Facebook Technologies LLC; Patent Issued for Autofocus Virtual Reality Headset (USPTO 10,937,129)

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2021 MAR 18 (VerticalNews) -- By a News Reporter-Staff News Editor at Politics & Government Week -- A patent by the inventors Fix, Alexander Jobe (Seattle, WA); Lanman, Douglas Robert (Bellevue, WA); Geng, Ying (Bellevue, WA), filed on July 29, 2019, was published online on March 15, 2021, according to news reporting originating from Alexandria, Virginia, by VerticalNews correspondents.

Patent number 10,937,129 is assigned to Facebook Technologies LLC (Menlo Park, California, United States).

The following quote was obtained by the news editors from the background information supplied by the inventors: "The present disclosure generally relates to enhancing images from electronic displays, and specifically to varying the focal length of optics to enhance the images.

"Virtual reality (VR) headsets can be used to simulate virtual environments. For example, stereoscopic images are displayed on an electronic display inside the headset to simulate the illusion of depth and head tracking sensors estimate what portion of the virtual environment is being viewed by the user. However, conventional VR headsets are often unable to compensate for vergence and accommodation conflicts when rendering content, which may cause visual fatigue and nausea in users.

"Further, lenses and other optical components are subject to various types of optical errors. For example, field curvature commonly associated with convex lenses tends to bend light rays near the edges of a convex lens more sharply inward relative to light rays near the center of the convex lens. The resulting distortion from the convex lens makes a virtual scene viewed through the convex lens appear as if it is viewed underwater or through a fisheye lens, which may detract from the illusion of the virtual scene created by a virtual reality system."

In addition to the background information obtained for this patent, VerticalNews journalists also obtained the inventors' summary information for this patent: "Display of a scene of content presented by a virtual reality (VR) headset, which may include a headset presenting augmented reality (AR) content, is modified to mitigate distortion from optical errors (e.g., field distortion, field curvature, etc.) caused by an optics block included in the headset that directs image light from an electronic display element presenting the scene to an eye of a user. Modifying display of the scene compensates or corrects distortion in the scene resulting from these optical errors. Distortion can be caused for a number of reasons. For example, as a user looks at different objects in the virtual scene, the location of the pupil of the user's eye relative to the optics block changes (e.g., distance of the pupil from the optics block, the viewing angle through the optics block, the distance from the optical axis of the optics block, etc.). Different distances between the eye and the optics block cause focusing of light from the electronic display element in different locations within the eye and different viewing angles or distances between the pupil and the optics block's optical axis may be affected by field curvature that is perceived as distortion by the user. In another example, a varifocal element dynamically adjusts the focal length of the optics block included in the VR headset based on a location in the virtual scene where the user is looking. Thus, an adjustment or alteration is made to the virtual scene when the focal length of the optics block is adjusted to correct for distortion caused by optical errors of the optics block at that focal length. To correct for the distortion, the virtual scene may be rendered with pre-distortion based on previously modeled distortion caused by the optics block. Rendering the virtual scene with pre-distortion causes distortion caused by the optics block to cancel or to correct the pre-distortion so the virtual scene appears undistorted when viewed from an exit pupil of the virtual reality headset.

"To model distortion caused by the optics block, a calibration image is displayed by the virtual reality headset and a camera captures multiple images of the displayed calibration image from different positions relative to the exit pupil. A position relative to the exit pupil may account for a distance between the camera and the exit pupil. Capturing images from multiple positions relative to the exit pupil enables the calibration system to

measure optical properties of the optics block (e.g., the focal length(s), how the focal length(s) vary as a function of angle, higher-order aberrations of the optics block, etc.) by emulating a wavefront sensor providing better correction of distortion caused by the optics block, as the distortion is generally non-linear and changes based on a state of the optics block. In various embodiments, the multiple positions from which images are captured correspond to potential locations of a user's eye or viewing angles and, for a varifocal system, potential locations of the user's eye or viewing angles for each state (e.g., lens position, lens shape, eye position etc.) of the optics block. The calibration image includes a pattern, such as a checkerboard pattern or an array of points, and features of the calibration image, such as the actual, ideal, or theoretical location of features (e.g., the checkerboard squares, or the points), are compared to the observed location of those features captured (or observed) by the camera. Displacement between the observed locations of the features and the actual locations of the features is directly proportional to the gradient of the wavefront of light from the optics block.

"Based on a difference between the observed locations of the features of the calibration image and the actual locations of the features of the calibration image, a model of the wavefront of light from for various states of the optics block or pupil locations relative to the optics block is determined and a corresponding rendering adjustment is determined. Based on the model of the wavefront for a current state of the optics block or pupil location relative to the optics block, the VR headset identifies a rendering adjustment corresponding to the current state of the optics block and applies the identified rendering adjustment to the virtual scene. Hence, the rendering adjustment is modified or changed as the pupil location or the state of the optics block changes (e.g., as a varifocal element changes the position or the shape of the optics block) to correct for optical errors caused by different pupil locations relative to the optics block states of the optics block."

The claims supplied by the inventors are:

"What is claimed is:

"1. A method comprising: instructing a head mounted display (HMD) to display a calibration pattern on a display of the HMD, the HMD including an optics block configured to focus light from the display to an exit pupil of the HMD; capturing images of the displayed calibration pattern on the display of the HMD via a camera located at the exit pupil from a plurality of positions of the camera located at the exit pupil; for each image, comparing expected locations of features of the calibration pattern to observed locations of the corresponding features in the image of the displayed calibration pattern; and determining displacements between the expected locations and the observed locations of the features of the displayed calibration pattern; aggregating, for the captured images from each of the plurality of positions, the displacements between the expected locations and the observed locations of the features of the displayed calibration pattern; generating a wavefront for the optics block based on the aggregated displacements; generating a distortion correction for at least a set of the plurality of positions using the generated wavefront, the distortion correction correcting distortion caused by one or more optical errors inherent to the optics block; and providing the generated distortion corrections to a rendering system of the HMD, each distortion correction modifying information displayed on the display to compensate for the distortion caused by the optics block.

"2. The method of claim 1, wherein generating the wavefront for the optics block further comprises: determining a slope of the wavefront from the displacements between the expected locations and the observed locations of the features of the displayed calibration pattern using a least-squares fitting with derivatives of Zernike polynomials.

"3. The method of claim 1, wherein generating the distortion correction comprises: analyzing the wavefront to identify one or more portions of the wavefront that are out of phase as a result of optical aberration associated with the optics block; and generating pre-distortion for the HMD, wherein the pre-distortion adjusts the wavefront to bring the one or more portions of the wavefront in phase as light for the frame with the pre-distortion passes through the optics block.

"4. The method of claim 1, wherein capturing images of the displayed calibration pattern comprises: guiding, using a robotic arm, the camera at the exit pupil into each of the plurality of positions at the exit pupil.

"5. The method of claim 1, wherein generating distortion correction for at least a set of the plurality of positions using the generated wavefront comprises: interpolating distortion corrections for multiple positions in the set of the plurality of positions; and determining distortion corrections for positions between the plurality of positions in the set of the plurality of positions.

"6. The method of claim 1, wherein the distortion correction based on the determined differences between expected locations of objects in the calibration pattern and locations of the corresponding objects in one or more images captured is based at least in part on a wavefront from the optics block at each position relative to the exit pupil.

"7. The method of claim 1, wherein the camera has a field of view capable of including the displayed calibration pattern in its entirety from each of the plurality of positions relative to the exit pupil.

"8. The method of claim 7, wherein the plurality of positions relative to the exit pupil include a plurality of different distances from the exit pupil and a plurality of different viewing angles relative to the exit pupil.

"9. A method comprising: capturing, from a plurality of positions at an exit pupil of a head mounted display (HMD), images of a calibration pattern displayed on a display of the HMD via a camera located at an exit pupil of the HMD, the HMD including an optics block configured to focus light from the display to the exit pupil of the HMD; for each image, comparing expected locations of features of the calibration pattern to observed locations of the corresponding features in the image of the displayed calibration pattern; and determining displacements between the expected locations and the observed locations of the features of the displayed calibration pattern; aggregating, for the captured images from each of the plurality of positions at the exit pupil of the HMD, the displacements between the expected locations and the observed locations of the features of the displayed calibration pattern; generating a wavefront for the optics block based on the aggregated displacements; and generating a distortion correction for at least a set of the plurality of positions using the generated wavefront, the distortion correction correcting distortion caused by one or more optical errors inherent to the optics block.

"10. The method of claim 9, further comprising: providing the generated distortion corrections to a rendering system of the HMD, each distortion correction modifying information displayed on the display to compensate for the distortion caused by the optics block.

"11. The method of claim 9, wherein generating the wavefront for the optics block further comprises: determining a slope of the wavefront from the displacements between the expected locations and the observed locations of the features of the displayed calibration pattern using a least-squares fitting with derivatives of Zernike polynomials.

"12. The method of claim 9, wherein generating the distortion correction comprises: analyzing the wavefront to identify one or more portions of the wavefront that are out of phase as a result of optical aberration associated with the optics block; and generating pre-distortion for the HMD, wherein the pre-distortion adjusts the wavefront to bring the one or more portions of the wavefront in phase as light for the frame with the pre-distortion passes through the optics block.

"13. The method of claim 9, further comprising: instructing the HMD to display the calibration pattern on a display of the HMD, wherein the camera has a field of view capable of including the displayed calibration image in its entirety from each of the plurality of positions relative to the exit pupil.

"14. The method of claim 13, wherein the plurality of positions relative to the exit pupil include a plurality of different distances from the exit pupil and a plurality of different viewing angles relative to the exit pupil.

"15. A system comprising: a head mounted display (HMD) configured to display a calibration image on a display, the HMD including an optics block configured to focus light from the display to an exit pupil and to provide a plurality of focal lengths; a camera located at the exit pupil and configured to capture images of the calibration image displayed by the display of the HMD from a plurality of positions of the camera relative to the exit pupil and for each of the plurality of focal lengths of the optics block and each of a plurality of eye positions; and a calibration system configured to: aggregate, for the captured images from each of the plurality of positions, displacements between expected locations and observed locations of features of the calibration image displayed on the HMD; generate a wavefront for the optics block based on the aggregated displacements; and generate a distortion correction for at least a set of the plurality of positions using the generated wavefront, the distortion correction correcting distortion caused by one or more optical errors inherent to the optics block.

"16. The system of claim 15, wherein the calibration system is further configured to: compare the expected locations of features of the calibration image to the observed locations of the corresponding features in the calibration image; and determine the displacements between the expected locations and the observed locations of the features of the displayed calibration image.

"17. The system of claim 16, wherein the calibration system is further configured to: determine a slope of the wavefront from the displacements between the expected locations and the observed locations of the features of the displayed calibration pattern using a least-squares fitting with derivatives of Zernike polynomials.

"18. The system of claim 15, further comprising: a robotic arm coupled to the camera and configured to move the camera to the plurality of positions relative to the exit pupil.

"19. The system of claim 15, wherein generating the distortion correction comprises: analyzing the wavefront to identify one or more portions of the wavefront that are out of phase as a result of optical aberration associated with the optics block; and generating pre-distortion for the HMD, wherein the pre-distortion adjusts

the wavefront to bring the one or more portions of the wavefront in phase as light for the frame with the pre-distortion passes through the optics block.

"20. The system of claim 15, wherein the camera has a field of view capable of including the displayed calibration image in its entirety from each of the plurality of positions relative to the exit pupil, and wherein the plurality of positions relative to the exit pupil include a plurality of different distances from the exit pupil and a plurality of different viewing angles relative to the exit pupil."

URL and more information on this patent, see: Fix, Alexander Jobe; Lanman, Douglas Robert; Geng, Ying. Autofocus Virtual Reality Headset. U.S. Patent Number 10,937,129, filed July 29, 2019, and published online on March 15, 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=10,937,129.PN.&OS=PN/10,937,129RS=PN/10,937,129

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theguardian

Technology
Facebook sets out plan for 'effortless' virtual reality socialising

Alex Hern UK technology editor
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GRDN
English

Users could effectively ‘teleport’ to connect with friends in more planet-friendly way, says Zuckerberg

Facebook has unveiled the first of a wave of virtual reality innovations that its chief executive, Mark Zuckerberg, hopes will allow for effective “teleportation” by the end of the decade.

One experimental project aims to track hand movements using nervous signals read by a wristwatch, with the hope of one day using that data to allow the wearer to manipulate virtual space.

Since Facebook bought the virtual reality company Oculus in 2014, the division has largely focused on gaming experiences, where it has enjoyed a significant share of a relatively niche market. Now, the social network is opening up about its plans for putting virtual reality and augmented reality to more mainstream uses.

In a 10-year plan published this week, the company’s “Reality Labs” laid out how it hopes to achieve its goal of “a contextually aware, AI-powered interface for augmented reality (AR) glasses that can use the information you choose to share, to infer what you want to do, when you want to do it”.

The chief scientist of the research division, Michael Abrash, said: “In order for AR to become truly ubiquitous, you need low-friction, always-available technology that’s so intuitive to use that it becomes an extension of your body. That’s a far cry from where [human computer interfaces are] today.” He said the company needs to invent “the VR equivalent of a computer mouse: a completely new type of interface – one that places us at the centre of the computing experience”.

One approach is to let people control virtual space with hand gestures tracked not with an ungainly camera setup, but with direct monitoring of users’ nervous systems: electromyography, or EMG. “This approach uses electrical signals that travel from the spinal cord to the hand, in order to control the functions of a device based on signal decoding at the wrist. The signals through the wrist are so clear that EMG can detect finger motion of just a millimetre. That means input can be effortless – as effortless as clicking a virtual, always-available button – and ultimately it may even be possible to sense just the intention to move a finger.”

On Monday, Zuckerberg said he hoped the technological improvement in the sector could even help fight climate change. In an interview with tech site The Information, he imagined a future where “rather than calling someone or having a video chat, you just kind of snap your fingers and teleport, and you’re sitting there and they’re on their couch and it feels like you’re there together.

“The more that we can teleport around, not only are we personally eliminating commutes and stuff that’s kind of a drag for us individually, but I think that’s better for society and for the planet overall, too.”

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BusinessLine

Social Media
TikTok, Facebook most downloaded non-gaming apps worldwide in February 2021: Report

Hemani Sheth
295 words
6 March 2021
BusinessLine Online
BSNLNO
English

Mumbai, March 6 Social Media

TikTok was the most downloaded non-gaming app worldwide for February 2021, according to a report by Sensor Tower.

TikTok clocked more than 56 million installs worldwide last month. Douyin in China accounted for the largest number of TikTok installs at 18 per cent, followed by the United States at 11 per cent.

TikTok was the most downloaded non-gaming app worldwide on the Apple App Store. However, on the Google Play Store, it came in fourth in terms of downloads, preceded by Indian short video app MX TakaTak, Facebook and Instagram on the list.

The second most downloaded non-gaming app worldwide in February was Facebook with over 45 million installs. India accounted for the highest number of installs of Facebook at 27 per cent, followed by the US at 8 per cent. Facebook was followed by Instagram, WhatsApp, and Telegram on the list of the top five most installed non-gaming apps globally last month.

TikTok was also the top-grossing non-gaming app worldwide for February 2021 with more than $110 million in user spending, 1.9 times its revenue in February 2020, as per the report. Nearly 79 per cent of TikTok's revenue came from Douyin in China, followed by the US at 8 per cent and 3 per cent from Turkey.

TikTok was followed by YouTube with more than $82 million in gross revenue last month, representing a 23 per cent year-over-year growth from February 2020. The US accounted for nearly 51 per cent of YouTube's revenue, followed by 12 per cent from Japan. Other top-grossing apps included Tinder, followed by Piccoma and Tencent Video.

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GlobeNewswire

Enthusiast Gaming's Pocket Gamer Connects Virtual Conference Posts Record Numbers Largest digital event to date attracted key sponsors including Facebook, Firebase (Google), MoPub (Twitter), Unity, Xsolla

1,183 words
2 March 2021
Postmedia Breaking News
CWNS
English

TORONTO, March 02, 2021 (GLOBE NEWSWIRE) - Enthusiast Gaming Holdings Inc. ("Enthusiast Gaming" or the "Company") (TSX: EGLX)(OTCQB: ENGMF)(FSE: 2AV) is pleased to announce record breaking registration at its most recent mobile games virtual event, Pocket Gamer Connects Digital #5 ("PGCD #5"), demonstrating the Company's continued success pivoting its events and entertainment business to be able to thrive in a virtual format. Recently, Enthusiast Gaming was ranked by Comscore in the Gaming Information category as #1 in the United States in total unique visitor traffic for mobile web and mobile video, which are the fastest growing and most lucrative channels in digital advertising. The Pocket Gamer community is just one of many video game communities that make up Enthusiast Gaming's platform that engages with 300 million gamers worldwide every month.

Over 1,500 mobile industry delegates, representing over 800 companies across 71 countries tuned in to PGCD #5 over five days last month - all record numbers. Delegates listened to 250+ speakers across 16 diverse tracks covering a broad spectrum of the industry, with an emphasis on game developers and publishers. Throughout PGCD #5, over 3,300 organized meetings were held online. Further, due to its unique position at the crossroads of the mobile games industry, Pocket Gamer Connects ("PGC") continues to attract an A list of sponsors and industry supporters including Facebook, Firebase (Google), MoPub (Twitter), Unity, Xsolla, Kwalee, CrazyLabs, JoyPac, among many more influential industry players.

Adrian Montgomery, CEO of Enthusiast Gaming commented, "I want to congratulate our Pocket Gamer team on another successful virtual event. With each additional virtual event we host, Enthusiast Gaming continues to grow and strengthen its audience and reach within the mobile games industry, allowing us to expand programming and reach new tier 1 sponsors."

The Pocket Gamer community includes avid mobile gamers, developers (including indies), publishers and more than 26,000 industry professionals worldwide have attended the international conference series, PGC, since 2014 in the UK, Canada, USA, Finland, Hong Kong, Jordan and India as well as through virtual events. PGC provides an important platform for mobile gaming enthusiasts to connect, engage and interact, while providing valuable industry leading expert content and discussion around the mobile gaming scene. PGCD #6 is scheduled for April 19-23, 2021. For more information or to register for PGC Digital visit https://www.pgconnects.com/digital/(https://www.globenewswire.com/Tracker?data=QiXrhfa2S_B8hF5wJ42pcMTViuvw3pSNl9E_xCWXGSuuBpQe3i44CibPqgGjBLTsLCkefg5Lvb1zmT3StXSVBU6FNb3u2YOyGbPfJtdp8GeaI9xyyDMRvg3jqx_KL4Nx).

About Enthusiast Gaming

Enthusiast Gaming (TSX: EGLX)(OTCQB: ENGMF)(FSE: 2AV) is building the world's largest social network of communities for gamers and esports fans that reaches over 300 million gaming enthusiasts on a monthly basis. Already the largest gaming platform in North America and the United Kingdom, the Company's business is comprised of four main pillars: Esports, Content, Talent and Entertainment. Enthusiast Gaming's esports division, Luminosity Gaming, is a leading global esports franchise that consists of 7 professional esports teams under ownership and management, including the Vancouver Titans Overwatch team and the Seattle Surge Call of Duty team. Enthusiast's gaming content division includes 2 of the top 20 gaming media and entertainment video brands with BCC Gaming and Arcade Cloud, reaching more than 50MM unique viewers a month across 9 YouTube pages, 8 Snapchat shows and related Facebook, Instagram and TikTok accounts. Its 100 gaming-related websites including The Sims Resource, Destructoid, and The Escapist collectively generate 1.1 billion page views monthly. Enthusiast's talent division works with nearly 1,000 YouTube creators generating nearly 3 billion views a month working with leading gamer talent such as Pokimane, Flamingo, Anomaly, and The Sidemen. Enthusiast's entertainment business includes Canada's largest gaming expo, EGLX (eglx.com), and the largest mobile gaming event in Europe, Pocket Gamer

Connects (pgconnects.com). For more information on the Company visit enthusiastgaming.com. For more information on Luminosity Gaming visit luminosity.gg.

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Forward-looking statements are based on assumptions, including expectations and assumptions concerning: interest and foreign exchange rates; capital efficiencies, cost saving and synergies; growth and growth rates; the success in the esports and media industry; and the Company's growth plan. While Enthusiast Gaming considers these assumptions to be reasonable, based on information currently available, they may prove to be incorrect. Readers are cautioned not to place undue reliance on forward-looking statements. In addition, forward-looking statements necessarily involve known and unknown risks, including, without limitation, risks related risks associated with general economic conditions; adverse industry events; future legislative, tax and regulatory developments. Readers are cautioned that the foregoing list is not exhaustive and other risks set out in Enthusiast Gaming public disclosure recorded filed under the Company's provide on www.sedar.com, including those contained in the prospectus. Readers are further cautioned not to place undue reliance on forward-looking statements as there can be no assurance that the plans, intentions or expectations upon which they are placed will occur. Such information, although considered reasonable by management at the time of preparation, may prove to be incorrect and actual results may differ materially from those anticipated. For more information on the risk, uncertainties and assumptions that could cause anticipated opportunities and actual results to differ materially, please refer to the public filings of Enthusiast Gaming which are available on SEDAR at www.sedar.com. Forward-looking statements contained in this news release are expressly qualified by this cautionary statement and reflect our expectations as of the date hereof, and thus are subject to change thereafter. Enthusiast Gaming disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

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How to Stream Vertical on FacebookGaming

Junae Benne
970 words
21 February 2021
Tom's Hardware
TOMHA
English

Go into portrait mode to make your content more attractive to people who are viewing it on their phones.

Facebook Gaming is steadily growing with no evidence of slowing down. Ever since the social network embraced the Mixer partners, its audience has gotten bigger. The unique thing about Facebook is that many more people view it on their phones than on their browsers.

So when it comes to streaming, you can output in portrait or landscape and still grow your following. Streaming vertically is great for games like Diablo, Magic The Gathering, or even Among Us.

What You Need

* OBS software

* A Facebook Account, personal or video game creator page

* A PC Capture card if you're playing on console

1. Download OBS if you don't already have it installed and launch it.

Click to view image (Image credit: Tom's Hardware)

After OBS launches it will automatically set the canvas to landscape with a resolution of 1920x1080 or 1280 x 720.

Click to view image (Image credit: Tom's Hardware)

2. Click Settings on the bottom left to change the canvas to portrait mode

Click to view image (Image credit: Tom's Hardware)

3. Change the Rescale Output to 720x1280 in the Output tab

Click to view image (Image credit: Tom's Hardware)

4. Click the Video tab

Click to view image (Image credit: Tom's Hardware)

5. Select 720x1280 as the Base Canvas Resolution. The aspect ratio should say 9:16

Click to view image (Image credit: Tom's Hardware)

6. Select 720x1280 as Output Scaled Resolution.

Click to view image (Image credit: Tom's Hardware)

7. Connect your Facebook Account in the Stream tab

Click to view image (Image credit: Tom's Hardware)

8. Click yes to continue when you get a message saying the resolution isn't supported but it will correct the output.

Click to view image (Image credit: Tom's Hardware)

9. Check the option to Ignore the Streaming Service Setting Recommendations. This means it'll output in the 720x1280 resolution.

Click to view image (Image credit: Tom's Hardware)

10. Add your Stream Key, which can be found on your Facebook page after clicking the Live button. After adding your stream key, click apply.

Click to view image (Image credit: Tom's Hardware)

Click to view image (Image credit: Tom's Hardware)

The canvas will change to Portrait

Click to view image (Image credit: Tom's Hardware)

How to Add your Game to Vertical layout - Customize Scene for Vertical Gameplay

1. Add your capture card to the scene. If you're playing a PC game, add the game by clicking Game Capture

Click to view image (Image credit: Tom's Hardware)

Click to view image (Image credit: Tom's Hardware)

2. Right-click on the Game Capture window to transform to the Center to Screen

Click to view image (Image credit: Tom's Hardware)

3. Edit Transform by right-clicking on the Game Capture window to

Click to view image (Image credit: Tom's Hardware)

4. Set Scene Item Transform to get the gameplay to fit this resolution

These settings are a starting place. Depending on the game you're playing you can resize and move the window around to have your character be center. For example, for Diablo III my settings are Position -424.0000 x 0.0000. Rotation - 0. Size 1559 x 877.

Click to view image (Image credit: Tom's Hardware)

Aligning Your Gameplay and the On-Screen Elements

Duplicate pieces of your Game Capture Screen and place them below the Gameplay. Duplicated Game Capture will allow you to rearrange elements of your game to fit the vertical size.

1. Right-click to Copy and Paste the Game Capture source in the same scene. The drawback to duplicating the source is you can't rename it to organize them.

Click to view image (Image credit: Tom's Hardware)

2. Press and hold the ALT key and drag in the sides to alter the game window

Click to view image (Image credit: Tom's Hardware)

3. Continue to do this with all the elements on the canvas

Click to view image (Image credit: Tom's Hardware)

Adding Facebook Alerts

Go to FB.gg/streamer to get the URLs for all your Facebook alerts.

Click to view image (Image credit: Tom's Hardware)

1. Click the three dots to Open the Alerts List in a new tab and copy the URL

Click to view image (Image credit: Tom's Hardware)

2. Add the URL as a Browser Source

Click to view image (Image credit: Tom's Hardware)

Click to view image (Image credit: Tom's Hardware)

a. Right click to Interact with the Browser and log into your Facebook to receive alerts in real time.

Click to view image (Image credit: Tom's Hardware)

3. Resize the window to 1042x782. You can’t see your Alert Box until you get an alert. You can also send yourself a test alert in the same menu you found the Alert Box URL.

Click to view image (Image credit: Tom's Hardware)

You can also add your FB chat to your stream by clicking the three dots, copying the URL and adding it as a Browser Source. But if the viewer is watching on mobile, the comments are displayed on screen.

Click to view image (Image credit: Tom's Hardware)

4. Add your camera and you’re ready to stream

Click to view image (Image credit: Tom's Hardware)

When you’re done your Scenes and Sources should look like this:

Click to view image (Image credit: Tom's Hardware)

This is how your broadcast looks on Facebook desktop

Click to view image (Image credit: Tom's Hardware)

Stream Vertical on Facebook Gaming (Tom's Hardware)

Document TOMHA00020210221eh2l0002t

BUSINESS RECORDER

Facebook hosts virtual event for Pak businesses to share insights

RECORDER REPORT
133 words
21 February 2021
Business Recorder
AIWBUR
English

KARACHI: Facebook hosted a virtual event for Pakistani businesses to share insights and key findings regarding Ramazan shoppers behaviour and trends, as these businesses initiated the planning of their respective campaigns. These insights were shared from a report Facebook commissioned from YouGov, to help advertisers gain a better understanding of their target audience.

Facebook shared six key insights into Ramazan shopper behaviour and trends in Pakistan, as well as tips on how Facebook solutions can help businesses uncover growth during this period.

68% of survey respondents in Pakistan believed brands should find ways of giving back to consumers and the community (especially during the ongoing crisis), whereas 54% become more interested in a brand or product after learning about their business practices.

Document AIWBUR0020210220eh2l0000g

Search Summary

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