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Analysis of ViewFinder and Viewfinder Systems for Virtual Scenes

Zhizhong Ren

Beijing Tiantu Wanjing Technology Co., Beijing, China

tulaguer@foxmail.com

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Abstract: This thesis is based on a viewfinder for virtual scenes and a viewfinder system focused on research and analysis, which actually belongs to the field of film technology, this viewfinder contains a positioning module, which is focused on the use of passive position change information accurately obtained; displacement module is focused on the use of response to external input, i.e. to allow active position change information to be generated, steering module is mainly a response to external input to allow The communication module confirms the active and passive position change information, i.e. clarifies the change information of at least one object before the determined virtual scene image is accepted and displayed, the main purpose of the shooting position module is to respond to external operations and to document the shooting information comprehensively, in addition, the communication module can also send the shooting position information comprehensively, this virtual The viewfinder and viewfinder system of the virtual scene are fully capable of allowing the director to view the virtual scene during the operation.

1. Preamble

For the viewfinder of the present invention, it has numerous features, in particular a positioning module, an orientation module, a communication module and a displacement module and a steering module, etc. The positioning module focuses on the role of the acquisition of passive position change information; the positioning module serves to respond to external input, i.e. to allow active position change information to be generated; the orientation module is the acquisition of passive direction change information, the special module is mainly the response to external response to input, whereby the active direction change information is allowed to be generated, and the communication module is focused for use in the acquisition of at least one of both passive position change information and active position change information, and the image of the virtual scene for at least one of the explicit change information is explicit. The image of the virtual scene is determined by means of the display module, the response to the external operation is dependent on the shooting position module, whereby the shooting position information is recorded in one piece, and the sending of said shooting position information can also be done by means of the communication module. In the analysis of the claims, the viewfinder of the virtual scene contains a parameter adjustment module which, in essence, focuses on the response to external inputs in order to obtain the parameter change information, while the communication module still uses the sending of the parameter change information, the purpose of

which is to fully determine the virtual scene image with respect to the parameter change information obtained. When the parameter change information is received by the processor, both the active position change information and the active orientation change information are recorded, and either the viewfinder dropout information or the shooting position information is confirmed, so that the current frame of the The entire image information of the current frame is recorded.

2. Analysis of the content and status of the technical invention

The aim of the case implemented in this invention is to supply a viewfinder and viewfinder system for virtual scenes, which allows the director to complete the main work of framing the virtual scene, in order to achieve the above aim, this invention also requires a viewfinder for virtual scenes to be put in place according to the actual case, which contains several modules as shown in the summary above, and of course The parameter adjustment module is also included in the viewfinder, external inputs are responded to in the parameter adjustment module, which ultimately allows the parameter change information to be generated, the communication module can be used entirely in sending said parameter change information, which ultimately allows the image of the virtual scene to be determined based on the parameter change information; the active level change information and the active height change information are both included in the active position change information, the active level change information and the The active level change information and active height change information are included in the active position change information, and neither the active level change information nor the active height change information causes any problems with the actual spatial impact, it is completely possible to span any range of the virtual scene. The recording module is also included in the viewfinder and its purpose is to change the information between the starting and ending frames of said viewfinder; the display module receives the compressed image of the virtual scene in its entirety and is able to restore the compressed image of the virtual scene to a basic image that meets the display requirements in accordance with the rules of compression of the virtual scene image. The role of the processor is to receive the parameter change information in full and to determine the virtual scene image to be sent out based on the parameter change information, and to compress all the virtual scene images of the rendering engine into a better and more realistic virtual scene image based on the virtual scene image compression rules. The image information of the current frame is available. By means of the above technical standard aspects, the invention is represented by a viewfinder and viewfinder system for virtual scenes, and most importantly by several of the key modules mentioned above, any one of which has a correspondingly varied effect.

3. Key areas of detail

This chapter needs to be realistic when analysing the minutiae of the problem, i.e. the detailed implementation method should be determined on the basis of a clear picture, before it can be explained in detail. The schematic diagram is relatively complete, and this viewfinder contains a positioning module, a communication module and a displacement module, etc., in which the passive position change information is presented by the positioning module 1, the response to external input is presented by the displacement module 6, and based on this module the active position change information can be generated comprehensively; the orientation module 2 can be used in the process of obtaining the passive direction change information, in response to the external input The orientation module 7 can be used in the process of obtaining passive direction change information, in response to external input, and the communication module 3 can be used in the process of sending out the currently described passive position change information and active position change information, etc. The display module 5 focuses on determining the image of the virtual scene, while the recording information of the shooting position is responded to by the position module 4, and the

sending of said shooting position information is responded to by the communication module 3.

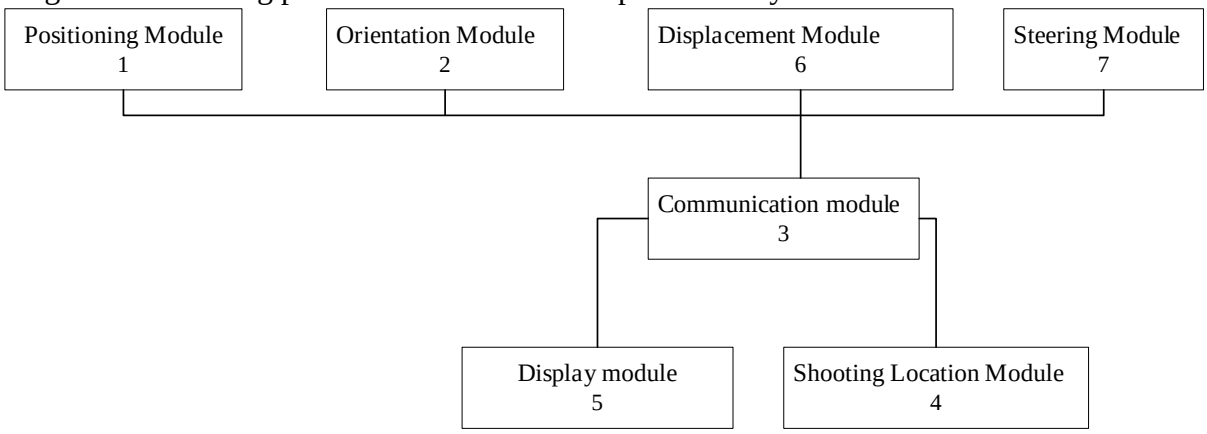

Figure 1: Schematic diagram of the structure of the viewfinder for a virtual scene

By moving the viewfinder in the operator's own handheld position, it is possible to obtain real-time dynamic displacement changes in place, which are incremental parameters that can become passive position changes in global coordinates. This position can be interpreted as either a horizontal position or a vertical displacement. The orientation module 2 can specify the actual dynamic rotational change through the rotation of the controller's own viewfinder, which can necessarily be called an incremental parameter, and which is the passive directional change information. The communication module 3 transmits this passive position change information and passive direction change information in a logical way, along with the operator's position change and direction change information in global coordinates, they can clearly understand the dynamic change of the virtual scene image, so it is necessary to rely on the position change information and direction change information to better handle the virtual scene image, thus, along with the operator's top-down continuous movement and steering to know the virtual scene image. In this sense, it is the constant movement and steering of the operator that makes it clear that the virtual scene image is changing as much as the movement and steering processes that take place in the virtual scene.

In particular, the external input is crucial, it can be called the user's turn of a button, the pressing of a button or even as a voice input, but the displacement module 6 generates the active position change information and the active direction change information is generated by the steering module 7. For the active position change information, it contains active height change information and active horizontal change information, the specific position change in the horizontal direction is reflected by the active horizontal change information, while the position change in the vertical direction is reflected by the active height change information in the vertical direction. In the vertical direction, this can be interpreted as the actual vertical height of the virtual camera and the placement surface, which provides an initial estimate of the future placement of the physical camera. In terms of active directional change information, the viewfinder control section should be the main focus of the controller before selecting the target rotational composition, which can be fully captured across the virtual scene of the composition, whether it is 0° or 360°, and the rotation rate needs to be set by the viewfinder so that the desired rotational composition can be precisely identified in different compositions. According to the context, the passive position change information and passive direction change information can be used in combination, and the change information needs to be increased or decreased on this basis, so that different operators agree that a virtual scene in one of the positions has framing value, and can press the button or make a direct action when the framing needs are met, in order to make the shot The location module 4 responds to this operation and finally determines the location of the shot.

Generally, the operator is used to the idea that a virtual scene in a certain location can be acted upon by the button if there is a need to take a scene, in order to make the shooting position module 4 more responsive to this operation and to record the full range of information about the shooting position, which is indicated by a group of previously determined position information that is to be applied. The keyframe information needs to be backed up continuously, and the presence or absence of incorrect information can be determined at this stage, and if it exists, the incorrect information will be deleted, by continuous observation, between 5 consecutive frames, and any changes beyond the specified range will be automatically rejected, and the interpolation needs to be smooth. Once the location information has been saved, it can be explored and created with the operator's intentions in mind at any given moment.

Preferably, said display module 5 is also used to: receive the compressed image of the virtual scene; reduce the compressed image of the virtual scene to an image that meets the display requirements according to the compression rules of said image of the virtual scene. As long as it is known by which compression rule the compressed image of the virtual scene is compressed, the reduction can be carried out in reverse to obtain an image that meets the display requirements of the display module 5. Where the compression rule may for example be to compare the pixel values of the original high resolution image with the pixel values of the image required to be displayed by the display module 5, and to obtain the compression percentage by means of the artificial intelligence module, so that the compression is carried out.

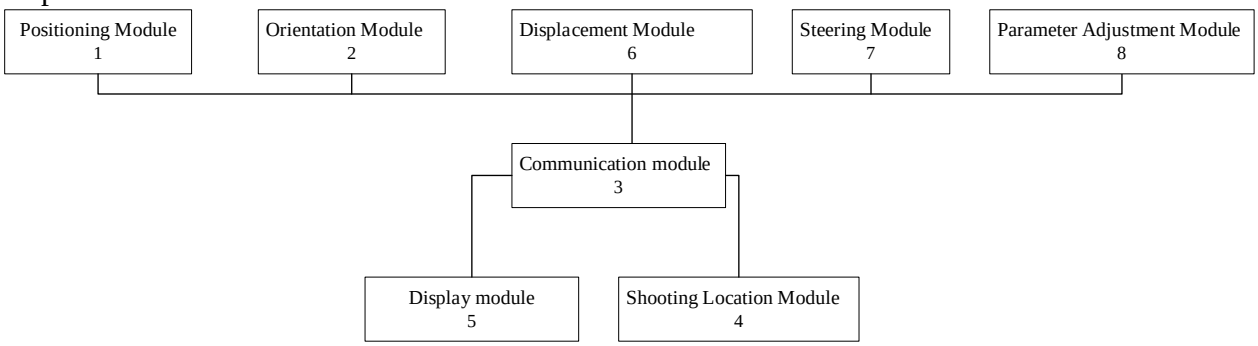

Figure 2: Schematic diagram of the structure of the viewfinder of a virtual scene

Figure 2 is a schematic diagram of the structure of a viewfinder for a virtual scene provided in another embodiment of the present invention. As shown in Figure 2, the viewfinder further comprises: a parameter adjustment module 8 for generating parameter change information in response to an external input; and a communication module 3 also for sending the parameter change information and for receiving an image of the virtual scene determined on the basis of the parameter change information. The parameter change information includes at least one of focus, focal length and aperture. The information is an absolute value, but the absolute value can be set to an interval multiplier, i.e. a range and a step variable can be set. In response, the communication module 3 sends the parameter change information and receives the image of the virtual scene determined by the parameter change information. And the display module 5 displays the image of the virtual scene that has been determined.

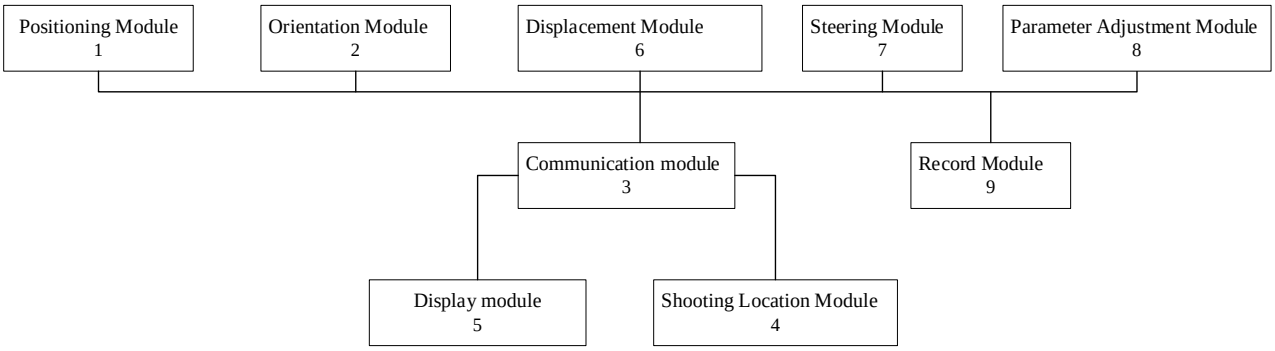

Figure 3: Schematic diagram of the structure of the viewfinder of the virtual scene

FIG. 3 is a schematic diagram of the structure of a viewfinder of a virtual scene provided in another embodiment of the present invention. As shown in Figure 3, the viewfinder further comprises: a recording module 9 for recording all changes in information in the viewfinder between the starting frame and the falling frame. Specifically the start frame is also referred to as the starting point, i.e. the starting position of the camera. The start frame information contains various information about the viewfinder as mentioned above (e.g. position, orientation, parameters, etc.). From the start position, any data can be considered as real time incremental data, which is incremented or decremented in correspondence to the original data and world coordinates determined at the start. The drop frame, also known as the end point, is the position where the camera finally stops. The drop frame information contains the various information mentioned above for the viewfinder (e.g. position, orientation, parameters, etc.). Once recorded, the drop frame information can be quickly rolled back to the drop frame position when the virtual scene is not in the drop frame position. When starting from the drop frame position, any data can be considered as real-time incremental data, which is incremented or decremented in correspondence with the original data and world coordinates as determined by the drop frame.

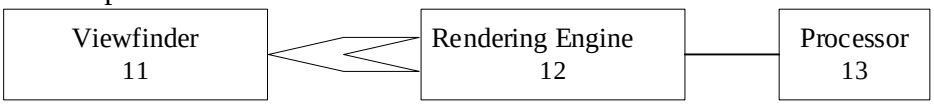

Figure 4: Schematic diagram of the structure of the viewfinder system

Figure 4 is a schematic diagram of the structure of the viewfinder system provided in an embodiment of the present invention. As shown in Figure 4, the viewfinder system comprises: a viewfinder 11 for the virtual scene above; a rendering engine 12 for rendering an image of the virtual scene; and a processor 13 for receiving passive position change information, passive direction change information and shooting position information, and determining and sending an image of the virtual scene based on the passive position change information and the passive direction change information. Preferably, the processor 13 is further used to: receive at least one of the active position change information, the active orientation change information, and the parameter change information, and determine and send an image of the virtual scene based on at least one of the active position change information, the active orientation change information, and the parameter change information. Specifically, the processor 13 may receive passive position change information, passive orientation change information, active position change information, active orientation change information, or parameter change information, all of which affect the image of the virtual scene. The processor 13 uses this information to determine the image of the virtual scene and informs the rendering engine 12 to render it, thereby sending the determined image of the virtual scene to the viewfinder 11 for display. In addition, the processor 13 is also used to: compress the image of the virtual scene of the rendering

engine 12 into the image of the compressed virtual scene according to the compression rules of the image of the virtual scene. That is, the processor 13 first obtains the pixel values of the original high-resolution image of the rendering engine 12, then obtains the pixel values of the display module 5 of the viewfinder 11 to display the requested image, and then compresses the original high-resolution image by means of the compression rules above. The rendering engine 12 is also used to: record image information for the current frame when the processor 13 receives any of parameter change information, active position change information, active direction change information, passive position change information, passive direction change information, viewfinder 11 start information, viewfinder 11 drop information, and shot position information. Specifically, that is, the rendering engine 12 records image information for the current frame when any information is available to the processor 13, so that it can quickly roll back to the image recorded at any moment. It should also be noted that the term "including", "comprising" or any other variant thereof is intended to cover non-exclusive inclusion, such that a process, method, good or device comprising a set of elements includes not only those elements, but also other elements not explicitly or which are inherent to such a process, method, commodity or apparatus. Without further limitation, the elements qualified by the statement "including a ....." do not preclude the existence of additional identical elements in the process, method, commodity or apparatus in which the elements are included.

4. Conclusion

Based on the research and analysis of a virtual scene viewfinder and viewfinder system focus, which actually belongs to the field of film technology, this viewfinder contains a positioning module, which is used to focus on the accurate acquisition of passive position change information; a displacement module is used to focus on responding to external inputs, i.e. allowing active position change information to be generated, a steering module is mainly used to respond to external inputs, allowing active direction change The communication module can confirm the active and passive position change information, i.e. clarify the change information of at least one object, before the final image of the virtual scene is accepted and displayed. The present application is subject to various modifications and variations for those skilled in the art. Any modification, equivalent substitution, improvement, etc. made within the spirit and principles of this application shall be included within the scope of the claims of this application.

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