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**Datasheet for the decision
of 29 October 2009**

Case Number: T 0828/07 - 3.4.02

Application Number: 02256264.9

Publication Number: 1302750

IPC: G01C 21/34

Language of the proceedings: EN

Title of invention:

Communication system, method and program for navigation
comprising sever apparatus and terminal apparatus

Applicant:

Pioneer Corporation, Increment P Corporation

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 123(2), 56

Relevant legal provisions (EPC 1973):

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Keyword:

"Basis of disclosure for amendments"
"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0828/07 - 3.4.02

DECISION
of the Technical Board of Appeal 3.4.02
of 29 October 2009

Appellant:

Pioneer Corporation
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Meguro-ku
Tokyo-to (JP)

and

Increment P Corporation
7-1, Shimomeguro
1-chome
Meguro-ku
Tokyo-to (JP)

Representative:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 27 December 2006
refusing European application No. 02256264.9
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: A. G. Klein
Members: F. Maaswinkel
C. Rennie-Smith

Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal, received on 26 February 2007, against the decision of the examining division, dispatched on 27 December 2006, refusing the European patent application No. 02256264.9. The fee for the appeal was paid on 26 February 2007. The statement setting out the grounds of appeal was received on 27 April 2007.
- II. In its decision, the examining division held that the patent application did not meet the requirements of Article 52 EPC because the subject-matter of claim 1 according to the main and 1st auxiliary requests did not involve an inventive step (Article 56 EPC) having regard to the disclosures in the following documents:
D1: JP-A-2000 207689
D1e: computer translation of D1 from the IDL website
D3: EP-A-1 037 228.
- III. With the statement of grounds of appeal the appellant requested that claims of the main and 1st auxiliary requests on which the decision under appeal was based be considered by the board and it also filed a further set of claims as a 2nd auxiliary request.
- IV. In a Communication pursuant to Article 11(1) RPBA accompanying a summons to oral proceedings the board in a preliminary opinion concurred with the reasoning in the decision under appeal that the subject-matter of claim 1 of all requests appeared to lack inventive step.
- V. In a subsequent letter of 29 September 2009 the appellant withdrew its main request and asked that the

first auxiliary request be treated as its main request and that the 2nd auxiliary request be treated as its 1st auxiliary request.

VI. Oral proceedings took place on 29 October 2009. At the oral proceedings 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 as auxiliary request on 13 November 2006 or of the auxiliary request filed as 2nd auxiliary request on 27 April 2007. The board gave its decision at the end of the oral proceedings.

VII. The wording of claim 1 of the main request reads as follows:

"A communication navigation system that includes a terminal apparatus (T) for receiving navigation information sent from a server apparatus (SV) while moving with a mobile body and the server apparatus for sending the navigation information to the terminal apparatus, and performs navigation of the mobile body while exchanging the navigation information between the server apparatus and the terminal apparatus,

wherein the navigation information comprises a plurality of pieces of block data and each piece of the block data has identification information indicating discrimination from the other pieces of block data, and the communication navigation system comprises:

a detecting device (15) for detecting whether or not exchange of the navigation information is suspended;

an extracting device (112) for extracting block data for which exchange of navigation data is uncompleted when it is detected that exchange of the

navigation information is suspended; and
a resuming device (113) for resuming exchange of the navigation information from exchange of the extracted block data, and
characterized in that
the identification information comprises header information and information to an effect that transmission of each block data has ended, wherein the extracting device determines whether or not reception of each block data is completed on the basis of the identification information and the resuming device resumes exchange only of incomplete block data extracted by the extracting device".

The main request included further independent claims 6, 8, 10, 12, 14 and 16 and dependent claims 2 to 5, 7, 9, 11, 13, 15 and 17, which are not reproduced here since they are not relevant for the purpose of the present decision.

Claim 1 of the auxiliary request is identical to claim 1 of the main request with the following appended features at the end of the claim:

"(...and the resuming device resumes exchange only of incomplete block data extracted by the extracting device), wherein the navigation information comprises the map data, and divided block data has a hierarchical structure for each display element to be displayed in a map".

This request also included further independent and dependent claims which are not reproduced here since

they are not relevant for the purpose of the present decision.

VIII. The arguments of the appellant may be summarised as follows.

The present invention is concerned with how a failure in transmission in a communication navigation system is addressed. Document D1/D1e discloses a navigation system which partly improves the problem of transmission efficiency in that, when it is identified that one incomplete data block has been received, that block and all data sent after that block is requested to be retransmitted. A significant amount of data could be transmitted after the incomplete block is identified, even if this later transmitted data was complete when transmitted, it is retransmitted. In contrast, the present invention identifies specific blocks which have not been completely transmitted and arranges for retransmission only of the blocks which have been incompletely transmitted. Completely transmitted blocks which have been transmitted between incomplete blocks are not retransmitted. The process by which this is achieved is detailed inter alia on page 28 of the specification as filed. In the presently claimed invention, the identification information comprises header information and information to an effect that transmission of each block data has ended. Thus, both the identity of the block and the state of its transmission are recorded. The extracting device determines whether or not reception of each block of data is completed on the basis of the identification information of the block as well as the state of its transmission, so that the extracting device extracts

block data only for which exchange of navigation data is incomplete. Since the device determines whether or not the receipt of each block of data is completed and specifically identifies the block using the identification information, it is possible to resume exchange of the navigation information from exchange of the incomplete block data only, i.e. without exchanging blocks of data which have already been successfully and completely transmitted. This arrangement provides for much increased efficiency in data transmission, including a significant reduction in the resending of data already successfully transmitted and received.

For its arguments that the claimed subject-matter would be obvious, the examining division had made reference to document D3, however acknowledging that this document deals only with the general principle of tagging ending information in the tail field of a data block such that the end of the block can be recognised when the complete block is received. D3 does not address how to deal with a detected failure in transmission. Accordingly it relates to a different technical field and is not relevant in considering the patentability of the invention claimed in the present application. Further, in D3, the concept of block data as contemplated in the present invention is not proposed. D3 discloses that a packet of data includes a header and a cyclic redundancy check (CRC). The CRC code does not comprise "information to an effect that transmission of each block data has ended". A CRC is computed and appended before transmission or storage and is verified after transmission or storage to confirm that no changes have occurred. A CRC code is used to detect errors within a data packet and not to

confirm the end of a data packet. In contrast to the present invention D3 does not disclose the inclusion of information to the effect that transmission of each block has ended. D3 describes a wireless interface level, it does not disclose, teach, or suggest how the system treats received data comprised of radio data link packets or network layer packets. For example, in the presently claimed invention, a plurality of network layer packets may comprise data corresponding to the "block". D3 does not disclose, teach, or suggest how the system performs if an error occurs for data corresponding to the "block". The examining division's suggestion that the problem to be solved is "establishing a communications protocol" and that D3 is admissible as relevant prior art in this field is traversed: the problem to be addressed is one of providing a rapid correction of an error in communicating the route guidance provided by the navigation system. D3 does not fall within the relevant technical field and does not provide a solution to this problem, the teaching of D3 is not sufficient in combination with D1 to provide a navigation system with the error correction capability of the presently claimed invention.

The independent claims of the auxiliary request include the additional feature "wherein the navigation information comprises the map data, and divided block data has a hierarchical structure for each display element to be displayed in a map". This additional feature is based on the disclosure in line 19 on page 21 to line 24 on page 22 of the description as originally filed. In this respect, the term "block" in document D1 relates to an individual unit into which

the path information is divided for each geographic area, see paragraph [0037]. Furthermore, according to D1, see paragraph [0041] that system displays the path information after receiving all the blocks (M pieces of blocks) and storing them in the interior RAM. Consequently, the system of D1 divides the path information into M pieces of blocks for each geographical unit, and sends each block to a vehicle. Further, it receives all blocks in the vehicle, and stores them in the interior RAM. Finally, it displays the path information. In paragraph [0048] of D1, it is clearly described that if a receiving block is broken off, there is a re-transmission of all the remaining blocks from the block which has been broken off. It will be appreciated that if the route information is long and complex and it is necessary to re-transmit all the remaining blocks from an early stage in the route, the delay in correcting a communications error can be prohibitively long and the user of the navigation system is left without correct route information for an impractical time interval. Consequently, the system of D1 cannot be relied upon not to cause confusion and disorientation for a driver who is driving a vehicle in accordance with the route guidance provided by the navigation system.

On the other hand, in the present invention, the "block data" in the context of claim 1 has a different meaning to "block" as described in D1. As clearly described in line 19 on page 21 to line 24 on page 22 of the specification as filed, the map data M is divided into a plurality of layers L and is configured in a hierarchical structure. Each layer is divided into a plurality of blocks B. Each block B is further divided

into a plurality of objects O. In the map data M, one object O indicates one road, one building and the like, and these are arranged into blocks for each identical classification. For example, in the case of roads, a national road block, a main local road block and the like are the blocks B. These blocks B are arranged into layers for each identical drawing. For example, layers of the highest rank of concept such as a road layer and a building layer are the layer L. In other words, the present invention has a feature that a layer is treated as the dominant conception, while a block and object are treated as subordinate conceptions. This feature is not disclosed, taught, or suggested in documents D1 or D3. Since, as explained, the present invention has the above-mentioned hierarchal structure, a navigation apparatus in accordance with the claimed invention can display a map when receiving the divided block data. This feature is clearly described in lines 1 to 6 on page 5 and in lines 4 to 11 on page 23 of the description as filed. Therefore the present invention is both novel and inventive over D1 and D3 whether alone or in combination.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
 - 2.1 *Amendments*
 - 2.1.1 The features of the preamble of claim 1 of the main request correspond to those of claim 1 as originally

filed. With respect to the features of the characterising portion, the first part ("the identification information ...has ended") had been added with the letter of 4 October 2004, according to which the basis for this amendment was to be found on page 27, lines 7 and 8 of the original disclosure. The further features ("wherein the extracting device ...extracting device") were filed with the letter of 10 November 2006 as part of the then-filed auxiliary request and should have their basis on page 28, lines 6 to 15 of the application documents.

2.1.2 Concerning the second feature the examining division had considered in points 10 and 11 of the decision under appeal that in order to comply with the requirements of Art. 123(2) EPC it was necessary to analyse whether this amendment was disclosed in the application as filed. According to the examining division, the key issue of this amendment was the question of which blocks are resent when the communication is reactivated after a suspension that has caused data blocks to be incompletely received. In particular it was necessary to determine what should be understood by the expression "resumes exchange only (emphasis by the board) of incomplete block data extracted by the extracting device" since this expression as such was not literally found in the originally filed patent application. In the opinion of the examining division the features of the communication navigation system defined in claim 1 referred to the case where exchange of information was suspended and later resumed, i.e. started again. In particular the claim defined a resuming device with the property "for resuming exchange of the navigation

information from exchange of the extracted block data". The examining division concluded that this clearly implied that the transmission of block data was started from the block which was extracted as incomplete and that the transmission proceeded onwards starting from this block. Furthermore, by having recourse to the description (page 3, line 27 onwards; page 6, lines 4 - 6; the embodiment in Figure 8; page 29, lines 26 - 28, and page 26) it immediately followed that the aforementioned feature could only be understood as the resuming device resuming exchange starting from the incomplete data extracted by the extracting device and sending the subsequent blocks, which, since the communication was suspended, had not been received. According to the examining division, on the basis of this understanding, the amendment complied with Art. 123(2) EPC.

- 2.1.3 The board concurs with the examining division that the feature "wherein the extracting device determines whether or not reception of each block data is completed on the basis of the identification information and the resuming device resumes exchange only of incomplete block data extracted by the extracting device" is not directly disclosed in the application documents: it was not defined in any of the original claims, nor does it literally occur in the description. In the letter of 10 November 2006 the applicant (appellant) had made reference to the passage on page 28, lines 6 to 15. According to the appellant, if in a transmission of N blocks of data only one of the blocks was not received, the communication navigation system would request only retransmission of that particular block, which was an important

difference with respect to the closest prior art (D1/D1e).

2.1.4 The board, however, does not find a clear and unambiguous teaching for such measures or algorithm in the original application documents. Rather, the passages referred to in point 11 of the decision under appeal and in particular the embodiment shown in Figure 8 and the corresponding description on page 29, lines 5 to 28 clearly disclose that if blocks A to J should be transmitted and there is a disconnection when block F is being sent, all subsequent data blocks F to J will be retransmitted after reconnection of the communication line (see page 29, lines 23 to 28). Similarly the flow chart in Figure 9 shows that, if the transceiver 15 in the terminal unit detects disconnection of the communication line at the time of reception of data (step S21), the reception management portion 113 within the terminal unit will send a retransmission request to the server. Only after having received such a request (step S25) will the server be able to reconnect the communication line (step S26) and the *"retransmission of the block data is started from uncompleted block data based on identification information of the block data. Therefore, if the communication line is disconnected during transmission of navigation data, only uncompleted block data can be resent when transmission of navigation data is not completed"* (page 31, lines 24 to 28). Obviously, this corresponds to the diagram shown in Figure 8, where "only the uncompleted block data", i.e. blocks F to J, are resent.

2.1.5 It is therefore concluded that the only basis of disclosure in the original application documents for the amendments in the characterising portion of claim 1 is in the context of the embodiments in Figures 8 and 9. Hence, in the discussion of the patentability of the claimed subject-matter claim 1 must be interpreted in the above sense, i.e. that after disconnection and reconnection the resuming device resends the data of the uncompleted blocks and the subsequent blocks.

2.1.6 In other words, the use of the adverb "only" in the claim merely indicates that those block data which have already been transmitted before any interruption will not be sent again, as is actually disclosed in the application documents as originally filed, in compliance with the requirements of Art. 123(2) EPC.

2.2 *Novelty*

2.2.1 With its letter of 4 October 2004 the applicant had filed an amended claim 1 the preamble of which reflected the features known from document D1/D1e. Present claim 1 includes the same features. During the oral proceedings of 29 October 2009 the appellant confirmed that the preamble of this claim was based on this document.

2.2.2 Indeed document D1/D1e discloses in the embodiment addressed in paragraphs [0045] to [0060] and Figures 6 to 9 a communication navigation system comprising a terminal apparatus ("navigation apparatus" 1, see Figure 6) for receiving navigation information sent from a server apparatus ("base station" 2, see Figure 7) while moving with a mobile body and the server

apparatus for sending the navigation information to the terminal apparatus, and which performs navigation of the mobile body while exchanging the navigation information between the server apparatus and the terminal apparatus. The navigation information comprises a plurality of pieces of block data (paragraphs [0052] and [0054]) and each piece of the block data has identification information indicating discrimination from the other pieces of block data ("block names" stored in the transmitting block storage part 35 and in the receiving block storage part 33). The communication navigation system further comprises a detecting device ("communications department" 5) for detecting whether or not exchange of the navigation information is suspended and an extracting device ("receiving block storage part" 33) for extracting block data for which exchange of navigation data is uncompleted when it is detected that exchange of the navigation information is suspended; and a resuming device for resuming exchange of the navigation information from exchange of the extracted block data (paragraph [0060]).

- 2.2.3 Furthermore, this paragraph [0060] discloses that since the identification information (block names) are memorised in the extracting device (receiving block storage section 33) the navigation device 1 is able to determine whether the blocks are completely transmitted on the basis of the identification information (block names), whereupon after disconnection and reconnection the resuming device resends the data of the uncompleted blocks and the subsequent blocks. Therefore the second feature of the characterising portion of claim 1 is equally known from document D1/D1e.

2.2.4 It is concluded that the subject-matter of claim 1 differs from the prior art communication navigation system of D1/D1e in that, in the first feature of the characterising portion of claim 1, the identification information comprises header information and information to an effect that transmission of each block has ended.

2.2.5 Since document D1/D1e is the closest prior art document and the other documents of the proceedings are not more relevant, the subject-matter of claim 1 is new.

2.3 *Inventive step*

2.3.1 According to the examining division (see point 9 of the reasons of the decision) the problem to be solved by the new features is how to incorporate the information needed to permit the communication protocol as intended. This problem and its solution were known in the field of data links for wireless systems, for which the division made reference to document D3.

2.3.2 In contrast the appellant sees the problem as "one of providing a rapid correction of an error in communicating the route guidance by the navigation system" and has argued that document D3 does not fall within the relevant technical field.

2.3.3 The board finds that the technical problem is not so much a problem in the field of navigation as such, but is rather related to the question of reliable wireless transmission and receipt of the data and their acknowledgement, therefore the problem and its solution

must be sought in the field of telecommunications. Should the skilled person in the field of navigation systems not be familiar with this issue, he would as a matter of course ask assistance of a technical engineer in the field of telecommunications, in particular wireless telecommunications. The engineer in this technical field would recognize that document D3 teaches the dividing of the information in packets which carry a header and trailer. By this way it is only necessary in the event of an error to retransmit the missed data packet, see column 5, lines 46 to 49 and column 6, lines 46 to 53. The skilled person in the field of navigation systems would therefore apply this idea in an analogous way to the system in D1, where the data are transmitted in data block format. Thereby, in adding appropriate control information, e.g. header and trailer (D3, column 6, lines 48 and 49), it would only be necessary to retransmit the data blocks of which the respective terminal recognized that they had not been properly transmitted. Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step.

2.3.4 The appellant has also objected that in document D3 the concept of block data as contemplated in the invention was not proposed and that the particular teaching in D3 is that the packet of data includes a header and a cyclic redundancy check (CRC) which did not comprise the feature "information to an effect that transmission of each block has ended".

2.3.5 The board does not concur with this position: claim 1 requires that the navigation information comprises a "plurality of block data" wherein each piece of block

data has "identification information indicating discrimination from the other pieces of block data". As set out in point 2.2.2 supra, exactly this type of block data is transmitted in the navigation system of document D1/D1e. It is irrelevant whether document D3 discloses the same type of data blocks, since the only additional information the skilled person needs to retrieve from that document is that it is advantageous to append to each block an appropriate control information, e.g. header and trailer (column 6, line 49 of D3). Furthermore, the board understands the teaching of D3 as not being restricted to the application of a particular control information such as a CRC, but rather as providing the general idea to add control information to the data blocks which ensures that each "block" or "data packet" is completely transmitted or else will be retransmitted. This will equally apply to the situation where an error occurs within the transmission of a data packet as to the situation where the transmission is interrupted before the end of the data packet. Therefore, in applying this teaching from document D3 to the transmission of the data blocks in the navigation system of D1/D1e, the skilled person would arrive at the subject-matter of claim 1 without an inventive step being involved (Art. 52(1) and 56 EPC).

3. *Auxiliary request*

3.1 *Amendments*

Claim 1 of this request includes the additional feature "*wherein the navigation information comprises the map data, and divided block data has a hierarchical*

structure for each display element to be displayed in a map". According to the appellant, the basis for this feature is to be found on page 21, line 19 to page 22, line 24 of the original description. It is noted that this part of the description discusses the data structure shown in Figures 5A and 5B. Although the expression "the map data" does not have an explicit antecedent in the claim it is understood that the transmission of "map data" is inherent to any communication navigation system having terminals receiving navigation information from a server apparatus, such as the one in D1/D1e, therefore the added expression does not appear objectionable for formal reasons (Art. 123(2) and 84 EPC).

3.2 *Patentability*

However, since this sub-feature "wherein the navigation information comprises the map data" is also an implicit feature of the navigation system disclosed in D1 it cannot contribute to inventive step. Furthermore it appears that the sub-feature that the "*block has a hierarchical structure*" is a question of definition, how much information should be included in one block, in the same way as dividing information in directories or subdirectories. In particular it has not been shown in the patent application as filed that this feature contributes to solving the technical problem of establishing a communication protocol and, in any case, also in the system of D3 the data are divided in multiple payloads. Therefore the board considers that this additional feature does not contribute to inventive step either.

4. Since the subject-matter of the independent claim 1 of either request do not involve an inventive step, the appeal is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Kiehl

A. G. Klein