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Datasheet for the decision of 16 July 2015

Case Number: T 1901/10 - 3.5.04

Application Number: 00120323.1

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IPC: H04N1/00, H04N1/21, G08G1/0969, G09B29/10, G01S5/14, G01S1/04

Language of the proceedings: EN

Title of invention:
Information processing apparatus and method, and program storage medium for associating measured position information with captured images

Applicant:
Sony Corporation

Headword:

Relevant legal provisions:
EPC 1973 Art. 56, 111(1)
EPC Art. 123(2)

Keyword:
Amendments - added subject-matter -
first and second auxiliary requests (yes)
Inventive step - main request (no) -
third auxiliary request (yes)
Remittal to the department of first instance - (yes)

Decisions cited:

Catchword:

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Case Number: T 1901/10 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 16 July 2015

Appellant: (Applicant)	Sony Corporation 1-7-1 Konan Minato-ku Tokyo 108-0075 (JP)
Representative:	Melzer, Wolfgang Mitscherlich PartmbB Patent- und Rechtsanwälte Postfach 33 06 09 80066 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 19 May 2010 refusing European patent application No. 00120323.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairwoman	T. Karamanli
Members:	R. Gerdes
	C. Kunzelmann

Summary of Facts and Submissions

I. The appeal is directed against the decision to refuse European patent application No. 00 120 323.1, published as EP 1 087 605 A2.

II. The patent application was refused by the examining division on the ground that the subject-matter of the independent claims of all requests then on file lacked inventive step. The following documents were cited in support of this finding:

D1: WO 95/32483 A1,

D2: YEE F: "GPS and Video Data Collection in Los Angeles County - A Status Report" POSITION LOCATION AND NAVIGATION SYMPOSIUM, 1994, IEEE LAS VEGAS, NV, USA 11-15 APRIL 1994, NEW YORK, NY, USA,IEEE, 11th April 1994 (1994-04-11), pages 388-393, XP010117758 ISBN: 0-7803-1435-2,

D3: Patent Abstracts of Japan vol. 1998, no. 14, 31 December 1998 (1998-12-31) & JP 10 233985 A (Fuji Photo Film Co Ltd), 2 September 1998 (1998-09-02) and US 6 437 797 B1 20 August 2002 (2002-08-20) (being used as a translation of D3),

D4: US 5 869 759 A1 and

D5: "GPS III Pilot, Owner's Manual & Reference", July 1997 (1997-07), Garmin Corporation, Romsey, Hampshire, GB, page 24, 74.

III. The applicant appealed against this decision and with the statement of grounds of appeal submitted claims of

a main request and first to fifth auxiliary requests replacing all requests previously on file.

IV. In a communication annexed to a summons to oral proceedings the board raised objections under Article 123(2) EPC and Article 84 EPC 1973. It indicated that the appellant should be prepared to discuss the compliance of the claims of all requests on file with these provisions. It took the preliminary view that the subject-matter of the amended claim 1 of the main request lacked an inventive step in view of D3 in combination with D1 as well as starting from D1 as the closest prior art. The board additionally cited the following documents:

D6: JP 409179491 A together with a machine translation thereof and

D7: US 5 592 173 A1.

The board indicated that starting from D6 the subject-matter of claim 1 of the main request also appeared to be obvious. In addition, it indicated that inventive step of the subject-matter of claim 1 of the auxiliary requests was to be discussed at the oral proceedings.

V. In response, with a letter dated 3 June 2015, the appellant submitted revised claims of a main request and first to fifth auxiliary requests.

VI. Oral proceedings were held before the board on 16 July 2015.

During the oral proceedings the appellant filed amended claims of new third to fifth auxiliary requests and

declared that these new requests replaced the previously filed third to fifth auxiliary requests.

At the end of the oral proceedings the appellant withdrew the fourth and fifth auxiliary requests filed during the oral proceedings of 16 July 2015 and requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims according to the main request or one of the first and second auxiliary requests, all requests filed with the letter of 3 June 2015, or of the third auxiliary request filed during the oral proceedings of 16 July 2015. The appellant further requested that the description pages, forming the basis of the decision under appeal, be taken into account for the grant of a patent.

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

"An information processing method comprising the steps of:
obtaining and storing by a first device (2) a set of picture information in association with a plurality of corresponding first time information representing times of day at which said picture information are captured;
obtaining and storing by a second device (1) a set of measured positions in association with a plurality of corresponding second time information representing times of day at which said positions are measured; and
associating by a third device (4) said picture information with said measured positions, after the steps of storing the set of picture information by the first device (2) and of storing the set of measured positions by the second device (1), respectively, are completed, characterized in that

in said associating step, a picture information is associated with a measured position of which the second time information matches the first time information, wherein
if there is no match, the position for said picture information is estimated from two chronologically closest measured positions."

VIII. Claim 1 of the first auxiliary request reads as follows (amendments with respect to claim 1 of the main request being indicated by underlining):

"An information processing method comprising the steps of:
obtaining and storing by a first device (2) a set of picture information in association with a plurality of corresponding first time information representing times of day at which said picture information are captured;
obtaining and storing at predetermined intervals by a second device (1) a set of measured positions in association with a plurality of corresponding second time information representing times of day at which said positions are measured, wherein upon operation of a mark button (37) by a user an additional measured position at that time point is obtained and stored; and
associating by a third device (4) said picture information with said measured positions, after the steps of storing the set of picture information by the first device (2) and of storing the set of measured positions by the second device (1), respectively, are completed, wherein
in said associating step, a picture information is associated with a measured position of which the second time information matches the first time information, wherein

if there is no match, the position for said picture information is estimated from two chronologically closest measured positions, and
plotting said measured positions on a map, wherein additional measured positions obtained and stored upon operation of the mark button (37) are displayed with an indication informing about the user input."

IX. Claim 1 of the second auxiliary request corresponds to claim 1 of the first auxiliary request, with the reference to the obtaining and storing "at predetermined intervals" and the last feature relating to the "plotting said measured positions ..." having been deleted and the following feature:

"a wake state and a sleep state of the second device (1) are alternated, whereby the wake state is activated after a predetermined sleep time in which the second device (1) is in the sleep state, a measured position is obtained and stored after activation of the wake state, and once the storing is performed, the sleep state is resumed,
if the predetermined sleep time is zero, the second device (1) continuously is in the wake state and obtains and stores measured positions at predetermined intervals, and"

being inserted before the feature starting with "upon operation of a mark button (37) ...".

X. The sole independent claim 1 of the third auxiliary request reads as follows:

"An information processing method comprising the steps of:

obtaining and storing by a first device (2) a set of picture information in association with a plurality of corresponding first time information representing times of day at which said picture information are captured;
obtaining and storing by a GPS device (1) a set of measured positions in association with a plurality of corresponding second time information representing times of day at which said positions are measured, wherein
a wake state and a sleep state of the GPS device (1) are alternated, whereby the wake state is activated after a predetermined sleep time in which the GPS device (1) is in the sleep state, a measured position is obtained and stored after activation of the wake state, and once the storing is performed, the sleep state is resumed,
if the predetermined sleep time is zero, the GPS device (1) continuously is in the wake state and obtains and stores measured positions at predetermined intervals, if no measured position can be obtained and stored, the GPS device (1) remains in the wake state, until after a predetermined wake time or interval time, respectively, the sleep state is activated,
upon operation of a mark button (36) of the GPS device by a user an additional measured position at that time point is obtained and stored, and
wherein if no measured position can be obtained and stored at the time of the user input, the most recently stored measured position is provided with updated second time information; and
associating by a third device (4) said picture information with said measured positions, after the steps of storing the set of picture information by the first device (2) and of storing the set of measured positions by the GPS device (1), respectively, are completed,

wherein in said associating step, a picture information is associated with a measured position of which the second time information matches the first time information, wherein
if there is no match, the position for said picture information is estimated from two chronologically closest measured positions."

XI. The examining division stated in the decision under appeal that the subject-matter of the independent claims according to the main request represented the result of using two known devices in their normal manner, followed by an obvious way of using the results of the operation of the devices. The association of pictures and positions could be done manually or automatically. In any case the use of a third device to make the association was obvious. Digital cameras storing the time of day as metadata together with the images were known from D3. The additional feature of claim 1 of the second auxiliary request then on file regarding the possibility of requesting an additional position measurement related to the normal mode of operation of a GPS receiver and was disclosed in D5 in the form of a waypoint (see decision under appeal, Reasons, sections 1 to 3).

XII. The appellant's arguments with respect to inventive step of the subject-matter of claim 1 according to the main request starting from D6 as the closest prior art may be summarised as follows:

D6 did not disclose the last two features of claim 1 relating to the association of a picture information with a measured position and the estimation of the position from the two chronologically closest measured positions. The aim of D6 was to display the pictures on

a map, but there was no individual association of a picture with a position. The map was only a coarse representation of the path that the vehicle took, with only two positions being individually identified (see, for example, figures 6A, 6B and 7C of D6). D6 was not concerned with making a precise estimation of the position at which the picture was taken.

Based on these distinguishing features the technical problem could be regarded as how to find an efficient method to determine for each picture corresponding position information which was as precise as possible.

None of the cited documents disclosed an interpolation of position information in the context specified by claim 1. D4 related to conducting regional gravity surveys, which was a different technical field. D1 did not disclose interpolation either (see page 3 of D1).

The appellant argued that - compared with claim 1 of the main request - claim 1 of the third auxiliary request specified further features distinguishing the claim from D6. These related to the specification of a mark button on the GPS device for triggering a position update and storage of that position and a wake/sleep state and details of its implementation, in particular in case of error conditions such as satellite signal outage. The combined features of claim 1 allowed the user to perform simple and efficient post-processing of picture information in order to determine a position associated with the picture, and at the same time took account of signal outage and power consumption.

With respect to the compliance of claim 1 of each of the first and second auxiliary requests with Article 123(2) EPC the appellant argued that a mark

button was, for example, disclosed in paragraphs [0085] and [0096] of the application as published (corresponding to the last paragraph on page 34 and the paragraph bridging pages 38 and 39 of the application as originally filed). It was implicit in claim 1 of each of these requests that the mark button was part of the second device, on the one hand because the operation of the mark button was specified directly following the specification of the second (GPS) device and on the other hand because the second device was the only device providing measured positions and the mark button obtained and stored an "additional measured position". Technically there was also no essential link between the mark button and the second device, which was implicitly a GPS receiver.

Reasons for the Decision

1. The appeal is admissible.

Main request

1. It was common ground in the oral proceedings that D6 could be considered as the closest prior art with respect to the subject-matter of claim 1.

1.1 D6 discloses an information processing method correlating images taken by a digital camera with position coordinates acquired by a vehicle navigation system. The camera stores each image together with a time stamp indicating the shooting time of the image. Likewise the vehicle navigation system employs GPS satellite signals to determine and store the vehicle's position together with the corresponding time. Both the image data and the position data are transferred to a

computer by means of two card readers. The computer uses the data from the vehicle navigation system to display a map to the user, comprising the travel path of the car. In addition, based on the time of image acquisition, appropriate position coordinates of the images are determined and the images are displayed at that position on the map (see abstract, figures 4 and 7 and paragraphs [0003], [0004], [0025], [0027] and [0028]).

1.2 The subject-matter of claim 1 is distinguished from D6 by the following feature:

(a) if there is no match [of the first and second time information], the position for said picture information is estimated from two chronologically closest measured positions.

1.3 The appellant argued that, in addition, D6 did not disclose the associating step, in which picture information was associated with a measured position of which the second time information matches the first time information.

The board was not convinced by this argument. D6 discloses that "Photographed position coordinates are retrieved on the basis of the time and date of each photograph" (see abstract). It is implicit in this passage that the time information of the images is matched with that of the navigation system.

1.4 The board accepts the appellant's formulation of the technical problem as how to find an efficient method to determine for each picture corresponding position information which was as precise as possible.

1.5 Due to the fact that the GPS coordinates are only measured at discrete moments of time and that the acquisition of GPS coordinates is independent of the points of time at which photos are taken, an exact match of time stamps is not always possible. Hence, the skilled person faced with the above technical problem would necessarily have to find an estimation of the exact position when the photo was taken. Interpolation is a common method to find intermediate values for a function that is only available at discrete points. A linear or higher-order interpolation employs the two chronologically closest positions for estimating the position at a given moment in time. Hence, starting from D6 and faced with the above technical problem the skilled person would arrive at the subject-matter of claim 1 without difficulty.

1.6 The appellant argued that none of the cited documents disclosed an interpolation of position information in the context of claim 1. It is noted that the above arguments rely neither on D4 nor on D1. Instead, the skilled person would consider using interpolation for position estimation based on common general knowledge. It is, however, noted that both D1 (see page 15, lines 21 to 24, and page 26, lines 12 to 24) and D4 (see column 6, lines 14 to 18 and lines 43 to 57) disclose interpolation as providing a more accurate position estimate.

1.7 As a result, the subject-matter of claim 1 is obvious to a person skilled in the art in view of D6 and common general knowledge and thus lacks an inventive step (Article 56 EPC 1973).

First and second auxiliary requests

2. Claim 1 according to the first auxiliary request has been amended to include inter alia the following additional feature:

(b) "wherein upon operation of a mark button (37) by a user an additional measured position at that time point is obtained and stored".

The appellant argued that paragraphs [0085] and [0096] of the application as published (corresponding to the last paragraph on page 34 and the paragraph bridging pages 38 and 39 of the application as originally filed) provided a basis for this feature.

2.1 It is true that the cited passages refer to the operation of a mark button causing the acquisition of an additional measured position. However, the feature is disclosed only in the context of an embodiment, which relates to a GPS device that is provided with this functionality (see, for example, figure 3A: 36 and paragraph [0022], corresponding to page 12, first full paragraph). A generalisation from this specific context, for example, as being available on any type of position measurement device (such as an inertial navigation system) is neither explicitly nor implicitly disclosed in the present application. Hence, the board concludes that the generalised feature (b) was not directly and unambiguously derivable from the application as originally filed.

2.2 The appellant argued that it was implicit in claim 1 that the mark button was part of the second device, on the one hand because the operation of the mark button was specified directly following the specification of

the second (GPS) device and on the other hand because the second device was the only device providing measured positions and the mark button obtained and stored an "additional measured position".

These arguments did not convince the board for the following reasons. Proximity of the features in a claim in general does not imply any specific relationship between those features. In addition, the fact that both the mark button and the second device relate to measuring positions does not exclude the mark button being part of an additional unspecified device that also serves to measure positions.

The board was also not convinced by the argument that the second device was implicitly a GPS receiver. There are no limitations in claim 1 which would necessitate such a restrictive understanding of the claim. Instead, the description discloses that GPS may be replaced (see paragraph [0160]). Moreover, these limitations are explicitly specified in claim 4, which would be redundant on such a restrictive reading of claim 1.

2.3 Hence, the board concludes that claim 1 of the first auxiliary request does not comply with Article 123(2) EPC.

3. Claim 1 of the second auxiliary request contains additional features complementing the above-mentioned feature (b). These additional features relate to a wake state and a sleep state of the second device and do not affect the above interpretation of feature (b) (points 2.1 and 2.2). They are therefore not suitable to overcome the above objections with respect to Article 123(2) EPC.

Third auxiliary request
Amendments (Article 123(2) EPC)

4. Claim 1 of the third auxiliary request comprises the features of claim 1 of the main request. It also contains the following feature, which corresponds to feature (b) of claim 1 of the first auxiliary request and has been modified to overcome the objection under Article 123(2) EPC against that claim:

(b') "upon operation of a mark button (36) of the GPS device by a user an additional measured position at that time point is obtained and stored".

Moreover, it specifies the following features, which relate to an alternation of wake and sleep states and some implementation aspects:

(c) "a wake state and a sleep state of the GPS device (1) are alternated, whereby the wake state is activated after a predetermined sleep time in which the GPS device (1) is in the sleep state, a measured position is obtained and stored after activation of the wake state, and once the storing is performed, the sleep state is resumed," and

(d) "if the predetermined sleep time is zero, the GPS device (1) continuously is in the wake state and obtains and stores measured positions at predetermined intervals".

Claim 1 also adds some features, which can be considered to relate to measures to be taken in case of GPS signal outage:

(e) "if no measured position can be obtained and stored, the GPS device (1) remains in the wake state, until after a predetermined wake time or interval time, respectively, the sleep state is activated" and

(f) "wherein if no measured position can be obtained and stored at the time of the user input, the most recently stored measured position is provided with updated second time information;".

4.1 A basis for claim 1 of the third auxiliary request can be found in claim 1 as originally filed. The configuration of devices specified in claim 1 is essentially disclosed in claims 11 to 13 of the application as originally filed (see also figure 1 and corresponding passages of the description on pages 10 and 11). The association step and the estimation step of claim 1 are disclosed in figure 28 and on pages 57 to 60 of the application as originally filed. The provision of a mark button of the GPS device and its functionality as specified in feature (b') is disclosed in figure 3A together with page 12, first complete paragraph, page 38, last complete paragraph, and page 34, last paragraph. The alternation of wake and sleep states of features (c) and (d) is based on figures 13 to 15 together with page 16, first full paragraph and pages 29 to 31. Feature (e) is disclosed in figure 14: S93 to S95 and on pages 30 and 31. Feature (f) is disclosed in the last paragraph on page 34.

4.2 Dependent claim 2 is based on the disclosure of figure 30 and pages 57 to 60 of the description as originally filed. The subject-matter of claim 3 is disclosed on pages 10 and 11. Claim 4 corresponds essentially to claim 4 as originally filed. Claims 5

and 6 were disclosed as part of claims 6 and 7 as originally filed.

4.3 Hence, the board finds that the claims of the third auxiliary request do not contain subject-matter which extends beyond the content of the application as filed and that they thus comply with Article 123(2) EPC.

5. Furthermore, the board is satisfied that the claims are clear, and in particular that the amendments made by the appellant overcome the objections with respect to clarity that were raised in the communication annexed to the summons to oral proceedings.

Inventive step, Article 56 EPC 1973

6. It was common ground that D6 may be considered as the closest prior art with respect to the subject-matter of claim 1 according to the third auxiliary request.

6.1 Claim 1 is distinguished from D6 by features (a), (b') and (c) to (f) as set out above.

6.2 As argued by the appellant these distinguishing features allow the determination of exact positions associated with the acquired pictures. The provision of the mark button allows position measurements to be manually triggered and thus provides an option for a user to trigger position measurements at points where pictures are taken. The provision of wake and sleep states reduces power consumption, which is particularly important for portable devices. The particular handling of signal outage (see features (e) and (f)) avoids excessive power consumption, since it limits the duration of the wake state.

6.3 Hence, the board accepts the formulation of the technical problem proposed by the appellant as how to perform simple and efficient post-processing of picture information in order to determine a position associated with the picture and at the same time to take account of signal outage and power consumption.

6.4 A mark key "to save your present position as a user waypoint" was disclosed in D5, which is a manual for a GPS receiver published before the priority date of the present application. Wake and sleep states for power saving are disclosed in D7 also for use in a GPS receiver. However, none of the documents on file discloses features (d), (e) and (f), which relate to implementation of the wake/sleep states and error handling in case of GPS signal outage. It is also accepted that the proposed solution avoids excessive power consumption, since the duration of the wake state is limited in time (see also page 31, last full paragraph).

6.5 The finding of the examining division (see point XI above) was based on a set of claims which differed substantially from those of the present third auxiliary request. Document D3, which was cited in that decision, relates to a different configuration wherein the digital camera receives position and time information for captured images from the GPS device directly (see, for example, column 3, lines 23 to 27). Hence, the association of images and position information is carried out in the camera. D3 also does not disclose details of the GPS device, such as error handling in case of signal outage.

6.6 Thus, in view of the documents on file, the subject-matter of claim 1 would not have been obvious to a person skilled in the art.

6.7 Claims 2 to 6 are dependent on claim 1, and therefore the subject-matter of these claims also involves an inventive step.

Conclusion

7. It follows from the above that the third auxiliary request is allowable. Hence, the decision under appeal is to be set aside.

8. However, the adaptation of the description, as well as the grant formalities, still need to be carried out. In view of the major amendments to the claims in the appeal proceedings and since the decision under appeal did not discuss the issue of conformity to the description, the board considers it appropriate to remit the case under Article 111(1) EPC 1973 to the department of first instance for grant of a patent, with a description to be adapted.

9. The appellant further requested that the description pages, forming the basis of the decision under appeal, be taken into account for the grant of a patent. This request is considered to be moot in the present case, because the board has decided to remit the case under Article 111(1) EPC 1973.

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 6 of the third auxiliary request filed during oral proceedings of 16 July 2015 and a description to be adapted thereto.

The Registrar: The Chairwoman:

K. Boelicke T. Karamanli

Decision electronically authenticated