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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:
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Decisions cited:
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Catchword:
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Boards of Appeal

Chambres de recours

Case Number: T 0692/07 - 3.4.02

D E C I S I O N
of the Technical Board of Appeal 3.4.02
of 9 July 2009

Appellant:	Navteq North America, LLC 425 West Randolph Street Chicago, IL 60606 (US)
Representative:	McLeish, Nicholas Alistair Maxwell Boult Wade Tennant Verulam Gardens 70 Gray's Inn Road London WC1X 8BT (GB)
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

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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:
        D1: US-A-5 214 793
        D2: Proceedings of the IEEE - IEE Vehicle Navigation &
             Information Systems Conference, Proceedings of
             VNIS'93, Ottawa, pages 45-48, S. Hoffman et al.:
             "Text-based Routing: An Affordable Way Ahead?"
        D3: WO-A-92 14215
        D4: WO-A-92 21001.

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:

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(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

division in section 5.2 of the decision to refuse the
application has been overcome.

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 Dl, 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 Dl 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 Dl 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 Dl
and D3. Since document D2 only mentions the concept of
tokenization in the context of <u>local</u> 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
        <u>receiving</u> a request for a routing direction from a
        <u>remote unit</u>, because the system of D1 is a <u>one</u>-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 <u>not</u> 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, lhc, 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 <u>pre-programmed</u> 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 <u>individual</u>
        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 <u>set of
         language translation instructions</u> 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
         <u>language-specific</u> 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