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Datasheet for the decision
of 1 July 2010

Case Number:	T 0581/07 - 3.5.01
Application Number:	01976746.6
Publication Number:	1331577
IPC:	G06F 17/30, H04N 7/173, H04N 5/76

Language of the proceedings: EN

Title of invention:
Dynamic image content search information managing apparatus

Applicant:
Sharp Kabushiki Kaisha

Opponent:
-

Headword:
Image content search I / SHARP K.K.

Relevant legal provisions:
EPC Art. 52(1)

Relevant legal provisions (EPC 1973):
EPC Art. 54(1),(2), 56

Keyword:
"Novelty (main request, second auxiliary request): no"
"Inventive step (first auxiliary request): no"

Decisions cited:
-

Catchword:
-

Case Number: T 0581/07 **-** 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 1 July 2010

Appellant:	Sharp Kabushiki Kaisha 22-22, Nagaike-cho Abeno-ku Osaka 545-8522 (JP)
Representative:	Brown, Kenneth Richard R.G.C. Jenkins & Co 26 Caxton Street London SW1H 0RJ (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted 17 November 2006 refusing European patent application No. 01976746.6 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: S. Wibergh
Members: R. R. K. Zimmermann
                   G. Weiss

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Summary of Facts and Submissions

I.   European patent application number 01 976 746.6
        (publication number EP 1331 577) concerns a search
        information managing apparatus for searching for moving
        image contents.

II.   In the course of the examination, the examining
        division cited, among others, the following prior art
        documents:

        D1:   Girardot M. et al: "Efficient representation and
              streaming of XML content over the Internet medium"
              IEEE INTERNATIONAL CONFERENCE ON MULTIMEDIA AND
              EXPO, vol. 1, 30 July 2000, pages 67-70;

        D2:   Grosso P. et al: "XML Fragment Interchange" W3C
              Working Draft, 30 June 1999, pp. 1 to 17 see at
              <http://www.w3.org/1999/06/WD-xml-fragment-
              19990630.html>.

        The examining division refused the application in oral
        proceedings held on 26 October 2006. The decision,
        posted on 17 November 2006, was based for all requests
        on the objections of lack of clarity, added subject
        matter and lack of inventive step in the light of
        document D1 as closest prior art.

III.   The appellant lodged an appeal against the decision on
        29 December 2006, paying the appeal fee on the same day.
        In a letter dated and filed on 22 March 2007 the
        appellant submitted amended sets of claims and a
        statement setting out the grounds of appeal.

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IV.   In a communication pursuant to Rule 100(2) EPC the
        Board gave a negative opinion in particular on novelty
        and inventive step.

V.   On 17 December 2009, the appellant filed an amended
        main request and amended first and second auxiliary
        requests as well as observations in reply to the
        communication. According to the appellant the
        amendments were all clarifying in nature and served to
        better demonstrate the differences between the
        invention and the disclosure of document D1.

VI.   In the oral proceedings that took place jointly with
        cases T 580/07 and T 156/09 on 30 June 2010 and 1 July
        2010, the appellant submitted amended claims as new
        main and second auxiliary requests.

VII.   According to the appellant's requests as confirmed at
        the closure of the oral proceedings, the decision under
        appeal should be set aside and a patent be granted on
        the basis of claim 1 according to the main request
        filed at the oral proceedings or claims 1 to 9
        according to the first auxiliary request filed with
        letter dated 17 December 2009 or claim 1 according to
        the second auxiliary request filed at the oral
        proceedings.

VIII.   Claim 1 of the first auxiliary request reads as follows:
        "1. A search information managing apparatus (1) for
        managing search information (15), the search
        information comprising a tree structure corresponding
        to moving image contents, the apparatus comprising:
            separating means (101) for separating **<1>** and
        extracting a plurality of search information elements

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from said search information, wherein each of the
search information elements is given by a leaf (RF) of
the tree structure, the plurality of search information
elements given by the leaves are elements of the same
type included in said search information, and nodes
directly connected with the leaves are different in the
tree structure;

unit of search information forming means (102, 103,
104) operable to form a unit of search information by
arranging the plurality of search information elements
of the same type extracted by the separating means,
separate from search information elements of any other
type, in accordance with a prescribed format; and

control means (105) operable to apply the unit of
such information to a transmitting processor, a storing
processor, or a processing portion for executing a
search **<2>**."

Insertions <1> and <2> are added to indicate passages
where the requests differ. The passages inserted are as
follows:

In the main request and the second auxiliary request:
1 <the search information into structural search
information representing the structure of the moving
image contents, semantic search information
representing characteristics in semantic context of the
moving image contents, and signal search information
representing physical characteristics of signals of the
moving image contents>.

In the second auxiliary request:
2 <, wherein said prescribed format represents an
arrangement of the plurality of search information

elements extracted by the separating means, in accordance with an order of appearance representing how the leaves corresponding to the search information elements precede/succeed in the tree structure>.

IX.   According to the observations and submissions made by the appellant, the present invention proposed for the first time the novel and inventive concept to handle together, as unit search information, search information elements of the same type from different parts of a tree structure regardless of the time structure of the corresponding moving image contents. By managing search information in this manner, the need to go through and analyse all types of search information elements present was avoided, the computational complexity reduced, and the efficiency of search improved.

The conventional manner of arranging search information was by dividing the search information in accordance with the time structure of the corresponding moving image contents and collecting together the elements succeeding a single parent node. In document D1 there was no clear teaching regarding the structure of multimedia documents and in particular no indication that the example of a structured multimedia document in section 3.2 represented more than a single segment and a single shot. The segment #1 and the shot #1 shown as example were not search information elements corresponding to moving image contents as proposed by the present invention but a piece of data produced as result of a search for the title "Dinner scene".

There was no indication of extracting a plurality of
search information elements of the same type from
remote positions in the tree structure of the original
search information and arranging the elements extracted
to form a unit of search information in a prescribed
format, which could be stored or used for executing a
search. Furthermore, there was no indication to
separate the search information into the three types of
structural, semantic, and signal search information,
nor to arrange the search information elements
extracted in accordance with the structure of the
original tree structure. All these features of the
claimed invention provided a novel and inventive
contribution over the prior art.

Reasons for the Decision

1.   The appeal is admissible. The appeal, however, cannot
        be allowed since on the basis of the requests presented
        the application does not pass scrutiny under the
        patentability requirements.

2.   It is common ground that document D1 is the closest
        prior art and a suitable starting point for assessing
        novelty and inventive step. In the light of this piece
        of prior art, the first auxiliary request does not meet
        the requirement of novelty, Article 54(1) and (2) EPC
        1973, whereas the main request and the second auxiliary
        request do not meet the requirement of inventive step,
        Article 56 EPC 1973.

3.   *First auxiliary request*

3.1   Document D1 discloses a so-called Millau streaming
        system based on a client-server architecture for
        efficient encoding and streaming of structured XML
        documents with text or multimedia data (see e.g. the
        Abstract). As described in section *3.2 The Millau
        browser* at page 68 ff. of document D1 the system
        comprises sender and receiver and provides tools for
        browsing and searching for relevant information in a
        large document containing multimedia data like video or
        audio. An XML structure is added to the multimedia data,
        creating a "structured multimedia document" that can be
        streamed and browsed using tools of the Millau system
        (ibid).

3.2   An "example" of a structured multimedia document of a
        segment titled "Dinner scene" for the movie "Gone with
        the Wind" is given at page 68, right-hand column,
        lines 29-41. The document in XML format has a *tree
        structure* comprising a *root* (MOVIE), a *plurality of
        nodes* (SEGMENT ID = "SEGMENT #1", SHOT ID = "SHOT #1"),
        and a *plurality of leaves* (end nodes TITLE, KEY_FRAME,
        AUDIO and VIDEO). Such a system meets the definition of
        *a search information managing apparatus for managing
        search information, the search information comprising a
        tree structure corresponding to moving image contents*,
        the generic object of claim 1 of all requests.

3.3   The structured multimedia document to which the
        "example" refers can be "streamed and browsed" (D1,
        page 68, right-hand column, line 29 ff.). Therefore,
        the appellant's argument that document D1 did not
        disclose a full tree structure but merely displayed the

search result for the word "dinner", and thus only a
single segment, cannot be accepted by the Board. The
tree structure of the multimedia document is
immediately clear from the purpose and context of the
"example" described in section 3.2 of document D1.

3.4   The remark at page 69, left-hand column, line 25 ff.
       that "[t]he receiver could possibly find another 'diner
       [sic] scene' in the structure" implies that the
       structured multimedia document of the "example"
       includes more than a single segment #1. It would indeed
       be unreasonable to structure a movie like "Gone with
       the Wind" by using a single segment and a single shot.
       The skilled reader would immediately understand from
       the document that the "example" does not reproduce the
       complete XML structure of the multimedia document but a
       typical component of this structure, the complete
       structure comprising the root MOVIE, a sequence of
       child nodes of the type SEGMENT, and for each segment a
       leaf (i.e. an end node) of the type TITLE and a
       sequence of nodes of the type SHOT connected to leaves
       of the types KEY_FRAME, AUDIO, and VIDEO. The full XML
       structure meets the definition of *search information* in
       terms of the second paragraph of claim 1.

3.5   As disclosed in document D1 (see e.g. sections 2.2 and
       3.1 together with page 69, left-hand column, line 10
       ff.) the sender of the Millau streaming system
       comprises a Millau parser that analyses the input
       stream received, for example for special global tokens,
       and outputs a plurality of XML elements transmitted on
       a separate structure stream. Operating on a structured
       multimedia document as illustrated by the "example"
       (see above), the Millau parser processes search

information of moving image contents and outputs the
XML elements, the search information elements
constituting the search information.

3.6   As disclosed in the Abstract and section 2.3, for
        example, the sender of the Millau system can break down
        and reorder an XML document into "fragments". A
        fragment in the context of the XML standard is "a
        general term to refer to part of an XML document, plus
        possibly some extra information, that may be useful to
        use and interchange in the absence of the rest of the
        XML document" (see document D2, section 3 at page 3).
        In the Millau system the fragments consist of parts of
        the original XML document, individual nodes or subtrees,
        which may be "transmitted in some order predecided
        between the client and the server". The structure of
        these partial trees or subtrees and the order of
        transmission are predetermined according to the user's
        preferences or the browser's capabilities so as to
        allow the system to transmit the most important
        information first and to delay or discard the less
        important information.

3.7   The fragmentation of an XML document requires an
        information separating process, namely selecting and
        extracting the XML components representing the most
        important information from the original XML document,
        and the reassembling of the components extracted into a
        unit of search information, forming the pre-specified
        partial trees or subtrees referred to in section 2.3 of
        document D1.

3.8   For the "example" (ibid.), the partial tree resulting
        from such a separating process is illustrated by the

"first level structure stream" shown at page 68, right-hand column, line 44 to page 69, left-hand column, line 3. This partial tree consists of the root MOVIE, i.e. the root of the original tree, the leaf TITLE, i.e. one of the leaves of the original tree structure, and a node SEGMENT connecting the root MOVIE and the leaf TITLE. It is clear from the purpose and context of the example that the full structure of the "first level structure stream" comprises a sequence of segments (for example Segment #1, Segment #2, etc). The leaves of this structure, the TITLE elements, are elements of the same type. The nodes directly connected with these leaves, i.e. the SEGMENT elements Segment #1, Segment #2, etc, are different in the tree structure.

3.9   Therefore, the Millau browser and streaming system configured to stream and browse the "example" of a structured multimedia document in section 3.2 meet the definitions of the *separating means* in the second paragraph and the *unit of search information forming means* in the third paragraph of claim 1.

3.10   Finally, the receiver executes a search ("will look for the word diner ...") and keeps the fragments stored in memory so that the prior art system also meets the definition of control means in the last paragraph of claim 1.

3.11   For these reasons, the subject matter of claim 1 of the first auxiliary request lacks novelty (Article 52(1) EPC and Article 54(1) and (2) EPC 1973).

4.   *Main request*

4.1   The main request does not meet the requirement of
        inventive step. Claim 1 of this request differs from
        claim 1 of the first auxiliary request in the
        additional feature that the search information is
        separated into structural search information, semantic
        search information, and signal search information
        representing physical characteristics of signals of the
        moving image contents. Indeed, document D1 does not
        describe physical characteristics of the signals of the
        moving image contents, whereas in D1 the segment ID and
        the TITLE elements are structural search information
        and semantic search information, respectively, in terms
        of claim 1 of the main request.

4.2   However, the wish to be able to search for physical
        characteristics of signals is of a non-technical
        character. Once this aim has been stated its technical
        implementation, for example by introducing
        corresponding information elements into the XML
        structure of the multimedia document and processing
        such elements in the same way as the structural and
        semantic information elements, is straightforward and
        does not involve an inventive step.

5.   *Second auxiliary request*

5.1   The second auxiliary request does not meet the
        requirement of inventive step either. Claim 1 of this
        request differs from claim 1 of the main request only
        by the feature that the arrangement of search
        information elements is in accordance with the order in

which the search information elements precede/succeed
in the tree structure.

5.2   Since in document D1 the information elements are
        arranged in a "first level structure stream" the
        arrangement is automatically in accordance with the
        appearance of the elements in the original tree
        structure. This additional feature is hence anticipated
        by document D1 and can thus not establish patentability
        of the invention.

6.   In summary, the main request and the second auxiliary
        request do not meet the requirement of inventive step
        (Article 52(1) EPC and Article 56 EPC 1973).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek   S. Wibergh

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