Datasheet for the decision
of 9 July 2009

Case Number: T 0692/07 - 3.4.02
Application Number: 01121614.0
Publication Number: 1160543
IPC: G01C 21/20
Language of the proceedings: EN
Title of invention: Electronic navigation system and method
Applicant: Navteq North America, LLC
Opponent:

Headword:

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):

Keyword:

Decisions cited:

Catchword:
Case Number: T 0692/07 - 3.4.02

DECISION
of the Technical Board of Appeal 3.4.02
of 9 July 2009

Appellant: Navteq North America, LLC
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 14 December 2006
refusing European application No. 01121614.0
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. This is an appeal against the decision, dispatched on 14 December 2006, of the examining division refusing European patent application No. 01121614.0 (published as EP-A-1 160 543) on the ground that the subject-matter of the independent claims of the main and first auxiliary requests was not new, that the subject-matter of the second auxiliary request did not involve an inventive step; and that the third auxiliary request did not meet the requirements of Articles 84 and 123(2) EPC.

The following documents cited in the European Search Report are referred to in the present Decision:

II. Against this decision the applicant (appellant) lodged an appeal which was received on 15 February 2007 and paid the fee for the appeal on the same day. With the statement setting out the grounds of appeal filed on 5 April 2007 the appellant filed new claims according to a main and first to third auxiliary requests. The appellant requested that the decision under appeal be set aside and the claims according to the main request be allowed or, alternatively, oral proceedings.
III. In a communication pursuant to Article 15(1) RPBA, dated 12 March 2009 and accompanying the summons to oral proceedings on 9 July 2009, the board expressed its doubts that the claims according to the main request disclosed novel subject-matter and that at the oral proceedings the issue of inventive step would be addressed starting from documents D3 or D4 which disclosed navigation systems based on similar principles as that in the patent application.

IV. At the oral proceedings the appellant filed a new main request and requested that a patent be granted on the basis of this request.

V. The wording of independent claim 1 of this request reads as follows:

"A method of efficiently transmitting routing directions, comprising the steps of:
(a) a base unit:
   (i) receiving a request for a routing direction from a remote unit (16, 18, 20), the request providing an origin and a destination for the routing direction;
   (ii) generating (114) the routing direction for a user in accordance with the received request; and
   (iii) expressing (116) the routing direction in at least one of a plurality of tokenized forms, each of said plurality of tokenized forms representing a predefined routing direction in a language-independent compact form;
(b) electromagnetically transmitting (118) said at least one of said plurality of tokenized forms to said remote unit; and
(c) said remote unit:
(i) receiving said at least one of said plurality of tokenized forms; and
(ii) expanding said at least one of said plurality of tokenized forms into a textual driving instruction for display or annunciation to a user at said remote unit, the step of expanding comprising applying a set of language translation instructions for a particular language specified by the user, the language translation instructions being stored at the remote unit;
wherein each tokenized form represents a predefined routing direction in a language-independent form comprising routing data and a token type, the token type indicating corresponding expanded text stored at the remote unit and into which the routing data is inserted according to the language translation instructions to form the textual driving instructions for display or annunciation to the user ".

The wording of claim 4 of this request reads as follows:

"A system for generating and transmitting routing directions efficiently, comprising:
(a) a base unit (12) which
   (i) receives a request for a routing direction from a remote unit (16, 18, 20), the request providing an origin and a destination for the routing direction;
   (ii) generates (114) the routing direction for a user in accordance with the received request, and
   (iii) expresses (116) the routing direction in at least one of a plurality of tokenized forms, each of said plurality of tokenized forms representing a pre-defined routing direction in a language-independent compact form;"
(b) a communications link to electromagnetically transmit (118) said at least one of said plurality of tokenized forms; and
(c) said remote unit which
   (i) receives said at least one of said plurality of tokenized forms from the communications link, and
   (ii) expands said at least one of said plurality of tokenized forms into a textual driving instruction for communication to a user at said remote unit wherein the remote unit expands a tokenized form by applying a set of language translation instructions for a particular language specified by the user, the language translation instructions being stored at the remote unit;

   wherein each tokenized form represents a predefined routing direction in a language-independent form comprising routing data and a token type, the token type indicating corresponding expanded text stored at the remote unit and into which the routing data is inserted according to the language translation instructions to form the textual driving instructions for communication to the user ".

Claims 2, 3 and 5 to 8 are dependent claims.

VI. In support of its request the appellant submitted the following arguments:

Independent claims 1 and 4 of the new request basically correspond to those of the third auxiliary request of the decision, except that the term "routing data" replaces the former term "text data" against which the examining division had raised objections under Article 84 and 123(2) EPC. The term "routing data"
includes names of roads and places, as well as distance data, furthermore the data in tokenized form, other than the token type, is data to be inserted into the expanded tokenized form for a routing direction presented to the user. Hence this data must be routing data. In fact the skilled person would directly and unambiguously derive from the patent application that the routing data transmitted as part of the tokenized form could be any data that is intended to be inserted into an expanded text, therefore there is a fair basis in the originally filed patent application for the term "routing data".

The basis for the feature "...step of expanding comprising applying a set of language translation instructions for a particular language specified by the user, the language translation instructions being stored at the remote unit" can be found at page 41, line 21 to page 42, line 11 of the original description. Furthermore the tokenized forms are said to represent a pre-defined routing direction in a "language-independent" form. Basis for this can be found at page 40, lines 21 and 26-28 and at page 42, lines 14-16. Finally the tokenized form is also said to comprise "routing data and a token type, the token type indicating corresponding expanded text stored at the remote unit and into which the routing data is inserted according to the language translation instructions to form the textual driving instructions for display to the user". Basis for this can be found at page 40, line 35 to page 42, line 29; and figure 40. Independent system claim 4 has been amended analogously. Hence it is believed that the objection raised by the examining
The present invention relates to the generation of routing directions for an individual user. The generated routing directions are transmitted from a base unit to the user's remote unit as one or more tokenized forms. The tokenized forms received at the remote unit are then expanded into driving instructions that are provided to the user. In this way, the routing directions can be transmitted to the remote unit in a compact form that is also language independent. Document D1, which in the opinion of the examining division anticipated the subject-matter of the previous independent claims, relates to a roadside billboard advertising system that broadcasts predetermined information on a regular basis regardless of whether or not there is a user nearby capable of receiving them and regardless of whether those message signals have been requested. It does not relate to the generation of routing instructions for an individual user and it specifies precisely the form in which messages are sent from a road-side transmitter to an in-vehicle receiver. The receiver has a replaceable database. The message sent from the road-side transmitter is an index (address) into the database. This index identifies a record stored in the database, the record having the complete information that is to be presented to the driver. It contains no routing direction information and cannot therefore be the same as a tokenized form of a routing direction. Hence, it does not anticipate the subject-matter of the independent claims.
Document D3 discloses a system for providing a user with a shortest elapsed time route between various origin-destination combinations (page 1, lines 8-11). This system makes use of sensors positioned along all possible route segments that detect the rate of travel along the corresponding route segments. This information is supplied back to a central computer (page 10, lines 8-30). A user in a vehicle and the central computer may communicate with each other (page 12, lines 6-9). This is performed by mobile telephone communication (page 12, lines 15-24). The user requests the central computer to provide a shortest elapsed route for a given origin-destination combination (page 13, lines 22-26). The central computer then uses the information it has received from its sensors to determine the requested route, and communicates this route to the user (page 13, lines 22-31). Document D3, however, is completely silent about the form of the messages that are sent from its central processor to the user, other than that the messages may be transmissions of audio (e.g. a telephone call), facsimile or video and does not relate to the concept of tokenization.

With respect to the further documents, document D2 relates to digitised map bases wherein the problem of the size of stored text directions can be overcome by tokenising whole phrases and other compression techniques. Document D4 discloses a navigation apparatus comprising a central unit and remote users. These documents do not teach expressing a routing direction in tokenized forms, its transmission and expansion at the remote unit into textual driving instructions for each of one or more languages as
defined in the independent claims. Therefore the subject-matter of these claims is novel.

For the issue of inventive step it is observed that document D3 is directed to the same general purpose and effect as the independent claims, namely generating and providing routing directions to a user based on a user-specified origin and destination. In contrast, as discussed before, D1 is concerned with a roadside billboard advertising system. That document does not disclose or suggest the possibility of generating routing directions for a user based on user-specified origins and destinations. Hence, D3 is the closest prior art for the independent claims 1 (method) and 4 (system). The subject-matter of these claims is distinguished from the disclosure in D3 at least by the features (a(iii)), (b) and (c(i) and (ii)), which involve the use of tokenized forms. The technical effects produced by using these tokenized forms are that the routing directions can be transmitted more efficiently and in a language-independent format (see page 40, lines 13-28 of the patent application). The objective technical problem is therefore how to adapt D3 to improve the efficiency with which the routing directions are transmitted and to allow this to be done in a language-independent way. The examining division considered the index of D1 to be equivalent to a tokenized form of a routing direction. However, an index is merely a number indicating a record in a database. It contains no routing direction information and cannot therefore be the same as a tokenized form of a routing direction. It is therefore the appellant's belief that D1 does not disclose or suggest a use of the tokenised forms as defined in the independent
claims. In any case, D1 only discloses that predetermined information can be indexed (e.g. predetermined routing directions or store jingles). D1 does not disclose how tokenized forms could be used to represent routing directions for a request based on a specified origin and destination. There is no disclosure in D1 of the information that would have to be stored in the databases used in D1 to cater for such user-requested routing directions, nor how, for example, a complete route would be represented as a transmission to the in-car receiver or how such a complete route would then be expanded to be presented to the user. The skilled person starting at D3 would, therefore, only use D1 for predetermined information and would maintain the point-to-point communication taught by D3 (via mobile telephone calls) for user-requested routing directions. It is concluded that, even if the skilled person would consider combining D1 and D3, he would not arrive at the invention of claims 1 and 4. Hence, these independent claims involve an inventive step over D1 and D3. Since document D2 only mentions the concept of tokenization in the context of local compression techniques of large-scale information and D4 (Abstract) does not suggest tokenization at all, it is believed that the claimed invention of the main request involves an inventive step over the prior art that has been cited.

Reasons for the Decision

1. The appeal is admissible.
2. Amendments

2.1 In its decision the examining division had raised an objection under Article 123(2) EPC against the former expression "text data" and a further objection under Article 84 EPC against the term "token type" in the expression "each tokenized form represents a predefined routing direction in a language-independent form comprising text data and a token type".

2.2 In the present claims the expression "text data" has been replaced by the expression "routing data". In the board's opinion the appellant has convincingly shown that the original application documents offer a proper basis for this term (see point VI supra, first paragraph). Furthermore, the board does not share the examining division's difficulties in understanding the expression "token type", in particular because this term is further specified in the subsequent part of the claims "...the token type indicating corresponding expanded text stored at the remote unit and into which the routing data is inserted according to the language translation instructions to form the textual driving instructions for display or annunciation to the user".

2.3 The further amendments include the adaptation of the wording of the dependent claims to the independent claims and an acknowledgement of the prior art in the description, as to which the board has no reservations. Therefore the present request meets the formal requirements of the EPC.
3. **Patentability**

3.1 **Novelty**

3.1.1 According to the examining division, document D1 anticipated the subject-matter of the claims of the former main and first auxiliary requests. This document discloses an electronic billboard positioned along highways with a microprocessor producing pre-recorded messages and using roadside transmitters sending these messages to receivers. The board concurs with the appellant that this document does not relate to the generation of routing instructions for an individual user, and in particular does not include a base unit receiving a request for a routing direction from a remote unit, because the system of D1 is a one-way communication system based on broadcasting. With respect to the passage in col. 13, line 51 to col. 14, line 26 referred to by the examining division, which would disclose that "the driver requests one of the offered services and receives upon this request the routing direction" (item 4.1 of the decision) it is noted that this "request" from the driver is not a request sent to and received by the base unit: rather it is the driver who selects the information of interest already present in its own remote unit, therefore this is a "request" by the user to the remote unit. Hence, the disclosure in this document does not anticipate the subject-matter of the independent claims.

3.1.2 With respect to the further cited documents, documents D3 and D4 disclose routing systems of the same generic type as the one in the present patent application, i.e.
involving a remote user station requesting routing information from a central base unit.

Document D3 in particular discloses that the user communicates its present position ("origin") and the desired destination to the central processor unit by dialling by telephone. The central processor unit receives this information, it furthermore receives traffic data of the actual traffic situation sent by sensors placed along the highways and calculates and communicates the shortest elapsed time route information to the user.

Document D4 (Abstract) is a further example of a prior art navigation system comprising a central unit and a remote user. The remote user inputs the data of its present position and target destination which is transmitted to the central unit. The central unit retrieves routing data and target data on the basis of the transmitted data and feeds them back to the remote user.

Neither of these citations discloses the details of the transmission of routing directions in a tokenized, language-independent form as set out in claims 1 and 4.

3.1.3 Document D2 discusses problems relating to large-scale digitised maps and the possibilities of using text-based routing systems and suggests that tokenization of whole phrases and other compression techniques may be advantageous in reducing the amount of material stored in local data bases (page 47, 1hc, 2nd paragraph). The document does not address the transmission of routing directions.
3.1.4 Therefore the subject-matter of claims 1 and 4 of the present request is novel (Art. 52(1) and 54 EPC).

3.2 Inventive step

3.2.1 Closest prior art

From the assessment in point 3.1.1 supra, it may be appreciated that, in the opinion of the board, document D1 does not disclose a proper closest prior art document for discussing inventive step, since it does not relate to a system for generating and transmitting routing directions of the generic type of the present patent application which system involves a remote unit directing queries to a base unit which in turn sends the requested routing information. Having regard to the available prior art documents D1 – D4, it would appear that documents D3 or D4 would offer a more appropriate starting point for the discussion of inventive step, since both these documents disclose routing systems of the same generic type as the one in the present patent application, i.e. involving a remote user station requesting routing information from a central base unit.

3.2.2 The subject-matter of the present independent claims differs from the disclosures in documents D3 and D4 at least in the steps of expressing, transmitting, receiving and expanding the routing directions/ data in a plurality of tokenized forms, wherein the step of expanding the tokenized forms in addition involves applying a set of language translation instructions for a particular language specified by the user and wherein
the tokenized forms satisfy the further requirements defined in claims 1 and 4, last features.

3.2.3 Objective technical problem

According to the appellant, see point 5.17 of the grounds of appeal, the objective technical problem may be seen as "...how to adapt the teaching of D3 to improve the efficiency with which the routing directions are transmitted and to allow this to be done in a language-independent way". The objective problem could therefore be seen in improving the efficient transmission of data in navigation systems in a language-independent way.

3.2.4 Starting from the disclosure in document D3 it is apparent that, while D3 goes into great detail to explain the details of communications from the remote user to the base station, see, e.g., the "exemplary user sequence" disclosed on pages 15 and 16, it gives no details whatsoever for the re-transmission of the calculated routing from the base station back to the user. Therefore document D3 does not offer any clue to the solution of the above technical problem.

3.2.5 As to the other documents on file, the examining division had, in point 4.1 of its decision, expressed its view that the subject-matter of the former second auxiliary request was obvious from a combination of the teachings of documents D1 and D3, albeit when starting from D1 as the closest prior art. According the division, the feature "expressing the routing direction in at least one of a plurality of tokenized forms, each of said plurality of tokenized forms representing a
predefined routing direction in compact form" was disclosed in col. 8, lines 34 to 41 of D1. This passage discloses that a low powered microwave signal is transmitted consisting of encoded information dictated by pre-programmed instructions and any additional instructions (emergency vehicle interface, central control interface and real-time sensors). However, this information does not relate to "routing direction" data, and in particular not to routing direction information as a result of a very specific, individual query by a remote user: at most the information concerns road direction data from a fixed position (the position of the transmitter along the road) to a subsequent fixed position (e.g., a nearby service station, see Fig. 6 and col. 13, lines 59 - 63).

3.2.6 It appears arguable that a skilled person wishing to improve the efficient transmission of data in the navigation system of document D3 would find anything useful in this particular disclosure, because, unlike the system of document D1, which is restricted to transmitting pre-programmed information in the same way as a classical "billboard" along a highway, for the system of D3 he would be confronted with a rather different task of efficiently transmitting individual data calculated in the base unit on the basis of a request by a remote user which request includes an origin and a destination which are a priori not known to the base unit.

3.2.7 As to the further documents, document D2 only discloses that tokenization can be useful for reducing and compressing the size of stored text directions or other databases. However, this document does not relate to
routing directions or the transmission of such data. Nor would the skilled person find in document D4 any teaching for solving the technical problem improving the efficient transmission of data in a navigation system in a language-independent way.

3.2.8 It is furthermore noted that, additionally to steps of expressing, transmitting and receiving the information in tokenized forms, the independent claims include the step of expanding which comprises applying a set of language translation instructions for a particular language specified by a user. With respect to this feature during the oral proceedings the appellant made reference to the description, page 41, line 21 to page 42, line 29 and developed the argument that this set of language instructions includes and allows a language-specific formatting, for instance the use of singular "sign" or plural "signs" in the English language, depending of whether only a single or a plurality of destinations are to be displayed. A further example would include a conversion of the information from miles to kilometres. Also this feature is not disclosed in any of the documents on the file.

3.2.9 Therefore, in the opinion of the board, the subject-matter of claims 1 (method) and 4 (corresponding system) does not result in an obvious way from any of the documents on the file, considered either alone or in combination, and it therefore involves an inventive step (Art. 52(1) and 56 EPC).

3.2.10 This similarly applies to the further dependent claims.
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 on the basis of:

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

   - pages 1, 2 and 9 to 44 of the description as originally filed,
     page 3 as filed with the letter of 11 July 2006,
     pages 4a and 8 filed with the letter of 17 November 2006; and
     pages 4 and 45 filed during the oral proceedings

   - the drawings sheets 1/20 to 20/20 as originally filed.

The Registrar: The Chairman:

M. Kiehl A. G. Klein