Internal distribution code:

(A) [-] Publication in OJ
(B) [X] To Chairmen and Members
(C) [-] To Chairmen
(D) [-] No distribution

Datasheet for the decision of 4 March 2022

Case Number: T 1234/17 - 3.5.01

Application Number: 12196928.1

Publication Number: 2610808

IPC: G06Q30/06, G06F3/01, A63B24/00

Language of the proceedings: EN

Title of invention:
Customization based on physiological data

Applicant:
Adidas AG

Headword:
Customization based on physiological data/ADIDAS AG

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - customisation of footwear based on human gait (no - no technical features) - mapping acceleration data to human gait (no - not technical)

Decisions cited:
T 1798/13, T 2079/10

Catchword:

However, the question is whether the mere idea of mapping this acceleration data to gait category is technical, involving any technical considerations or having any overall technical effect. This question arises in many inventions that involve mappings and algorithms.

In T 1798/13 (*Forecasting the value of a structured financial product/SWISS REINSURANCE COMPANY LTD*), points 2.7 to 2.9, the present Board essentially held that it was not enough that an algorithm makes use of a technical quantity in the form of a measured physical parameter (weather data). What matters is whether the algorithm reflects any additional technical considerations about the parameter, such as its measurement. In that case there were none. This was contrasted with T 2079/10 (*Steuerung von zellulär aufgebauten Alarmsystemen/ SWISSRE*) where the invention was seen to lie in the improvement of the measurement technique itself, which involved technical considerations about the sensors and their positions.

Such a situation is conceivable in the present case, if the algorithm were to somehow enhance the input data using considerations of e.g. the placement of the sensors. However, the claim only specifies that the data "includes a time series of acceleration vectors" and that this data is "analyzed". There are no further details that could constitute technical considerations about the data or the sensors.

(See points 2.11 to 2.13 of the reasons)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1234/17 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 4 March 2022

Appellant: (Applicant)	Adidas AG Adi-Dassler-Strasse 1 91074 Herzogenaurach (DE)
Representative:	Bardehle Pagenberg Partnerschaft mbB Patentanwälte Rechtsanwälte Prinzregentenplatz 7 81675 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 20 December 2016 refusing European patent application No. 12196928.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	W. Chandler
Members:	N. Glaser
	C. Schmidt

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse the European patent application No. 12196928.1 pursuant to Article 97(2) EPC on the grounds of lack of inventive step (Article 56 EPC).

II. In the statement setting out the grounds of appeal, the appellant requested that the decision of the examining division be set aside and that a patent be granted on the basis of a new main request or a new auxiliary request I, both filed therewith. Oral proceedings were requested on an auxiliary basis.

III. In the communication accompanying the summons to oral proceedings the Board set out its preliminary opinion that claim 1 of neither the main nor the first auxiliary request involved an inventive step over a combination of D3 with D1.

IV. In response, the appellant indicated that it would not attend the oral proceedings. There were no further submissions.

V. The Board informed the appellant that, since the appellant would not be represented at the oral proceedings, the oral proceedings were cancelled.

VI. Claim 1 of the main request reads as follows:

"*A computer-controlled method for customization of a piece of footwear, the method comprising:*

receiving (602) data characterizing a category of human gait of at least one person, the data characterizing said category of human gait being based

at least in part on data generated by at least one sensor; and

determining (608) a customized design for the piece of footwear, the customized design based at least in part on the data characterizing said category of human gait,

wherein said at least one sensor includes an accelerometer and the collected sensor data includes a time series of acceleration vectors,

wherein the data collected by said at least on [sic] sensor is analyzed by a sensor data analysis module, and

wherein the sensor data analysis module applies a model of human physiology to associate the time series of acceleration vectors with one of the following categories of human gait: supination, protination, over-protination or neutral."

Claim 1 of the auxiliary request adds to claim 1 of the main request the following step after the determining step:

"*providing (612) the customized design to an item customization facility for manufacture of the piece of footwear*",

and the following features at the end of claim 1 of the main request:

"*wherein the data generated by said at least one sensor is associated with at least one sports-related activity performed by said at least one person during at least one interval of time,*

wherein the receiving of the data characterizing said category of human gait and the determining of the

customized design occur during the performance of said at least one activity, and

wherein the customized design comprises at least one design component that varies in at least one of shape, size and material composition, the variation based at least in part on the data characterizing said category of human gait."

Reasons for the Decision

1. The invention

The invention relates to the customisation of a piece of footwear based on a given set of characteristics of a person's gait as measured by an accelerometer. The auxiliary request further specifies that the customised design has a different shape, size or material composition of the footwear.

2. Main request - Article 56 EPC

2.1 The appellant (grounds, page 12, c1.) argued that D3 was the closest prior art for claim 1. D1 did not disclose any kind of customisation, whereas D3 related to the provision of a customer with a best-fit piece of footwear (paragraph [0003]). The Board agrees. Moreover, D3 teaches that the customised design represents the model of a foot, see paragraphs [0025] [0026] and [0040], which model is digitised and stored in a database, see paragraph [0048].

2.2 It is common ground that claim 1 differs from D3 essentially in that the customisation uses sensor data including a time series of acceleration vectors applied to a model of human physiology to produce a category

of human gait, namely supination, protination, over-protination or neutral.

2.3 The division considered that the claimed customisation was based on non-technical criteria, such as business requirements, aesthetic appeal or user preferences (point 1.3).

They also considered the use of the human physiology model as non-technical (point 2.9).

They considered that the skilled person would need to be given instructions on both how the "physiological attribute", now category of human gait, should be based on the sensor data (point 1.11), and how the customisation should be based on the human gait (point 2.10). This was said to be an indication that they were not technical.

2.4 The appellant argued that the term "design" pertained to technical properties of the piece of footwear, like shape, size and material composition and that "customization" had to be interpreted as customisation of a physical item rather than graphics customisation (grounds, page 13, paragraph c4.). The description clearly set out, see paragraphs [0023], [0027], [0041], how sporting footwear could be customised based on one or more properties of a user's running gait, determined from sensor data representing time series of acceleration vectors by applying a model of human physiology.

2.5 The appellant also pointed out that the advantageous technical effect of the combination of the above features was that not only static data about the shape of the foot of a wearer - in the form of a 3D scan of

the foot and pressure map of the foot sole - was used in the customisation process for the piece of footwear, but that dynamic information - in the form of a time series of acceleration vectors - was utilised to obtain information about the gait category of the wearer. The gait category was used to determine the design of the customised footwear which better fitted the user's typical movement patterns.

2.6 The appellant argued that the objective technical problem should be formulated as how to improve the accuracy and user-friendliness of the customisation process of D3.

2.7 In the Board's view, the claimed invention can essentially be seen as two mappings: the first maps sensor acceleration data to gait category and the second maps the gait category to a "customized design". The first mapping is specified in the claim to be via a "model of human physiology", which according to the description, see [0041], might involve "suitable statistical processing". The model of human physiology is defined by physiological attributes, which depend on the type of item to be customised, see [0039]. In the case of footwear, the physiological attributes are a set of categories of human gait (e.g., supination, protination, over-protination, neutral). The only details of the second mapping are in the description, see [0045], and claim 1 of the auxiliary request, namely that it involves shape, size and composition.

2.8 Considering the second mapping first, the Board notes that the "customization" of a piece of footwear, referred to in paragraph [0027] of the application, is only one of numerous sporting and fashion items which the invention claims to be able to customise.

The Board considers that it amounts to simply using the category of gait somehow in the customisation of sporting footwear. This covers the example in the description of "assisted selection from a set of predetermined item configurations" which could be simply choosing a particular shoe suitable for the user's gait, possibly with the help of a shop assistant, see paragraphs [0023] and [0026]. It could also simply mean to generate a customised graphics visualisation of a shoe with similarly selected parameters, see paragraphs [0063] and [0064].

2.9 The lack of detail in the claim, and indeed the description, leads to the conclusion that there are in fact no real "technical considerations" involved in the design, apart from the fact that it involves a physical object, namely footwear.

2.10 Thus, the Board considers that the basic idea of customising footwear depending on the model of human physiology, that is, the type of human gait, does not contribute to inventive step, but is a non-technical idea that would be given to the skilled person as stated out by the division.

2.11 Regarding the first mapping, the recording of sensor data, such as time series of acceleration vectors, is no doubt technical. However, the question is whether the mere idea of mapping this acceleration data to gait category is technical, involving any technical considerations or having any overall technical effect. This question arises in many inventions that involve mappings and algorithms.

2.12 In T 1798/13 (*Forecasting the value of a structured financial product/SWISS REINSURANCE COMPANY LTD*), points 2.7 to 2.9, the present Board essentially held that it was not enough that an algorithm makes use of a technical quantity in the form of a measured physical parameter (weather data). What matters is whether the algorithm reflects any additional technical considerations about the parameter, such as its measurement. In that case there were none. This was contrasted with T 2079/10 (*Steuerung von zellulär aufgebauten Alarmsystemen/SWISSRE*) where the invention was seen to lie in the improvement of the measurement technique itself, which involved technical considerations about the sensors and their positions.

2.13 Such a situation is conceivable in the present case, if the algorithm were to somehow enhance the input data using considerations of e.g. the placement of the sensors. However, the claim only specifies that the data "includes a time series of acceleration vectors" and that this data is "analyzed". There are no further details that could constitute technical considerations about the data or the sensors.

Thus, the Board considers that the mere idea of mapping acceleration data to gait category does not contribute to inventive step either, but is an idea that would be given to the skilled person as stated out by the division. Only its implementation involving the sensors could contribute.

2.14 The Board therefore concludes that neither the term "customized design", nor the use of acceleration data in the customisation of an item have any technical effect. They cannot contribute to inventive step.

2.15 As a result the problem to be solved is along the lines of how to adapt the customisation process of D3 to take into account categories of human gait derived from acceleration data.

2.16 Contrary to the appellant, the Board notes that D3 provides a motivation to improve the customisation process. For instance, paragraph [0029] explains that D3 rather aims at using the most suitable sensor data for the most accurate model for a user's foot to obtain the best-fitting piece of footwear, see paragraph [0040]. There is no hindrance for the skilled person to look for other kinds of data, including dynamically collected data, which improve the best-fit model.

2.17 Furthermore, the skilled person learns from D1 that time series of sensor data, see paragraphs [0052] to [0054], for example by acceleration sensors which are worn by a user during a sports activity, can be captured as dynamic data about a user during a sports activity.

2.18 The Board considers it obvious to add sensors to the arrangement of D3 to arrive at the invention. The Board considers that this would be true even if the idea of using acceleration data were not included in the definition of the problem.

2.19 Accordingly, claim 1 of the main request lacks an inventive step over D3 and D1 (Article 56 EPC).

3. Auxiliary request I - Article 56 EPC

3.1 The division considered, in connection with the then fourth auxiliary request, that the additional features referred to determining a customised design and a

particular analysis of sensor data to determine a category of human gait, see points 2.7 to 2.11 of the impugned decision. The division found that these features did not have technical character.

3.2 The Board agrees. In particular, merely "providing the customized design" *for* manufacture does not alter the abstract nature of the customisation. Manufacturing of an item based on a customised design is certainly a technical problem. However, the present invention does not define how the final product, e.g. footwear, is manufactured, but it stops with *customised component specifications*, see lines 23 to 25 of paragraph [0045]. Even if the design is actually presented to the user who may then place orders for the manufacture and/or assembly of customised items, see lines 1 to 2 of paragraph [0046], the customised component specifications do not define how a manufacturing process is controlled to produce the item or what components are to be used. Similarly, specifying that a design component can vary in shape, size or material composition does not alter the abstract nature of the customisation.

3.3 The appellant argued that this combination of features achieved an additional technical effect which was that the user of the customisation system was provided with instant feedback on the influence the performed activity had on the variation (in shape, size or material) of the customised design component, see point c. on page 16 of the grounds of appeal.

3.4 The Board takes this to mean to show the user the customised design while he is performing the activity. The capturing of a time series of sensor data would necessarily be performed during a sports activity in

order to capture dynamic data as in D1. The determining of the customised design may be performed as a background process, the processing time of which would depend on the hardware used. Thus, the Board judges that these features do not add anything inventive. Even if "customised design" involves interactivity, see [0032], which is not claimed, there are no details provided in the application about how this would work.

3.5 Accordingly, claim 1 of the auxiliary request lacks an inventive step over D3 and D1 (Article 56 EPC).

3.6 Since neither of the appellant's requests are allowable, it follows that the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek W. Chandler

Decision electronically authenticated