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**Datasheet for the decision
of 1 April 2014**

Case Number: T 2167/12 - 3.4.02

Application Number: 98928497.1

Publication Number: 934546

IPC: G02B27/22

Language of the proceedings: EN

Title of invention:

LENTICULAR SCREEN ADAPTOR

Applicant:

Koninklijke Philips N.V.

Headword:

Relevant legal provisions:

EPÜ Art. 54(2), 56

Keyword:

Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 2167/12 - 3.4.02

D E C I S I O N
of Technical Board of Appeal 3.4.02
of 1 April 2014

Appellant: Koninklijke Philips N.V.
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Representative: Damen, Daniel Martijn
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 28 March 2012
refusing European patent application No.
98928497.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. Klein
Members: H. von Gronau
B. Müller

Summary of Facts and Submissions

- I. This appeal is directed against the decision of the examining division refusing European patent application number 98928497.1. The reasons given for the refusal were essentially that the subject-matter of the independent claims 1 of the main request and the auxiliary request was not new in the light of document D8.
- II. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the main request or the auxiliary request, both filed with a letter of 20 July 2012 (grounds of appeal), or to remit the case to the department of first instance for further prosecution on the basis of the main request.
- III. Oral proceedings were held on 1 April 2014.
- IV. Independent claim 1 according to the main request reads as follows:

"Driver apparatus operable to generate a per-pixel drive signal for output to a pixel display device, said driver apparatus comprising an image data store coupled with display image formatting means, said display image formatting means being operable to extract per-pixel data from the image data store and format said drive signal; characterized in that said driver apparatus is reconfigurable to drive the pixel display device as an N view autostereoscopic display when a lenticular screen is overlaid over a display pixel array comprising an orthogonal array of display device pixels, the display pixel array comprising red, green and blue display device pixels, the number of display

device pixels per lens being a non-integral number, said image data store holding pixel data for N views to be interlaced, and the display image formatting means having an input to receive data identifying the lenticule pitch, the display device pixel pitch, the number of views N, and the lenticular screen position relative to the display device pixels, the lenticular screen position being such that there is an angle of offset between the display device pixel column direction and the principal axis of a screen lenticule, and the display image formatting means further being operable to derive, for each display device pixel, which of the N views it is to carry, the calculation using the data received on the display image formatting means input, and to extract the corresponding image pixel data for that view from the image data store."

V. The following documents cited by the examining division are relevant for the present decision.

D4: WO 94/26072 A

D5: EP 0 744 872 A

D6: S. MEYERS ET AL.: "PHSColograms and ROTATED PHSColograms", COMPUT. & GRAPHICS, vol. 19, no. 4, 1995, pages 513-522

D7: S. LOVE ET AL.: "Computer Generated Lenticular Stereograms", SPIE VOL. 1083, THREE-DIMENSIONAL VISUALIZATION AND DISPLAY TECHNOLOGIES, vol. 1083, 1989, pages 102-107

D8: EP 0 791 847 A

D8a: GB 2 196 166 A

Reasons for the Decision

1. Main request, novelty (Article 54 EPC)
 - 1.1 The present invention relates to the driving of pixel display devices comprising an array of display pixels arranged in rows and columns, and an array of elongate lenticular elements extending parallel to one another overlying the display pixel array and through which the display pixels are viewed.

It is an object of the invention to enable the reconfiguration of existing two-dimensional pixel displays to autostereoscopic displays when a lenticular array is applied (cf. description, page 2, lines 22 to 24). The driver apparatus therefore comprises user data input means, and a formatting stage has an input to receive data supplied by a user specifying parameters of the lenticular array being applied (cf. page 10, lines 28 to 31). This enables the reconfiguration of existing displays for which no specific lenticular array has been constructed to accept a lenticular array and thus provide an autostereoscopic output.
 - 1.2 Document D8 discloses a driver apparatus operable to generate a per-pixel drive signal for output to a pixel display device, said driver apparatus comprising an image data store coupled with display image formatting means, said display image formatting means being operable to extract per-pixel data from the image data store and format said drive signal (cf. column 8, lines 10 to 16); the driver apparatus is configured to drive the pixel display device as an N view autostereoscopic display when a lenticular screen is overlaid over a display pixel array (cf. column 10, lines 1 to 9)

comprising an orthogonal array of display device pixels, the display pixel array comprising red, green and blue display device pixels (cf. column 9, lines 45 to 55), the number of display device pixels per lens being a non-integral number (column 11, lines 5 to 7), said image data store holding pixel data for N views to be interlaced (it is implicit that the different views have to be stored in a memory), the lenticular screen position being such that there is an angle of offset between the display device pixel column direction and the principal axis of a screen lenticule (cf. column 7, lines 45 to 46), and the display image formatting means further being operable to derive, for each display device pixel, which of the N views it is to carry (cf. column 8, lines 10 to 16).

- 1.3 The examining division, in its decision, was of the opinion that document D8 further disclosed a reconfigurable driver apparatus in which the display image formatting means had an input to receive data identifying the lenticule pitch, the display device pixel pitch, the number of views N, and the lenticular screen position relative to the display device pixels; the calculation using the received data. The examining division pointed in particular to column 10, lines 45 to 49, where it was disclosed that, with the same display panel, an 8-view system could be provided instead of a 6-view system by applying different lenticules. The data displayed on each pixel had therefore to be adapted to the new parameters of the lenticule used. The display device of document D8 was therefore reconfigured. The examining division, in column 8, lines 10 to 14, also identified an input to receive data, where it was disclosed that the individually operable display elements were driven by

application of display information in an appropriate manner.

- 1.4 The board does not share the view of the examining division. Independent claim 1 defines a reconfigurable driver apparatus and not a reconfigurable display device. Document D8 discloses the option to apply different lenticules to the same display panel. Document D8 further indicates that the display apparatus and its operation are described in document D8a. Document D8a, for its part, discloses that the display means are used in conjunction with a microprocessor device capable of addressing a pair of screen memory arrays (cf. page 2, lines 82 to 85). In the board's view, it is implicit that a microprocessor also comprises some sort of instruction (software or firmware) memory. However, it cannot be taken unambiguously from document D8a that the microprocessor is reprogrammable. If, in document D8, different lenticules are applied to the display panel, then a new driver apparatus might be configured and connected to the display device. Even assuming that the driver apparatus is reconfigured, it is neither disclosed nor mandatory that the image formatting means of the driver circuit is provided with an input to receive new data. The driver apparatus might be reconfigured by replacing the read only memory (ROM) chip with the data of the lenticules. For a person skilled in the art it might be evident to use a reprogrammable EPROM chip for the data, but for the assessment of lack of novelty it is important that the features are directly and unambiguously derivable from the relevant prior art document. Document D8 in combination with document D8a does not disclose a driver apparatus for the display that can be reconfigured and that has a user input to

- receive data identifying the characteristics of the lenticules.
- 1.5 The subject-matter of independent claim 1 is therefore new in the light of document D8.
 2. Main request, inventive step (Article 56 EPC)
 - 2.1 Document D8 is a European patent application filed on 13 February 1997 by the same applicant as of the present patent application. Document D8 was published on 27 August 1997. Since, contrary to the examining division's conclusion, the disclosure of document D8 is not novelty-destroying for the subject-matter of claim 1, the priority document of the present application (GBA 9715397) is the first application for the invention (cf. Article 87(1) EPC 1973). The right of priority is therefore valid in view of document D8 and document D8 is not prior art according to Article 54(2) EPC. Therefore, document D8 is not relevant for the assessment of inventive step.
 - 2.2 None of the prior art documents on the file including documents D4 to D7 as mentioned by the examining division in an obiter dictum referring to the communication dated 17 October 2007, point 4, discloses or suggests a user-reconfigurable driver apparatus in the sense of the patent application (cf. point 1.1 above).
 - 2.3 The board therefore comes to the conclusion that the subject-matter of claim 1 involves an inventive step in the meaning of Article 56 EPC 1973.
 3. In the light of the foregoing and given the adapted description furnished with the statement of grounds of

appeal, the application documents according to the main request meet the requirements of the EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

Description:

Pages 1 to 11 of the main request filed with a letter of 20 July 2012.

Claims:

No. 1 to 4 of the main request filed with a letter of 20 July 2012.

Drawings:

Sheets 1/2 and 2/2 of the application as published under the PCT.

The Registrar:

The Chairman:



M. Kiehl

A. Klein

Decision electronically authenticated