. claims: 12,13
   means for suggesting a new route
   problem solved: helping the athlete to decide which route he should take
   special technical feature: means for suggesting a new route
   ---

7. claims: 14-17
means for controlling an audio device
problem solved: controlling an audio device
special technical feature: means for controlling an audio device
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<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
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<tr>
<td>EP 1134555 A</td>
<td>19-09-2001</td>
<td>NONE</td>
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<td>US 5583776 A</td>
<td>10-12-1996</td>
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