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**Datasheet for the decision
of 30 October 2012**

Case Number: T 2240/09 - 3.4.02

Application Number: 02019738.0

Publication Number: 1288628

IPC: G01C21/36

Language of the proceedings: EN

Title of invention:

Navigation device, map displaying method and image display device

Applicant:

Sony Corporation
DENSO CORPORATION

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step (yes, after amendment)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 2240/09 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 30 October 2012

Appellant I: Sony Corporation
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Appellant II: DENSO CORPORATION
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted 15 May 2009
refusing European patent application No.
02019738.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. G. Klein
Members: F. Maaswinkel
D. Rogers

Summary of Facts and Submissions

- I. The appellant lodged an appeal against the decision of the examining division, refusing the European patent application 02 019 738.0. This patent application relates to a navigation device and a map displaying method.

The decision under appeal had been issued as a "decision on the basis of the file as it stands" on request of the applicant. For the reasons of the decision reference was made to the communications of 12 April 2006, 28 August 2007 and 16 December 2008. With respect to the issue of patentability document D3 was considered as the most relevant document:

D3: Patent Abstracts of Japan vol. 1996, no.2, 29 February 1996 & JP 07 270 172, 20 October 1995. In addition a computer translation of this document had been provided.

- II. In the letter containing the grounds of appeal the appellant requested to set the decision aside and to grant a patent on the basis of a set of claims according to a Main Request (*filed during the examining proceedings*) or the Auxiliary Requests I to III filed with this letter. Furthermore the appellant requested oral proceedings if none of the Requests filed with this letter should be considered allowable.
- III. In a communication pursuant to Article 15(1) RPBA accompanying the summons to oral proceedings the board raised objections against the set of claims of the Main Request and those of Auxiliary Requests I and II. Furthermore it was indicated that, apart from a minor

correction in claim 6 and the required adaptation of the description, a set of documents based on Auxiliary Request III could possibly form an allowable basis for a patentable invention.

- IV. With a letter of 8 October 2012 the appellant filed a replacement set of claims and amended description pages for consideration by the board. The auxiliary request for oral proceedings was maintained.
- V. Thereupon the board announced that the oral proceedings were cancelled and that the appeal procedure would be continued in writing.
- VI. The Request of 8 October 2012 includes the following application documents:

Claims: 1 to 8, filed with the letter of 8 October 2012;

Description: pages 4, 5, 6, 7 and 20, filed with the letter of 8 October 2012;
pages 1 to 3, 8 to 19 as originally filed;

In this letter the drawings were not specified. From the documents on file it is clear that the following drawings are included (*see in particular the applicant's letter of 20 November 2002*):

Drawings: Figures 4, 6, 7, 8 as originally filed;
Figures 1, 2, 3, 5, 9, 10, 11 and 12, filed with the letter of 20 November 2002.

- VII. The wording of independent claim 1 reads as follows:

" A navigation device (1) comprising:
a map data storage unit (14) for storing map data;

a resolution conversion unit for converting the resolution of the map data acquired from the map data storage unit (14); and

a display unit (15) having a predetermined display area for displaying a map based on the map data with its resolution converted,

wherein on a primary screen (P), on which a detailed map is displayed in the entire display area of the display unit (15), a secondary screen (C) presenting a wide-area map having its resolution lowered and being reduced in size from that of the primary screen (P) is displayed,

wherein the map data comprises polygon data, and

wherein the resolution conversion unit comprises a coordinate processing unit (39) which carries out the resolution conversion and a coordinate transformation of the map data in accordance with an equation for calculating the transformation to a vertex coordinate X_s , Y_s on the secondary screen (C), the equation being expressed by

$$X_s = \text{OffsetX} + X_m/R_r,$$

$$Y_s = \text{OffsetY} + Y_m/R_r$$

wherein a ratio of the resolution of the primary screen (P) to that of the secondary screen (C) is represented by R_r , the vertex coordinate on the primary screen (P) is represented by X_m, Y_m , and the area of the secondary screen (C) being represented by $\text{OffsetX}, \text{OffsetY}$ ".

The wording of independent claim 6 reads as follows:

" A map displaying method in a map display device having a predetermined display area, wherein on a primary screen (P), on which a detailed map is displayed in the entire display area of the display unit (15), a secondary screen (C) is displayed, on

which a wide-area map is displayed, the secondary screen (C) having different resolution from that of the primary screen (P), the method comprising:

a step of converting the resolution of map data acquired from a map data storage unit (14);

a step of displaying the detailed map with predetermined resolution; and

a step of displaying the wide-area map with lower resolution and reduced size than the predetermined resolution on the detailed map,

wherein the map data comprises polygon data, and wherein step of converting the resolution comprises a coordinate processing step in which the resolution conversion and a coordinate transformation of the map data is carried out in accordance with an equation for calculating the transformation to a vertex coordinate X_s , Y_s on the secondary screen (C), the equation being expressed by

$$X_s = \text{OffsetX} + X_m/R_r,$$

$$Y_s = \text{OffsetY} + Y_m/R_r$$

wherein a ratio of the resolution of the primary screen (P) to that of the secondary screen (C) is represented by R_r , the vertex coordinate on the primary screen (P) is represented by X_m, Y_m , and the area of the secondary screen (C) being represented by $\text{OffsetX}, \text{OffsetY}$ ".

Claims 2 to 5 and claims 7 and 8 are dependent claims.

VIII. The appellant's arguments may be summarised as follows:

Claim 1 defines the following additional features over claim 1 as originally filed:

- *"on a primary screen, on which a detailed map is displayed in the entire display area of the display unit, a secondary screen presenting a wide-area map*

having its resolution lowered and being reduced in size from that of the primary screen is displayed". This is, e.g. disclosed on page 5, third para, lines 12 to 14; and on page 12, last para until page 13, first para of the original application documents.

- "the map data comprises polygon data" and "the resolution conversion unit comprises a coordinate processing unit which carries out the resolution conversion and a coordinate transformation of the map data in accordance with an equation for calculating the transformation to a vertex coordinate X_s, Y_s on the secondary screen, the equation being expressed by $X_s = \text{OffsetX} + X_m/R_r$, $Y_s = \text{OffsetY} + Y_m/R_r$ wherein a ratio of the resolution of the primary screen to that of the secondary screen is represented by R_r and the vertex coordinate on the primary screen is represented by X_m, Y_m , and the area of the secondary screen being represented by $\text{OffsetX}, \text{OffsetY}$ ". The original disclosure for these expressions can be found, for example, in the description, at page 13, fourth paragraph to page 14, third paragraph. Independent method claim 6 has been amended accordingly.

In the amended pages for the specification document D3 has been acknowledged and the summary of invention has been adapted to the claims. The part of original page 20 not covered by the claims has been removed. Therefore the amendments are supported by the original application documents.

With respect to the cited prior art, document D3 was considered by the examining division as representing the closest prior art. This document discloses a navigation apparatus with a map display device to display the current position of vehicles on a map. The map display device according to D3 comprises two screen

display means wherein a reduction map including an area indicated on a main window of an indication screen is concurrently indicated on a sub-window thereof. Thus, according to D3, a so-called "parent map" showing an enlarged drawing of a map and a so-called "child map" showing an enlarged section of the parent map are displayed simultaneously in the two screen display mode. However, as can be seen, for example, in Fig. 1 of D3 and as also described in paragraph [0025] of the description, only minimum information is displayed on the child screen compared to the parent screen. According to D3 both maps do not present the same quantity of information so that for the user it is harder to correlate the two maps for orientation purposes and finding his exact position, namely, on the detailed map as well as on the map of different size at one glance.

In contrast to the device of D3, in the apparatus defined in claim 1 a resolution conversion of map data is carried out and the detailed map is displayed on a primary screen, i.e. in the entire display area of the display unit, whereas on a secondary screen the same map is displayed but having a reduced resolution and size. Thus both maps have the same quantity of information and show the same images, only with different resolution. This equally applies to method claim 6.

The subject-matter of the independent claims further differs from the disclosure in D3 in that the map data comprises polygon data, and the resolution conversion unit comprises a coordinate processing unit which carries out the resolution conversion and a coordinate transformation of the map data as defined by the mathematical equation in the claims. A detailed map is

displayed on the primary screen and a wide-area map is displayed on the secondary screen, whereby the resolution of the wide-area map displayed on the secondary screen has been converted in accordance with the above mentioned equation. By this procedure, the wide-area map advantageously maintains the same quantity of information as in a regular one-screen display. Also the wide-area map displayed on the detailed map which has its resolution lowered according to the above mentioned equation maintains geographical information which it had before the resolution is lowered. Therefore, from the wide-area map, the user can securely recognize the travelling route, and, moreover, the detailed map is provided on the secondary screen so that the user can sufficiently recognize details from his route on which he currently is travelling while correlating the two maps of different resolution at one glance.

Neither the specific resolution conversion nor the other inventive features discussed above can be derived or are hinted at in D3 which, as already noted before, rather teaches that on the so called child screen, it is unnecessary to display excessive information and thus, only minimum information is presented on that screen instead of the entire quantity of information which is presented on the parent screen.

In summary, document D3 does not disclose or render obvious the subject-matter of the independent claims.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

The board is satisfied that the set of claims finds support in the patent application as originally filed documents.

3. *Patentability*

3.1 *Novelty*

3.1.1 In the communication of 28 August 2007 to which reference was made in its decision the examining division had considered that document D3 (a *Japanese patent application*) disclosed the subject-matter of claim 1 then on file. In its analysis of this document the examining division introduced a computer translation of the Japanese document which was annexed to its communication. According to this communication document D3 disclosed a navigation device comprising a map storing unit for storing map data (para [0014] of the translation, road map storing memory CD-ROM) and a display unit on which, in the entire display area, a primary screen was displayed (para [0027]). In addition to the map of the circumference containing the map currently displayed on the main window a secondary screen having a different resolution from the primary screen was displayed ([para [0024]).

3.1.2 With respect to the feature "resolution conversion unit" in claim 1 the examining division argued that from the passage in page 13, line 6 to page 14, line 17 of the patent application as filed it could be understood that the resolution conversion was a consequence and in direct proportion to the resizing of displaying the map from the primary screen to fit on

the sub-window or secondary screen. According to the examining division, in document D3 this resizing was described in para [0023] of the translation and the process was illustrated in Figure 5 of D3, which showed that the geographical area 1 in the rectangle with corner points P1 and P2 was mapped onto a rectangle comprised within the area 2. The CPU 41 (described in para [0015]) performed this operation on data held in the bitmap memory 45, which was related to the same activity as performed by the "resolution conversion unit" of claim 1 which executed the coordinate processing. It was concluded that document D3 was concerned with the same problem as the patent application and solved this problem with the same means. Consequently the subject-matter of claim 1 then on file was not new.

3.1.3 Present claim 1 defines, in addition to former claim 1 addressed in the communication of the examining division, further details of the properties of the maps displayed on the primary and secondary screens, and, furthermore, the particular properties of the resolution conversion unit expressed in the equations for the resolution conversion and coordinate transformation. This information is not disclosed in document D3. Therefore it is concluded that the subject-matter of the independent apparatus claim 1, and that of method claim 6 defining the corresponding method features, is novel.

3.2 *Inventive step*

3.2.1 In agreement with the position of the examining division in its communication of 28 August 2007 document D3 is considered to disclose the closest prior art.

- 3.2.2 With respect to the display of the "parent screen" and the "child screen" in the device disclosed in D3 the appellant had argued that this document emphasises in para [0025] of the translation that only minimum information is displayed on the child screen as compared to that on the parent screen. In point 4.1 of the communication of 16 December 2008 the examining division has conceded that the disclosure of document D3 in para [0025] differs from the teaching in the patent application. However, according to the examining division, D3 only teaches that the display on the child screen of "excessive information is unnecessary", and, furthermore that, if the skilled person, using the system of D3, would find that essential information was lacking, he would provide the lacking information as a matter of routine or would find further hints in other prior art documents.
- 3.2.3 With respect to the display of the information in the second ("child") screen, document D3 discloses in para [0023] with reference to Figure 5, that the information of the first field in the bitmap memory is written into the second field, and that the coordinates corresponding to points P1 and P2 of the first field are drawn as a rectangle shown in this Figure.
- 3.2.4 In the next paragraph, para [0024], it is disclosed that as a result the display is changed from a one-screen display (*as in Figure 4*) to the two-screen display in Figure 5.
- 3.2.5 Subsequently paragraph [0025] discloses that the "child" screen does not display the complete information of the "parent" screen and that it should only display the minimum information. The aim of this

displaying mode is to avoid the displaying of unnecessary information.

- 3.2.6 However, apart from the schematic illustrations in Figures 5 and 6 showing the relations between the parent and child screens, document D3 does not disclose any details or constraints for a transformation of coordinates and pixels values, other than specifying that it would not be desirable to display any "unnecessary information". To the understanding of the board this document is silent about the steps to be taken for effecting such a display mode.
- 3.2.7 In contrast to the disclosure in document D3, independent claims 1 and 6 explicitly define the steps for the resolution conversion and coordinate transformation ensuring that the secondary screen is provided with a detailed map with a lower resolution and a reduced size than the primary screen, enabling the user to easily correlate these two maps.
- 3.2.8 Since document D3 is entirely silent about the specific steps or algorithms to be carried for its displaying mode, and since also the further documents cited in the European Search Report are no more relevant than D3 in respect of the features defined in the independent claims, it is concluded that the subject-matter of claims 1 and 6 involves an inventive step and defines patentable subject-matter
- 3.2.9 Claims 2 to 5 and claims 7 and 8 are dependent claims and are equally allowable.

4. For the above reasons, the board finds that the appellant's Request meets the requirements of the EPC and that a patent can be granted on the basis thereof.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent based on the following documents:

Claims: 1 to 8, filed with the letter of 8 October 2012;

Description: pages 4, 5, 6, 7 and 20, filed with the letter of 8 October 2012;
pages 1 to 3, 8 to 19 as originally filed;

Drawings: Figures 4, 6, 7, 8 as originally filed;
Figures 1, 2, 3, 5, 9, 10, 11 and 12, filed with the letter of 20 November 2002.

The Registrar:

The Chairman:



M. Kiehl

A. G. Klein

Decision electronically authenticated