

Appeal decision

Appeal No. 2018-9034

Appellant	Hewlett-Packard Development Company, LP.
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The case of appeal against the examiner's decision of refusal of Japanese Patent Application No. 2016-536068, entitled "PROJECTIVE COMPUTING SYSTEM" (International Publication No. WO2015/026346 published on February 26, 2015, National Publication of International Patent Application No. 2016-528647 published on September 15, 2016) has resulted in the following appeal decision.

Conclusion

The appeal of the case was groundless.

Reason

1 History of the procedures

The present application was filed on August 22, 2013 as an international filing date, a notice of reasons for refusal was issued on January 19, 2017, a written opinion and a written amendment were submitted on April 14, 2017, a notice of reasons for refusal was issued on September 6, 2017, a written opinion was submitted on December 6, 2017, and an examiner's decision of refusal was issued on March 20, 2018. An appeal against the examiner's decision of refusal was requested and a written amendment was submitted on July 2, 2018. A notice of reasons for refusal (hereinafter referred to as "Reasons for refusal by the body") was issued by the body on June 11, 2019. A written opinion and a written amendment were submitted on October 7, 2019.

2 The Invention

The inventions according to the claims of the application are acknowledged as specified by the matters described in Claims 1 to 11 of the scope of claims amended by the written amendment submitted on October 7, 2019. The invention according to Claim 8 (the invention according to Claim 8 is hereinafter referred to as "the Invention") is as follows.

"[Claim 8]

A method conducted by a projective computing system, comprising:
a step of capturing, by a camera of the projective computing system, an image

comprising an object and a background element; and

a step of projecting, by a projector assembly of the projective computing system, an artificial shadow adjacent to at least a portion of the image of the object, around the object, and projecting the image of the object on top of the object, wherein the artificial shadow indicates that the camera has completed capturing the image of the object."

3 Reasons for refusal

Reason 2 of the reasons for refusal issued by the body on June 11, 2019 is summarized as follows.

The inventions according to Claims 1 to 14 of the application could have been easily made by a person ordinarily skilled in the art of the inventions before the filing date of the application on the basis of the inventions described in the following Cited Documents 1 to 5 which were distributed or made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the application. Thus, the Appellant should not be granted a patent for the inventions under the provisions of Article 29(2) of the Patent Act.

Cited Document 1 : "Next Generation UI that can be touched with fingers against objects in the real world", [online], April 15, 2013, YouTube, [searched on August 2, 2018] the Internet <URL: <https://www.youtube.com/watch?v=I2l0qklSzks>>

Cited Document 2 : International Publication No. 2013/019217

Cited Document 3 : National Publication of International Patent Application No. 2006-505330

Cited Document 4 : Japanese Unexamined Patent Application Publication No. 2001-175374

Cited Document 5 : Specification of U. S. Patent Application Publication No. 2008/0316145

4 Description in Cited documents and Cited Invention

(1) Description in Cited Document 1 and Cited Invention

The video of "Next Generation UI that can be touched with fingers against objects in the real world", [online], April 15, 2013, YouTube, [searched on August 2, 2018] the Internet <URL: <https://www.youtube.com/watch?v=I2l0qklSzks>> (published on April 15, 2013, hereinafter referred to as "Cited Document 1") is recognized as disclosing the following matters (The underlines were added by the body, the translation was conducted by the body, the same applies hereinafter.)

A 0:00 (Title)

"Next Generation UI that can be touched with fingers against objects in the real world"

We can find that the video was published on "2013/04/15" in the margin outside the video.



B 0:29 (Subtitle)

"it consists of just a device like ordinary webcam, plus a commercial projector."



C 2:03

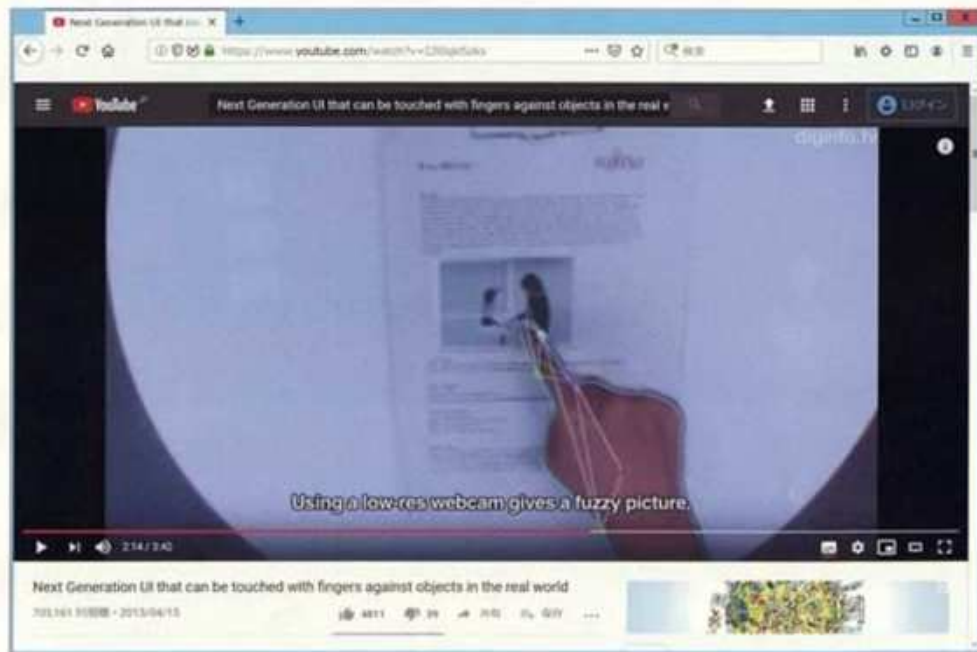
On the right side of the screen, there is a white round table in front of the user, and a support structure having a base part, a vertical member extending upward from

the base part, and a cantilever top part extending outward from the vertical member is placed on the white round table. On the left side of the screen, there is a display. The screen of the display displays a camera image obtained by capturing from immediately above the top surface of the white round table, documents including pictures placed on the top surface, both hands of the user, pens, or the like. At the lower end of the screen of the display, the characters "CAMERA" are displayed.



D 2:14 (Subtitle)

"Using a low-res webcam gives a fuzzy picture, ..."



E 2:25

Four sticky notes with handwritten memos are stuck on the top surface of the white round table. The user touches a "Scan" button projected on the top surface of the table. At the upper left of the four sticky notes, the characters "The number of sticky notes:" are projected.

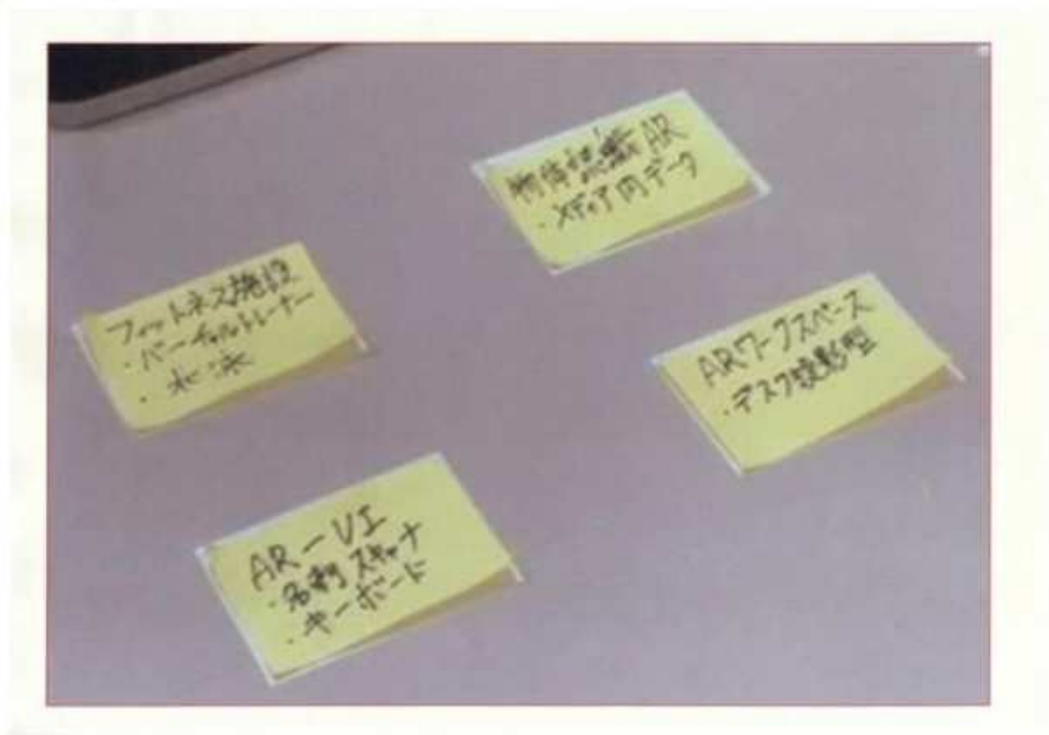


F 2:26

Four sticky notes are stuck on the top surface of the white round table. The images of the four sticky notes captured by the camera are projected on the sticky notes. Four sides surrounding the projected images of the sticky notes are displayed in white color. At the upper left of the four sticky notes, the characters "The number of sticky notes: 4" are projected.



(Enlarged central portion)



G 2:28

On the top surface of the white round table, the sticky note located at the lower right of the four sticky notes has been already removed by the user, and the user is removing the upper-right sticky note. The images of the four sticky notes captured by the camera are projected on the sticky notes or at the locations where the sticky notes existed. Four sides surrounding the projected images of the sticky notes are displayed in white color.



H 2:30

On the top surface of the white round table, even after the four sticky notes are removed, the images of the four sticky notes captured by the camera are projected at the locations where the sticky notes existed, and the four sides surrounding the projected images of the sticky notes are displayed in white color.



I Cited Invention

In light of the above described matters with relevant drawings and common general technical knowledge, while focusing on the underlined portions, it can be said that Cited Document 1 describes the following invention (hereinafter referred to as "Cited Invention").

"A method to be implemented by a next generation user interface that can be touched with fingers against objects in the real world, wherein

the user interface consists of just a device like an ordinary webcam, plus a commercial projector,

a support structure having a base part, a vertical member extending upward from the base part, and a cantilever top part extending outward from the vertical member is placed on a white round table,

the screen of a display displays a camera image obtained by capturing, from immediately above the top surface of the white round table, documents including pictures placed on the top surface, both hands of the user, pens, or the like, and displays, at the lower end of the screen of the display, the characters "CAMERA",

four sticky notes with handwritten memos are stuck on the top surface of the white round table, when the user touches a "Scan" button projected on the top surface of the table, the characters "The number of sticky notes:" are projected at the upper left of the four sticky notes,

when the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color, the characters "The number of sticky notes: 4" are projected at the upper left of the four sticky notes,

even after the four sticky notes are removed, the images of the four sticky notes

captured by the camera are projected at the locations where the sticky notes existed, and the four sides surrounding the projected images of the sticky notes are displayed in white color."

The video of Cited Invention 1 is acknowledged as also disclosing the following two matters in sections other than the sections which have acknowledged the Cited Invention.

J Section from 1:25 to 1:34

In scanning a "book", when a diagonal line is drawn by a finger for specifying a scan range (1:25),

a rectangular frame indicating the scan range is displayed with white lines (1:27),

an animation image is displayed for illuminating downward the inside of the rectangular frame from the top (1:27-1:28),

an animation image is displayed for gradually reducing the rectangular frame to an icon, moving it to the left side in the screen, and adding the icon at the upper left of the book (1:28-1:29),

when a scan range is specified with a finger in the same way again, a rectangular frame indicating the specified scan range is displayed with white lines (1:32),

and the second icon is added at the upper left of the book (1:34).

(1:25)



(1:27)



(1:27-1:28)





(1:28-1:29)





(1:32)



(1:34)



K Section from 2:37 to 2:42

(Following the operation for scanning the four sticky notes, which has acknowledged the Cited Invention), in "grouping" the scanned images of the four sticky notes into two groups by two,

while displaying a white line connecting a white spot displayed at an upper left corner of the four sides surrounding the lower-left sticky note image and a white spot moving together with a finger (2:37),

when the upper-left sticky note is touched by the finger, the white line is separated from the finger, and a white line connecting a white spot at an upper left corner of the four sides surrounding the lower-left sticky note image and a white spot at an upper left corner of the four sides of the upper-left sticky note image is displayed, and in the same way as the white line, a white line connecting a white spot at an upper left corner of the four sides surrounding the lower-right sticky note image and a white spot at an upper left corner of the four sides surrounding the upper-right sticky note image is displayed (2:42).

(2:37)



(2:42)



(2) Cited Document 3

National Publication of International Patent Application No. 2006-505330 (published on February 16, 2006, hereinafter referred to as "Cited Document 3"), which was cited in the Reasons for refusal by the body and distributed or made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the application, describes the following matters together with drawings (especially [FIG. 5]).

"[0047]

By inverting the difference video or the output from a camera 106, (referring again to Figure 5), areas that are in infrared shadow can be made to be bright. This inverted image can be projected into the interaction area such that areas that were bright in the infrared image (i.e., the majority of the remainder of the interactive surface) can be dark (i.e., receive no projected light), while areas that were dark in the infrared image can receive projected light. Since the guests cannot see the infrared shadow and only sees the projected, inverted "shadow", they will be surprised and amused, since in their everyday experience, shadows are dark, not light. It should be apparent to one skilled in the art that alternative effects may also be added to the "shadow" area, including, but not limited to, physical distortions, colors, stripes, spots, and the like."

"FIG. 5"

【図 5】

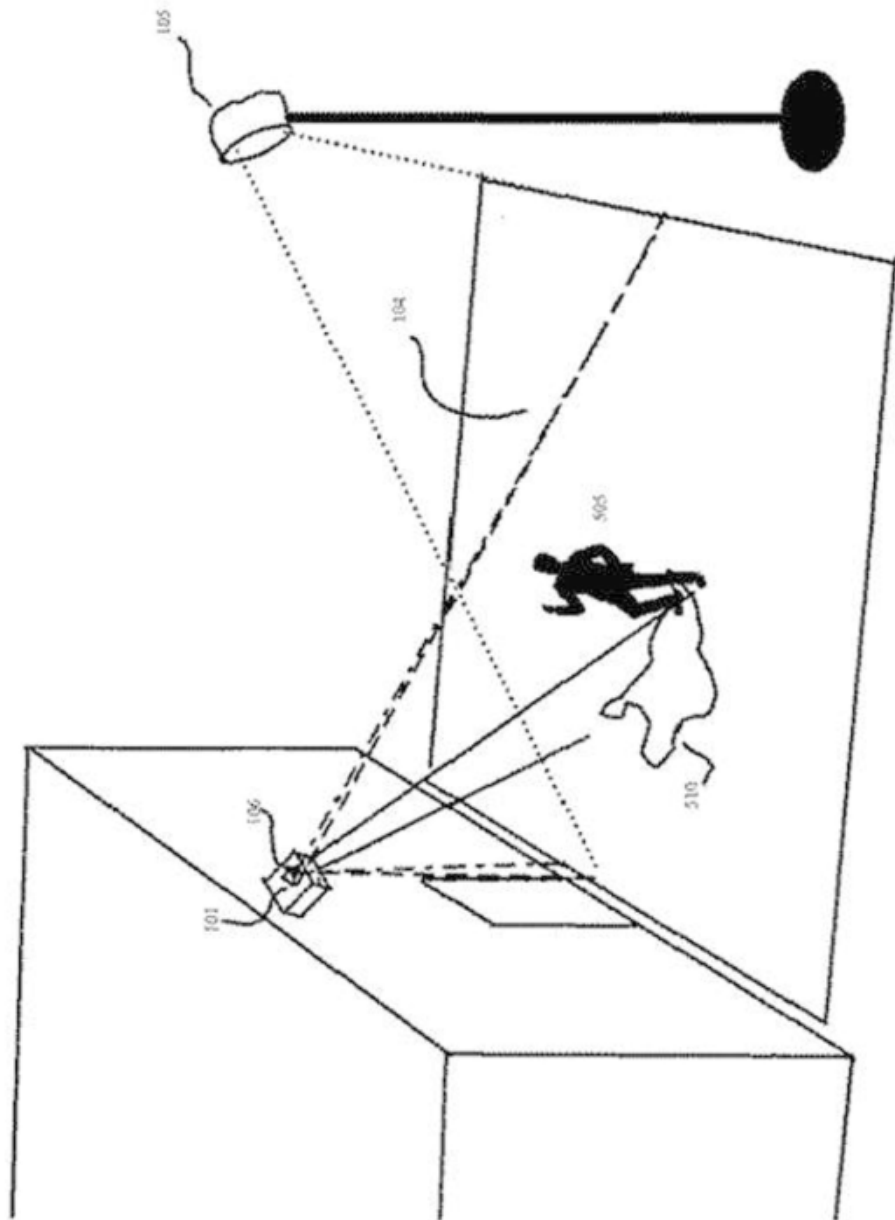


Figure 5

(3) Cited Invention 4

Japanese Unexamined Patent Application Publication No. 2001-175374 (published on Jun 16, 2001, hereinafter referred to as "Cited Document 4"), which was cited in the Reasons for refusal by the body and distributed or made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the application, describes the following matters together with drawings (especially [FIG. 8], [FIG. 14], [FIG. 37]).

A FIG. 8 and the description related to FIG. 8,

"[0160] an object aura may be projected and displayed for a physical object (a VCR tape cartridge in the case of the figure), as shown in FIG. 8, in order to visually feed back the existence (or non-existence) of the fact of installing the physical object in the information space 1. An object aura is an elliptic area surrounding the physical object to be treated and defines a data space of the physical object. Therefore, the user can attach, or link, a digital object to the physical object by hyper-dragging the digital object on the table 11 (see FIG. 9) and dropping it in the object aura (see FIG. 10)."

B FIG. 14 and the description related to FIG. 14,

"[0175] As a result of recognizing the page number, the page is installed in the information space 1. Therefore, an object aura surrounding the page is projected and displayed.

[0176] Also assume that the link information that is the data entry including the name of the linked digital object (e.g., the identifier of the object), the page identifier (or the page number), and the coordinates of the spot where the link information is buried is already registered in several databases. In such a case, at any spot on the page where the link information is buried, the object aura is projected and displayed as visual feedback (Step S24) (see FIG. 14)."

C FIG. 37 and the description related to FIG. 37,

"[0284] FIGS. 37 through 39 schematically illustrate how an object in the real world is taken into a digital space.

[0285] Referring to FIG. 37, as the user places his or her own portable computer on the table 11, the cameras 18/19 shoot it and the environment type computer identifies the visual marker attached to it and installs the portable computer in the information space 1. An object aura surrounding the portable computer is projected and displayed.

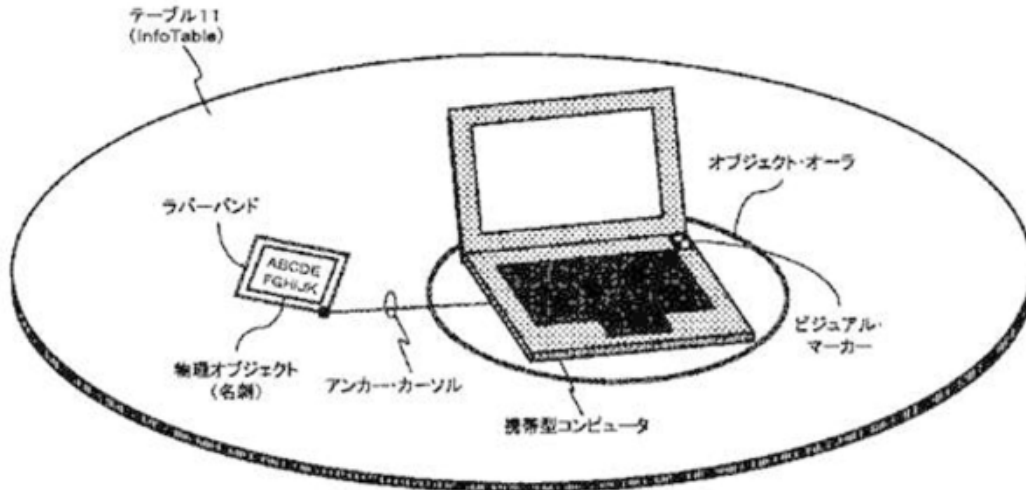
[0286] Then, the user can move the mouse/cursor onto the table, crossing the boundary of the display screen by means of the technique of hyper-dragging. Additionally, he or she drags the cursor to surround the predetermined physical object ('the name card' in the instance of FIG. 37) placed on the table.

[0287] Since the cameras 18/19 shoot the series of dragging operations, the environment type computer can recognize the scope as defined by the hyper-dragging operations. Then, the environment type computer can visually feed back the outcome of the operations to the user by projecting and displaying a 'rubber band' surrounding the defined area as recognized by it.

[0288] The images of the area surrounded by the rubber band are taken into the information space 1 as a digital object. Therefore, the user can hyper-drag any of the images of the rubber-banded area (see FIG. 38)."

[FIG. 37]

【図37】



テーブル 1 1	Table 11
ラバーバンド	Rubber band
物理オブジェクト (名刺)	Physical object (name card)
アンカー・カーソル	Anchor/cursor
携帯型コンピュータ	Portable computer
オブジェクト・オーラ	Object aura
ビジュアル・マーカ	Visual marker

(4) Cited Invention 5

The specification of U.S. Patent Application Publication No. 2008/0316145 (published on December 25, 2008, hereinafter referred to as "Cited Document 5"), which was cited in the Reasons for refusal by the body and distributed or made publicly available through an electric telecommunication line in Japan or a foreign country, prior to the filing of the application, describes the following matters together with drawings (especially [FIG. 3] and [FIG. 4]).

"[0015] ... (Omitted) ... Thus, upon a physical object being placed at a location on the display surface 14, the presence of the object at this location is detected, and in response the display device 16 displays a virtual shadow on the display surface 14 that corresponds to the physical object.

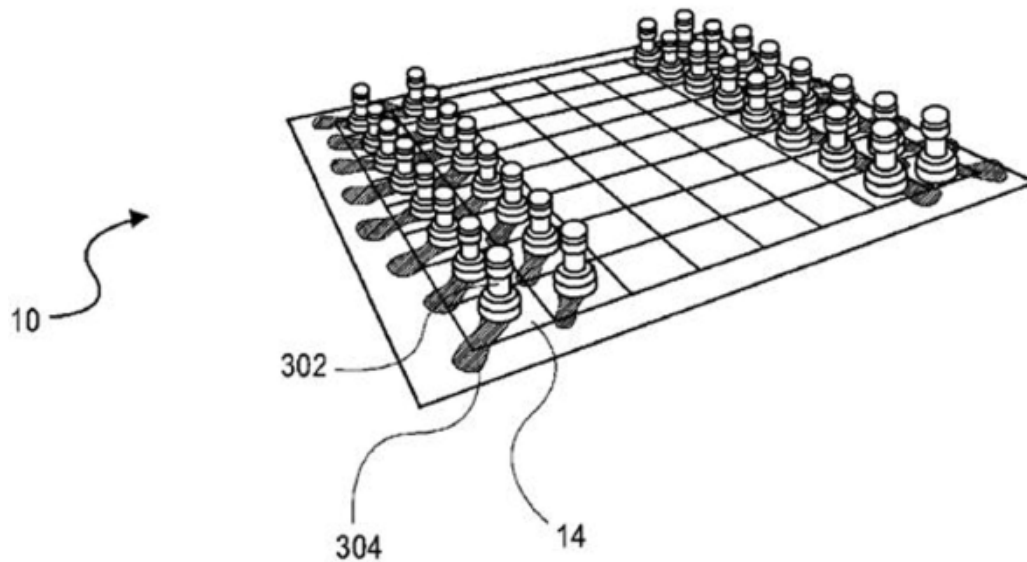
[0016] FIG. 3 shows the interactive display system 10 in which exemplary virtual shadows for physical objects are being displayed, according to an embodiment of the invention. In the example of FIG. 3, the physical objects placed on the display surface 14 are physical game pieces, such as chess pieces like the chess piece 302. Virtual shadows for these physical objects are displayed on the display surface 14, such as the virtual shadow 304 for the chess piece 302. The virtual shadows are generated as can be appreciated by those of ordinary skill within the art, utilizing ray-tracing technology or other types of technologies.

... (Omitted) ...

[0018] FIG. 4 shows how the virtual shadow 304 for the physical object 302 can be manipulated to signify the passage of time, according to an embodiment of the invention. As before, the physical object 302 has been placed on the display surface 14 of the interactive display system. The virtual shadow 304 is displayed on the display surface 14 by being generated in relation to the position of a virtual light source 402. The virtual light source 402 is not an actual or real light source, but rather is a virtual light source, the position of which in relation to the physical object 302 dictates the length of the virtual shadow 304 based on a virtual light ray 404 emanating from the virtual light source 402."

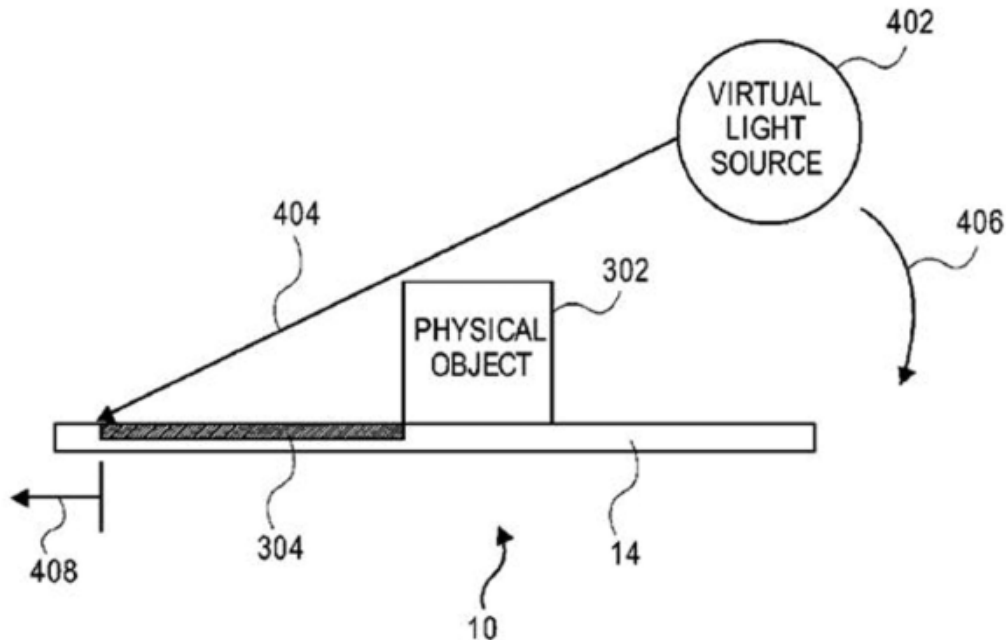
"FIG. 3"

FIG. 3



"FIG. 4"

FIG. 4



5 Comparison

The Invention and the Cited Invention are compared below.

(1) The "method to be implemented by a next generation user interface that can be touched with fingers against objects in the real world" including "a commercial projector" in the Cited Invention corresponds to the "method conducted by a projective computing system" in the Invention.

(2) Regarding the "white round table" in the Cited Invention, the "documents including pictures placed on the top surface, both hands of the user, pens, or the like" and the "objects in the real world" such as "four sticky notes" stuck on the top surface of the white round table correspond to the "object" in the Invention.

Regarding the "white round table" in the Cited Invention, the portion "on the top surface" where no "object in the real world" is placed or stuck as described above, corresponds to the "background element" in the Invention.

It is obvious that a camera image of an "object of the real world" and an area around the "object in the real world" has been captured before "displaying" or "projecting" the camera image. Therefore, regarding the "white round table", it can be said that "the screen of the display displays a camera image obtained by capturing from immediately above the top surface of the white round table, documents including pictures placed on the top surface, both hands of the user, pens, or the like", and that "when the user touches a 'Scan' button projected on the top surface of the table, the characters 'The number of sticky notes:' are projected at the upper left of the four sticky notes" and "the images of the four sticky notes captured by the camera are projected on the sticky notes", of the Cited Invention corresponds to the "step of capturing, by a

camera of the projective computing system, an image comprising an object and a background element" of the Invention.

(3) The "commercial projector" in the Cited Invention corresponds to the "projector assembly" in the Invention.

It can be said that "when the user touches a 'Scan' button projected on the top surface of the table" by use of a "commercial projector", "when the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color, the characters 'The number of sticky notes: 4' are projected at the upper left of the four sticky notes", of the Cited Invention and following steps included in the Invention: "a step of projecting, by a projector assembly of the projective computing system, an artificial shadow adjacent to at least a portion of the image of the object, around the object, and projecting the image of the object on top of the object, wherein the artificial shadow indicating that the camera has completed capturing the image of the object", are common in the point of "a step of projecting, by a projector assembly of the projective computing system, the image of the object on the object".

Therefore, the Invention and the Cited Invention have the following corresponding feature and different feature.

[Corresponding Feature]

"A method conducted by a projective computing system, comprising:

a step of capturing, by a camera of the projective computing system, an image comprising an object and a background element: and

a step of projecting, by a projector assembly of the projective computing system, the image of the object on top of the object."

[Different Feature 1]

The Invention includes "a step of projecting, by a projector assembly of the projective computing system, an artificial shadow adjacent to at least a portion of the image of the object, around the object, and projecting the image of the object on top of the object, wherein the artificial shadow indicating that the camera has completed capturing the image of the object", whereas, the Cited Invention is configured so that "the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color", and does not clearly specify the following matters: "projecting an artificial shadow adjacent to at least a portion of the image of the object, around the object", and "the artificial shadow indicates that the camera has completed capturing the image of the object".

6 Judgment

Regarding [Different Feature 1]

A Judgment based on the matter "displaying four sides surrounding the images of sticky notes in white color" in the Cited Invention

According to Cited Document 3 (See 4 "(2) Cited Document 3"), it can be said that a "shadow" generally may include a "shadow" brighter than the surroundings, as

well as an ordinary "shadow" which is darker than the surroundings.

Thus, the matter "displaying four sides surrounding the images of sticky notes in white color" in the Cited Invention may also be a matter of "projecting a shadow" "adjacent to at least a portion of the image of the object", "around the object".

Regarding the matter "displaying four sides surrounding the images of sticky notes in white color" in the Cited Invention, a "natural image" located on the top surface of the "white round table" around the sticky notes, clipped with the same predetermined width as the image of the sticky notes to be clipped from the camera image can be also assumed as well as an "artificial" matter. Thus, it is unclear whether this is "artificial" display or not.

However, the video of Cited Invention 1 includes the following two sections other than the sections that have recognized the Cited Invention.

(A) In scanning a "book", a rectangular frame indicating a scan range is displayed with white lines. The rectangular frame with white lines, which is displayed by a user arbitrarily specifying a scan range on the "book", is obviously an "artificial" white line. (See 4 "(1) Description in Cited Document 1 and Cited Invention" "J".)

(B) (Following the operation for scanning the four sticky notes, which has acknowledged the Cited Invention), in "grouping" the scanned images of the four sticky notes into two groups by two, "a white spot displayed at an upper left corner of the four sides surrounding the lower-left sticky note image", "a white spot moving together with a finger", and "a white line" connecting the two spots are displayed. The "white spots" and "white line", which do not exist on a sticky note or a table, are obviously "artificial" display. (See 4 "(1) Description in Cited Document 1 and Cited Invention" "K".)

Considering the facts that the "white line" and the "white spots" are obviously "artificial display" and that the corners of actual "four sticky notes" are slightly curled up and non-uniform, while the shape or the width of the matter "displaying four sides surrounding the images of sticky notes in white color" seems almost uniform (see 4 "(1) Description in Cited Document 1 and Cited Invention" "F" (2: 26) Enlarged central part), it is natural to understand that the matter "displaying four sides surrounding the images of sticky notes in white color" is also "artificial" display.

It is obvious that an "image of a sticky note" cannot be projected or counted unless a camera completes capturing the image of a sticky note. According to the fact, in the Cited Invention, a user obviously knows that "the camera has completed capturing the image of the object" from the fact that "four sides surrounding the projected images of the sticky notes are displayed in white color" as a result of a visual effect to be produced "when the user touches a 'Scan' button projected on the top surface of the table", "the characters 'The number of sticky notes: 4' are projected at the upper left of the four sticky notes" and "the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color".

Therefore, the configuration in the Cited Invention that when the "Scan" button is touched, "the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are

displayed in white color", substantially corresponds to the "step of projecting, by a projector assembly of the projective computing system, an artificial shadow adjacent to at least a portion of the image of the object, around the object, and projecting the image of the object on top of the object, wherein the artificial shadow indicating that the camera has completed capturing the image of the object" in the Invention.

B Even if the configuration in the Cited Invention that when the "Scan" button is touched, "the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color" does not correspond to the "artificial shadow" in the Invention, addition of such display to the Cited Invention is only a design matter which should be appropriately selected by a person skilled in the art, as described below.

In general, adding an "artificial shadow" as an "artificial image" around an object in order to emphasize a range occupied by the object or to draw the attention of a user to the object is an ordinary matter, such as a "shaded" character or "boxed" character in word processor documents. It is well-known as described in Cited Documents 3 to 5 if necessary. (See 4 "(2) Cited Document 3" to 4 "(4) Cited Document 5".)

In general, it is extremely ordinary to use visual effect to notify a user of the progress, such as start or end, of image processing for scanning or capturing an image.

Thus, for example, in image-scanning software, it is ordinary to display a scan range in various manners by using a box or changing the luminance of the scan range, without giving examples.

In the video of Cited Document 1, regarding scanning a "book", according to 4 "(1) Description in Cited Document 1 and Cited Invention" "J", a user is notified by visual effect of the progress of scan processing, at the start, in process, and at the end, by the following configuration: "a rectangular frame indicating the scan range is displayed with white lines (1:27), an animation image is displayed for illuminating downward the inside of the rectangular frame from the top (1:27-1:28), an animation image is displayed for gradually reducing the rectangular frame to an icon, moving it to the left side in the screen, and adding the icon at the upper left of the book (1:28-1:29)".

In the Cited Invention, "when the user touches a "scan" button projected on the top surface of the table", "the characters 'The number of sticky notes: 4' are projected at the upper left of the four sticky notes", "the images of the four sticky notes captured by the camera are projected on the sticky notes", and if a well-known visual effect of adding an "artificial shadow" as an "artificial image" around the object in order to emphasize the range occupied by the object or to draw the attention to the object is used, a user obviously understands that "the camera has completed capturing the image of the object".

Thus, even if the configuration in the Cited Invention that when the "Scan" button is touched, "the images of the four sticky notes captured by the camera are projected on the sticky notes and four sides surrounding the projected images of the sticky notes are displayed in white color" does not correspond to the "artificial shadow" in the Invention, it could have been easily made by a person skilled in the art to

configure the Cited Invention, with exertion of ordinary creativity, to include the "step of projecting, by a projector assembly of the projective computing system, an artificial shadow adjacent to at least a portion of the image of the object, around the object, and projecting the image of the object on top of the object, wherein the artificial shadow indicating that the camera has completed capturing the image of the object", by replacing the configuration in the Cited Invention that when the "Scan" button is touched, "four sides surrounding the projected images of the sticky notes are displayed in white color", or adding a well-known art of adding "an artificial shadow" as "an artificial image", which is only a design matter which should be appropriately selected by a person skilled in the art.

C According to A and B, [Different Feature 1] is not a substantially different feature, or it could be easily conceived by a person skilled in the art.

D The effect of the Invention also falls within the scope which can be predicted by a person skilled in the art based on the Cited Invention and well-known arts.

7 Closing

The Invention could be easily made by a person skilled in the art based on the Cited Invention and well-known arts. The Appellant should not be granted a patent under the provisions of Article 29(2) of the Patent Act.

Thus, the present application should be rejected without mentioning other claims.

Therefore, the appeal decision shall be made as described in the conclusion.

February 3, 2020

Chief administrative judge: YOSHIDA, Koichi
Administrative judge: INABA, Kazuo
Administrative judge: NOZAKI, Daishin