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(54) **APPARATUS, SYSTEM, AND METHOD FOR MITIGATING MOTION-TO-PHOTON LATENCY IN HEAD-MOUNTED DISPLAYS**

(57) A special-purpose hardware device for mitigating motion-to-photon latency in head-mounted displays may include an image signal processor that receives at least one image frame (402) captured by a camera device of a head-mounted-display system. The special-purpose hardware device may also include an input-formatting component that receives the computer-generated imagery. (404) The special-purpose hardware device may further include a blending component (106) that gener-

ates at least one mixed-reality frame by overlaying the computer-generated imagery onto the image frame. The special-purpose hardware device may additionally include a frame-output interface that feeds the mixed-reality frame generated by the blending component to a display device (318) of the head-mounted-display system to facilitate displaying the mixed-reality frame for presentation to a user wearing the head-mounted-display system.

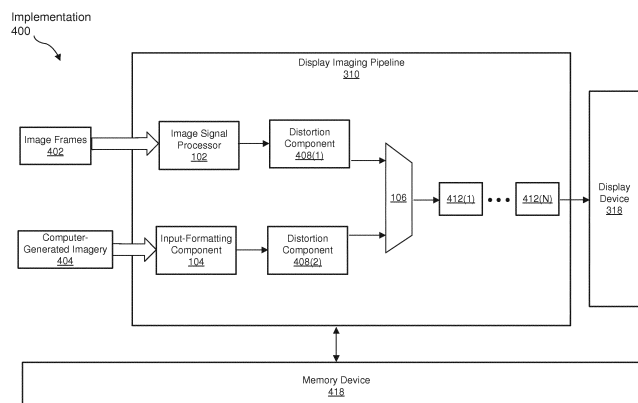


FIG. 4



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Y	* paragraphs [0084], [0126], [0138]; figures 4,15,16 *	3,4,7,10	G09G5/397 G06T19/00 G09G5/12
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		20 November 2019	Pichon, Jean-Michel
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search The Hague		Date of completion of the search 20 November 2019	Examiner Pichon, Jean-Michel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 7, 8, 10, 13

an hardware accelerated device that corrects a chromatic aberration as the mixed reality frame traverses toward the display device

2. claims: 5, 6, 11, 12

an asynchronous time warping or a modification based on user-motion data

3. claim: 9

a clock generator

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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