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Datasheet for the decision of 20 November 2014

Case Number: T 1086/11 - 3.2.02

Application Number: 03768524.5

Publication Number: 1551282

IPC: A61B5/00

Language of the proceedings: EN

Title of invention:
APPARATUS FOR DETECTING, RECEIVING, DERIVING AND DISPLAYING HUMAN PHYSIOLOGICAL AND CONTEXTUAL INFORMATION

Applicant:
BodyMedia, Inc.

Headword:

Relevant legal provisions:
EPC Art. 123(2), 56

Keyword:
Inventive step - main request (no)
Amendments - added subject-matter - first auxiliary request (no)
Inventive step - first auxiliary request (yes)

Decisions cited:
T 1805/08

Catchword:

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Case Number: T 1086/11 - 3.2.02

D E C I S I O N
of Technical Board of Appeal 3.2.02
of 20 November 2014

Appellant: (Applicant)	BodyMedia, Inc. One Gateway Center 420 Fort Duquesne Boulevard, Suite 1900 Pittsburgh, Pennsylvania 15222 (US)
Representative:	Johnson, Richard Alan Mewburn Ellis LLP 33 Gutter Lane London EC2V 8AS (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 27 December 2010 refusing European patent application No. 03768524.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	E. Dufrasne
Members:	D. Ceccarelli
	M. Stern

Summary of Facts and Submissions

I. The applicant has appealed the Examining Division's decision, dispatched on 27 December 2010, to refuse European patent application No. 03 768 524.5.

II. The Examining Division refused the application on the grounds that the subject-matter of claim 1 of the main request and auxiliary requests 1 and 2 then on file extended beyond the content of the application as originally filed, in breach of Article 123(2) EPC, and that claim 1 of auxiliary request 2 was not clear, in breach of Article 84 EPC.

In an "obiter dictum", the Examining Division also expressed the view that the subject-matter of claim 1 of all requests lacked an inventive step over document

D1: US-A-2002/0019586.

III. The notice of appeal was received on 3 March 2011, the appeal fee having been paid on 2 March 2011. The statement setting out the grounds of appeal was received on 6 May 2011.

IV. The Board summoned the appellant to oral proceedings and set out its preliminary opinion in a communication dated 5 September 2014.

V. The oral proceedings took place on 20 November 2014.

VI. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request, filed with letter dated 6 May 2011 or one of the first auxiliary request, filed during oral proceedings, and the second auxiliary request,

filed with letter dated 20 October 2014.

VII. Claim 1 of the main request, which corresponds to claim 1 of the main request on which the impugned decision was based, reads as follows:

"An apparatus for tracking caloric consumption and caloric expenditure of an individual, comprising a sensor device (10, 700, 1201) having at least two sensors (12, 705, 710) adapted to generate data when in proximity to said individual's body, at least a first of said sensors adapted to generate data indicative of a first parameter of said individual, and at least a second of said sensors adapted to generate data indicative of a second parameter of said individual, an I/O device (1200) in electronic communication with said sensor device (10, 700, 1201), a processor (20, 490, 900) in electronic communication with said I/O device (1200), said processor (20, 490, 900) being programmed to use said data of a first parameter and a second parameter to derive caloric expenditure data of said individual, said derivation based on an algorithm, said I/O device (1200) adapted to enable said individual to enter information relating to calories consumed by said individual, said I/O device (1200) comprising a display (1210) for displaying information, said information being based on at least one of said derived caloric expenditure data and entered information relating to calories consumed by said individual, characterised in that said algorithm includes a context detector (1605) which utilises data generated by said sensors (12, 705, 710) and demographic information to assign a probability that a given portion of said data was generated by said sensors (12, 705, 710) while the user was in a possible context, and said probability that a user is in a possible context is used to derive caloric

expenditure."

VIII. Claim 1 of the first auxiliary request reads as follows (compared to claim 1 of the main request additions are underlined, deletions are struck through by the Board):

"An apparatus for tracking caloric consumption and caloric expenditure of an individual, comprising:

a sensor device (10, 700, 1201) adapted to be worn on an individual's body, the sensor device having at least two sensors (12, 705, 710) adapted to generate data when in proximity to said individual's body, at least a first of said sensors being a physiological sensor adapted to generate data indicative of a first parameter of said individual, the first parameter being physiological, and at least a second of said sensors adapted to generate data indicative of a second parameter of said individual, and

an I/O device (1200) in electronic communication with said sensor device (10, 700, 1201),

wherein said sensor device includes a processor (20, 490, 900) in electronic communication with said at least two sensors (12, 705, 710) and said I/O device (1200), said processor (20, 490, 900) being programmed to use said data of a first parameter and a second parameter to derive caloric expenditure data of said individual, said derivation based on an algorithm, said I/O device (1200) adapted to enable said individual to enter information relating to calories consumed by said individual, said I/O device (1200) comprising a display (1210) for displaying information, said information being based on ~~at least one of~~ said derived caloric expenditure data and caloric consumption data generated using entered information relating to calories consumed by said individual,

characterised in that:

said algorithm includes:

a context detector (1605) which utilises data generated by said sensors (12, 705, 710) and demographic information ~~to assign~~ for the individual to produce a weight expressing a probability that a given portion of said data was generated by said sensors (12, 705, 710) while the user was in ~~a~~ each of several possible user activity contexts,

a regression algorithm (1610) for each user activity context, each regression algorithm producing an output that is an estimate of caloric expenditure for its respective user activity context, and

a post processor(1615) which combines the weights and the regression algorithm outputs, and ~~said probability that a user is in a possible context is used to derive~~ outputs the caloric expenditure."

Claims 2 to 8 of the first auxiliary request are dependent claims.

IX. The appellant's arguments, as far as relevant for the present decision, are summarised as follows:

a) Main request

Claim 1 was focused on the inventive aspect that the derivation of caloric expenditure was based on an algorithm, a contextual status of the individual was derived and the algorithm was selected based upon the derived contextual status of the individual.

Document D1 discussed "contextual parameters",

which meant "parameters relating to the environment, surroundings and location of the individual" as derivable from paragraph [0043]. Document D1 did not teach using the data collected by various sensors to determine the probability of the user engaging in a plurality of possible activities, e.g. resting or active. Document D1 taught a means for measuring "activity", but this was simply another piece of raw data, i.e. "interpreted G shocks per minute" according to table 1 of document D1.

Starting from document D1 as the closest prior art, the objective technical problem solved was how to provide a more accurate and reliable energy expenditure reporting apparatus, and in particular how to prevent sensor problems from giving false or misleading results.

The solution as claimed in claim 1 was neither disclosed nor suggested in the cited prior art. It followed that the subject-matter of claim 1 of the main request was novel and inventive.

b) *First auxiliary request*

In addition to the arguments presented in support of the main request, document D1 did not disclose a specific algorithm for deriving the caloric expenditure data of an individual comprising separate regression algorithms for each user activity context, the outputs of which were combined by a post processor considering also the weights expressing the probability that the user was in each of several possible user activity contexts. By means of such an algorithm, which

split up the calculation for each detected activity context, the accuracy of the estimate of the caloric expenditure could be further increased. For example, for each user activity context, the metabolic rate of the individual could be better taken into account.

Providing such an algorithm required technical considerations, since the implementation of the algorithm resulted in the provision of a technical solution to the objective technical problem and in a better apparatus. It followed that, in line with the conclusions of decision T 1805/08, the invention possessed a technical character.

Reasons for the Decision

1. The appeal is admissible.

2. The invention relates to an apparatus for tracking and displaying caloric consumption (intake) and caloric expenditure of an individual, for example to optimise the dietary habits and the lifestyle of the latter.

In order to do so, the apparatus comprises sensors for obtaining data relating to the individual and an Input/ Output (I/O) device for entering information relating to calories consumed by the individual, for example in terms of food intake, and displaying data enabling monitoring of the caloric balance over a period of time.

What is claimed to be the central point of the invention is the algorithm implemented to derive the caloric expenditure based on the data from the sensors.

In the application as filed, this algorithm is disclosed on pages 70 to 76, in particular on page 74, line 7 to page 75, line 16, in conjunction with figures 47 and 48.

3. Main request

Like the invention, document D1 relates to the field of "monitoring health, wellness and fitness". It is considered the closest prior art.

Document D1 discloses an apparatus for tracking caloric consumption (claim 149) and caloric expenditure (page 5, table 2, item "Calories burned") of an individual, comprising a sensor device (figure 21, item 700) having at least two sensors (figure 21, items 705 and 710, and paragraph [0121]) adapted to generate data when in proximity to said individual's body (paragraph [0043]), at least a first of said sensors adapted to generate data indicative of a first parameter of said individual, and at least a second of said sensors adapted to generate data indicative of a second parameter of said individual, an I/O device (figure 21, items 715 and 730, 735 and 740) in electronic communication with said sensor device, a processor (figure 21, item 750) in electronic communication with said I/O device, said processor being programmed to use said data of a first parameter and a second parameter to derive caloric expenditure data of said individual (page 5, table 2, item "Calories burned" and paragraph [0046]) said derivation based on an algorithm, said I/O device adapted to enable said individual to enter information relating to calories consumed by said individual (paragraph [0056)], said I/O device comprising a display for displaying information, said information being based on at least one of said derived

caloric expenditure data and entered information relating to calories consumed by said individual (paragraph [0123]).

No specific algorithm for obtaining the caloric expenditure is explicitly described in document D1. However, the definition of the algorithm in the characterising portion of claim 1 of the main request is very broad. The kind of "demographic information", the way the context detector assigns a probability that a given portion of data was generated by the sensors while the user was in a possible context and the transformation rules for obtaining the caloric expenditure from the data and the assigned probability are not specified. Not even the concept of "possible context" is more specifically defined. As a result, the appellant's arguments related to the determination of possible user activities are irrelevant as far as claim 1 of the main request is concerned.

For these reasons, in the Board's view the defined algorithm simply introduces the limitation that at least some of the collected data and some "demographic information" are somehow considered and transformed in order to obtain the caloric expenditure.

Document D1 teaches that the caloric expenditure of an individual should be derived from the data collected from the sensor device (page 5, table 2, item "Calories burned"), taking into account some contextual parameters (paragraph [0049]). Hence, implicitly, these data will have to be considered and transformed in order to obtain the caloric expenditure.

As also pointed out by the Board during the oral proceedings, it is generally known that the metabolic

rates of individuals, which are necessarily considered in order to obtain the caloric expenditure, vary considerably dependent, in particular, on their sex and age, the latter being already some kind of demographic information related to the user, within the meaning of claim 1 of the main request.

It follows that, for the skilled person seeking to provide sensible results in the calculation of the caloric expenditure of the user, it would at least be obvious that the calculation algorithm in the apparatus of document D1 should also consider such demographic information.

Hence, the subject-matter of claim 1 of the main request is not inventive within the meaning of Article 56 EPC.

At least for this reason, the main request is not allowable.

4. First auxiliary request

4.1 The subject-matter of claim 1 of the first auxiliary request is generally derived from claim 50 of the application as filed, to which all the essential features of the algorithm originally disclosed on page 74, lines 7 to 24 in conjunction with figures 47 and 48 have been added.

The dependent claims are derived from respective claims, dependent on claim 50, of the application as filed.

The Board is satisfied that the requirements of

Article 123(2) EPC are fulfilled.

4.2 Compared to claim 1 of the main request, claim 1 of the first auxiliary request further defines, in particular, that the context detector of the algorithm for deriving caloric expenditure data of the individual produces a weight expressing a probability that a given portion of the data generated by the sensors was generated while the user was in each of several possible activity contexts, and that the algorithm includes a regression algorithm for each user activity context, each regression algorithm producing an output that is an estimate of caloric expenditure for its respective user activity context, and a post processor which combines the weights and the regression algorithm outputs, and outputs the caloric expenditure.

These features of the algorithm are not disclosed in document D1.

In the Board's view, the implementation of the algorithm involves technical considerations related to the evaluation of the data generated by the sensors, leading to the determination of the energy expenditure data. Hence, the claimed differentiating features of the algorithm provide a technical contribution to the invention.

The Board agrees with the appellant that by providing a dedicated regression algorithm for each user activity context the different metabolic conditions associated with each such activity context could be better taken into account when estimating the caloric expenditure.

The objective technical problem to be solved is therefore regarded as being how to provide a more

accurate and reliable apparatus for monitoring the energy balance of an individual.

As already noted above, document D1 does not disclose any specific algorithm for deriving the caloric expenditure of an individual. Nevertheless it suggests that the data collected from the sensor device, contextual parameters and demographic information should be considered and combined in an appropriate algorithm for such purpose. Based on the teaching of document D1, when faced with the objective technical problem, the skilled person might think of an improved algorithm, which considered even more variables and/or more complex models for deriving the caloric expenditure. However, nothing would prompt the skilled person to develop a dedicated regression algorithm for each user activity context without an inventive activity.

It is therefore concluded that the subject-matter of independent claim 1 of the first auxiliary request and, consequently, also of its dependent claims 2 to 8, involves an inventive step in view of the cited prior art.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent on the basis of:

   - claims 1 to 8 of the first auxiliary request filed during oral proceedings;

   - description pages 1 to 76 filed during oral proceedings;

   - figure sheets 1/46 to 46/46 of the description as published.

The Registrar: The Chairman:

D. Hampe E. Dufrasne

Decision electronically authenticated