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**Wells Fargo Bank N.A. Patent Issued for Facial Expression Tracking During Augmented And Virtual Reality Sessions (USPTO 10,984,602)**

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2021 MAY 8 (VerticalNews) -- By a News Reporter-Staff News Editor at Investment Weekly News -- According to news reporting originating from Alexandria, Virginia, by VerticalNews journalists, a patent by the inventors Miranda, Darius A. (San Francisco, CA); Kalaboukis, Chris (San Jose, CA), filed on April 29, 2020, was published online on May 3, 2021.

The assignee for this patent, patent number 10,984,602, is Wells Fargo Bank N.A. (San Francisco, California, United States).

Reporters obtained the following quote from the background information supplied by the inventors: "Augmented reality is a technology that can superimpose a virtual image over an actual scene. Virtual reality is a technology that can provide a computer generated simulation of a scene. A user can view the computer simulation of the scene with a virtual reality device such as a virtual reality headset. Augmented reality devices and virtual reality devices can be considered to be visual computing devices.

"When a user views a scene with a visual computing device, the scene can be viewed from a perspective of the user. A user of an augmented reality device can view the scene looking outward through the augmented reality device. A user of a virtual reality device can view images generated on the virtual reality headset."

In addition to obtaining background information on this patent, VerticalNews editors also obtained the inventors' summary information for this patent: "In one aspect, an example method for estimating an emotion based upon a facial expression of a user can include: receiving one or more captured facial expressions from the user at a visual computing device; comparing the one or more captured facial expressions to one or more known facial expressions; and assigning an emotion to the plurality of captured facial expressions based upon the comparing.

"In another aspect, an example visual computing device that can be worn by a user can include: a processing unit; system memory; a display unit on which one or more virtual images can be projected; and a plurality of cameras, the plurality of cameras being oriented in an inwardly-facing direction towards a face of the user.

"In yet another aspect, an example method implemented on a visual computing device can include: displaying, by the visual computing device, a first image to a user; capturing a facial expression of the user as a result of the user viewing the first image on the visual computing device, the facial expression comprising a reaction of the user to the first image; identifying a user emotion associated with the facial expression; determining when the user emotion is negative; and when the user emotion is negative, displaying a second image to the user, the second image being a modification of the first image or a new image.

"The details of one or more techniques are set forth in the accompanying drawings and the description below. Other features, objects, and advantages of these techniques will be apparent from the description, drawings, and claims."

The claims supplied by the inventors are:

"What is claimed is:

"1. A visual computing device that can be worn by a user, the visual computing device comprising: a processing unit; system memory; and a camera oriented towards a face of the user to capture facial reactions of the user; wherein the system memory encodes instructions that, when executed by the processing unit,

cause the visual computing device to: display a first image to the user, wherein the first image depicts a first item associated with a financial profile of the user's current purchasing interests; capture, by the camera, a facial expression of the user as a result of the user viewing the first image, the facial expression comprising a reaction of the user to the first image; identify an emotion of the user corresponding to the facial expression; determine when the captured facial expression is a negative emotion; and when the emotion corresponding to the captured facial expression is the negative emotion, display a second image to the user based on the user's financial profile, wherein the second image depicts a second item that is (i) similar to the first item, and (ii) more closely-aligned to the user's financial profile based upon a cost of the second item.

"2. The visual computing device of claim 1, wherein the camera is located within a field of view of the user.

"3. The visual computing device of claim 1, wherein the visual computing device is a virtual reality device.

"4. The visual computing device of claim 1, wherein the visual computing device is an augmented reality device.

"5. The visual computing device of claim 4, wherein the augmented reality device further includes one or more outwardly-facing cameras which are oriented away from the face of the user.

"6. The visual computing device of claim 1, wherein the first image is an image of an automobile, and the second image is an image of a more or less expensive automobile.

"7. The visual computing device of claim 1, wherein the first image is an image of a first property and the second image is an image of a second property for sale, wherein the first property and second property are different in at least one of: price, style, location, and size.

"8. A method implemented on a virtual reality device, the method comprising: displaying, by the virtual reality device, a first image to a user, wherein the first image depicts a first item associated with a financial profile of the user's current purchasing interests; orienting one or more inwardly-facing cameras of the virtual reality device towards a face of the user; capturing a facial expression of the user, using the one or more inwardly-facing cameras, as a result of the user viewing the first image on the virtual reality device, the facial expression comprising a reaction of the user to the first image; sending the captured facial expression to an electronic computing device; receiving, from the electronic computing device, a message identifying a user emotion associated with the facial expression, the user emotion associated with the facial expression being identified via a comparison of the captured facial expression with a previous facial expression of the user obtained during a training period; determining whether the user emotion is negative; and when the user emotion is negative, displaying a second image to the user based on the user's financial profile, wherein the second image depicts a second item that is (i) similar to the first item, and (ii) more closely-aligned to the user's financial profile based upon a cost of the second item.

"9. The method of claim 8, further comprising selecting the second image to produce a positive emotion by the user.

"10. The method of claim 8, wherein the visual computing device is an augmented reality device or a virtual reality device.

"11. The method of claim 8, further comprising: displaying one or more possible actions to be taken by the user to improve the financial health status of the user; and capturing a second facial expression relating to the one or more possible actions.

"12. The method of claim 11, further comprising determining the user emotion associated with the one or more possible actions based upon the second facial expression.

"13. The method of claim 8, wherein the first image is an automobile, and the second image is a more or less expensive automobile.

"14. The method of claim 8, wherein the first image is an image of a first property and the second image is an image of a second property, wherein the first property for sale and second property are different in at least one of: price, style, location, and size.

"15. A visual computing device that can be worn by a user, the visual computing device comprising: a processing unit; system memory; and a camera oriented towards a face of the user to capture facial reactions of the user; wherein the system memory encodes instructions that, when executed by the processing unit, cause the visual computing device to: present one or more questions associated with a plurality of topics to the user, the one or more questions directed at identifying an emotional connection of the user to the plurality of topics; receive one or more responses from the user to the one or more questions; based on the one or more responses, identify the emotion connection of the user to each of the plurality of topics; display a first image, wherein the first image depicts a first item corresponding to one of the plurality of topics to the user

 

and a profile of the user's current purchasing interests; capture, by the camera, a facial expression of the user as a result of the user viewing the first image, the facial expression comprising a reaction of the user to the image; identify an emotion of the user based on the captured facial expression and the one or more responses associated to the one or more questions associated with the topic corresponding to the first image; determine when the captured facial expression is a negative emotion; and when the emotion corresponding to the captured facial expression is determined to be negative, display a second image to the user based on the user's financial profile, wherein the second image depicts a second item that is (i) similar to the first item, and (ii) more closely-aligned to the user's financial profile based upon a cost of the second item.

"16. The visual computing device of claim 15, wherein the second image is selected, based on the one or more responses to the one or more questions associated with a plurality of topics, to result in a positive emotion from the user.

"17. The visual computing device of claim 15, wherein the visual computing device is an augmented reality device.

"18. The visual computing device of claim 17, wherein the augmented reality device further includes one or more outwardly-facing cameras which are oriented away from the face of the user.

"19. The visual computing device of claim 15, wherein the first image is an image of an automobile, and the second image is an image of a more or less expensive automobile.

"20. The visual computing device of claim 15, wherein the first image is an image of a first property and the second image is an image of a second property, wherein the first property and second property are different in at least one of: price, style, location, and size."

For more information, see this patent: Miranda, Darius A.; Kalaboukis, Chris. Facial Expression Tracking During Augmented And Virtual Reality Sessions. U.S. Patent Number 10,984,602, filed April 29, 2020, and published online on May 3, 2021. Patent URL: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=10,984,602.PN.&OS=PN/10,984,602RS=PN/10,984,602

Keywords for this news article include: Business, Automobiles, Transportation, Wells Fargo Bank N.A, Investment and Finance.



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**Wells Fargo Bank N.A. Patent Issued for Augmented Or Virtual Reality To Scenario Plan Property Purchase Or Renovation (USPTO 10,984,493)**

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2021 MAY 7 (VerticalNews) -- By a News Reporter-Staff News Editor at Real Estate Weekly News -- From Alexandria, Virginia, VerticalNews journalists report that a patent by the inventors Borchardt, Jennifer Stacey (San Francisco, CA); Christensen, Adam Clifford (Moraga, CA); Cowell, Charles (Dublin, CA); DeLa Torre, Eduardo (Oakland, CA); Goetz, Darren M. (Salinas, CA); Greene, Eric David (Piedmont, CA); Hamchuk, Robert Glenn (San Jose, CA); Hill, Miranda C. (Seattle, WA); Huang, Pey-Ning (San Francisco, CA); Oldroyd, Orsolya (Walnut Creek, CA); Vittimberga, Paul (Oakland, CA), filed on May 5, 2017, was published online on May 3, 2021.

The patent's assignee for patent number 10,984,493 is Wells Fargo Bank N.A. (San Francisco, California, United States).

News editors obtained the following quote from the background information supplied by the inventors: "When individuals look to build a new home or plan large-scale renovations to their home, financial impact analysis may be limited to understanding only the cost of the renovations or the cost of the build. Information regarding the long-term financial impact of a home purchase or renovation may also be important when making decisions related to home building or renovation, but not readily available. Oftentimes, such financial analysis is conducted after home designs are completed, requiring individuals to return to the design process over multiple iterations just to finalize a design that is within their budget."

As a supplement to the background information on this patent, VerticalNews correspondents also obtained the inventors' summary information for this patent: "Embodiments of the disclosure are directed to methods and systems implemented by an augmented reality device or virtual reality device to assist individuals in understanding the financial impact of home renovations and new home builds.

"In a first aspect, disclosed is a method for displaying renovation options. The method comprises: receiving homeowner financial information; receiving a selection of a renovation option; receiving pricing information of the renovation option; generating a financial impact analysis based on the homeowner financial information and the pricing information; displaying a renovation view on an augmented reality device, the renovation view displaying the structure with a representation of the renovation option depicted thereon; and displaying a financial impact analysis view showing the financial impact analysis, including a renovation budget amount.

"In another aspect, disclosed is an augmented reality computing device. The augmented reality device comprises: a processing unit; and system memory, the system memory including instructions which, when executed by the processing unit, cause the augmented reality computing device to: receive homeowner financial information; receive a selection of a renovation option; receive pricing information of the renovation option; generate a financial impact analysis based on the homeowner financial information and the pricing information; display a renovation view on the augmented reality computing device, the renovation view displaying a structure with a representation of the renovation option depicted thereon; and display a financial impact analysis view showing the financial impact analysis, including a renovation budget amount.

"In yet another aspect, disclosed is a system for displaying renovation options and financial impact analysis, the system comprising: a financial server; one or more third party servers; and an augmented reality computing device. The augmented reality computing device comprises: a processing unit; and system memory, the system memory including instructions which, when executed by the processing unit, cause the augmented reality computing device to: receive homeowner financial information from the financial server; receive a selection of a renovation option; receive pricing information of the renovation option from the one or more third party servers; generate the financial impact analysis based on the homeowner financial information and the pricing information; display a renovation view on the augmented reality computing device, the renovation view displaying a structure with a representation of the renovation options depicted thereon; and display a financial impact analysis view showing the financial impact analysis, including a renovation budget amount.

"This summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter."

The claims supplied by the inventors are:

"What is claimed is:

"1. A method for displaying renovation options for a structure, the method comprising: receiving homeowner financial information of a homeowner; receiving a selection of a renovation option; receiving pricing information of the renovation option; generating a financial impact analysis based on the homeowner financial information and the pricing information; and simultaneously displaying on an augmented reality device: a renovation view displaying a representation of the renovation option as an overlay to a room that a user is viewing through the augmented reality device; a cost view comprising cost information of the renovation option; and a financial impact analysis view showing the financial impact analysis, including: insurance information showing how the renovation option may affect insurance options for the renovation option or associated structure; a homeowner renovation budget amount; and an amount of credit required for the renovation option.

"2. The method of claim 1, wherein the pricing information is received from one or more third party servers.

"3. The method of claim 1, wherein the financial impact analysis further comprises: displaying one or more credit options, wherein the one or more credit options are selected from a financial institution.

"4. The method of claim 1, wherein the renovation view and the financial impact analysis view are each dynamically updated, and wherein the dynamic update corresponds to a selection of the renovation option.

"5. An augmented reality computing device comprising: a processing unit; and system memory, the system memory including instructions which, when executed by the processing unit, cause the augmented reality computing device to: receive homeowner financial information; receive a selection of a renovation option; receive pricing information of the renovation option; generate a financial impact analysis based on the homeowner financial information and the pricing information; and simultaneously display on the augmented reality computing device: a renovation view displaying a representation of the renovation option as an overlay to a room that a user is viewing through the augmented reality computing device, a cost view comprising cost information of the renovation option; and a financial impact analysis view showing the financial impact analysis, including: insurance information showing how the renovation option may affect insurance options for the renovation option or associated structure; a homeowner renovation budget amount; and an amount of credit required for the renovation option.

"6. The augmented reality computing device of claim 5, wherein the pricing information is received from one or more third party servers.

"7. The augmented reality computing device of claim 5, wherein the financial impact analysis further comprises: display one or more credit options available, wherein the one or more credit options are selected from a financial institution.

"8. The augmented reality computing device of claim 5, wherein the renovation view and the financial impact analysis view are each dynamically updated, and wherein the dynamic update corresponds to a selection of the renovation option.

"9. A system for displaying renovation options and financial impact analysis, the system comprising: a financial server; one or more third party servers; and an augmented reality computing device, the augmented reality computing device comprising: an optical display configured to project virtual images and being at least partially transparent such that a user can see through the optical display; a processing unit; and system memory, the system memory including instructions which, when executed by the processing unit, cause the augmented reality computing device to: receive homeowner financial information from the financial server; receive a selection of a renovation option; receive pricing information of the renovation option from the one or more third party servers; generate the financial impact analysis based on the homeowner financial information and the pricing information; and simultaneously display on the optical display of the augmented reality computing device: a renovation view displaying a representation of the renovation options as an overlay to a room that a user is viewing through the optical display; a cost view comprising cost information of the renovation option; and a financial impact analysis view showing the financial impact analysis, including: insurance information showing how the renovation option may affect insurance options for the renovation option or associated structure; a homeowner renovation budget amount; and an amount of credit required for the renovation option.

"10. The system of claim 9, wherein the financial impact analysis further comprises: display one or more credit options available, wherein the one or more credit options are selected from a financial institution.

 

"11. The method of claim 1, wherein the augmented reality device is a wearable headset.

"12. The augmented reality computing device of claim 5, further comprising a wearable headset.

"13. The augmented reality computing device of claim 12, further comprising an optical display configured to project virtual images and being at least partially transparent such that a user can see through the optical display when the wearable headset is worn.

"14. The system of claim 9, wherein the augmented reality computing device further comprises a wearable headset.

"15. The method of claim 1, wherein the cost view further comprises an alternative option within the homeowner renovation budget amount.

"16. The method of claim 1, wherein the financial impact analysis view further includes one or more pre-approved credit options in the amount of credit required for the renovation option.

"17. The method of claim 1, wherein the financial impact analysis view further includes a suggestion to delay the renovations until a later date, wherein the suggestion takes into account the homeowner's financial position.

"18. The method of claim 1, wherein the cost view further comprises name information describing a store, shop, or source from which materials and labor of the renovation option originate.

"19. The method of claim 1, wherein receiving homeowner financial information includes receiving homeowner financial information from a server of a financial institution of the homeowner."

For additional information on this patent, see: Borchardt, Jennifer Stacey; Christensen, Adam Clifford; Cowell, Charles; DeLa Torre, Eduardo; Goetz, Darren M.; Greene, Eric David; Hamchuk, Robert Glenn; Hill, Miranda C.; Huang, Pey-Ning; Oldroyd, Orsolya; Vittimberga, Paul. Augmented Or Virtual Reality To Scenario Plan Property Purchase Or Renovation. U.S. Patent Number 10,984,493, filed May 5, 2017, and published online on May 3, 2021. Patent URL: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=10,984,493.PN.&OS=PN/10,984,493RS=PN/10,984,493

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**Search Summary**

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| Text | (hd=wells fargo) and wc>100 and hd=(virtual real estate or virtual properties or digital real esate or digital real assets or digital properties or metaverse properties or digital plots or virtual plots or virtual land or virtual reality platform or manufacturing simulation or virtual simulation or digital twins or virtual manufacturing or immersive learning or mixed-reality learning or metaverse learning or VR learning or AR learning or VR training or virtual recruitment or 3d training or training metaverse or virtual retail or virtual shopping or virtual clienteling or omnichannel shopping or humanising digital retail or immersive virtual stores or 3d virtual store or metaverse shopping or virtual clothing or virtual goods or gaming or digital avatar or digital character or virtual game or 3D avatars or virtual reality or interoperable VR space or digital financial ecosystems or metaverse wallets or robo advisory or virtual financial data or digital bank branches or digital touchpoint or blockchain wallets or digital wallets or digital wedding or virtual wedding or virtual event or virtual concert or virtual theme park or virtual classroom or virtual learning or virtual school or immersive learning or metaverse) |
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