AN ACCESSORY FOR A GAMING CONTROLLER

TECHNICAL FIELD

[0001] The present disclosure relates to gaming controllers for interfacing with interactive programs. In particular, the present disclosure pertains to an accessory for a gaming controller configured to enhance utility of said gaming controller during interaction of a user with an interactive program, such as virtual gaming, image/video editing, software testing, and the like.

BACKGROUND

[0002] The video game industry has undergone significant transformations over time. With the continuous expansion of computing capabilities, game developers have capitalized on these advancements by crafting software that harnesses the enhanced computing power. In pursuit of this goal, developers have been integrating complex operations and mathematical algorithms into games to deliver highly immersive and lifelike gaming experiences.

[0003] Example of gaming platforms includes devices like the Sony Playstation®, Sony Playstation4® (PS4), Sony Playstation5® (PS5), Xbox 360, Xbox One, Xbox Series S and Xbox Series X, all available as gaming consoles. As widely recognized, these consoles are intended for connection to a display device, typically a television or a monitor, facilitating user engagement through handheld controllers. A notable instance of such a controller is the Xbox wireless controller produced by Microsoft Gaming Inc.

[0004] During multiplayer online gaming sessions, whether on a personal computer or a dedicated video game console, there's often a desire to communicate verbally or via video with other players located remotely who are concurrently engaged in the same online game. Conventional video game controllers lack built-in features for such verbal communication, necessitating the use of external microphone and speaker devices. These devices typically involve wearing a headset, comprising a microphone and either a headphone or earphone.

However, wearing a headset for extended periods can be uncomfortable and may restrict the user's movements. Additionally, the need for occasional readjustment during gameplay further detracts from the optimal gaming experience. Cumulatively, these factors contribute to a less-than-ideal environment for enjoying online games.

[0005] Currently available external microphone and speaker devices are known to impose limitations on users' ability to speak freely and without constraints. Such devices usually obstruct a user's capacity to handle a gaming controller comfortably due to presence of intrusive components. These devices are frequently reported as uncomfortable, restrictive, and cumbersome for prolonged gaming sessions. Moreover, functionalities associated with the conventional microphone and speaker devices often include a limited volume control, typically offering only volume adjustment and a mute function. Additionally, such devices lack advanced background noise cancellation capabilities, resulting in users being subjected to unwanted environmental noise during gaming sessions due to microphones of such devices remaining constantly active.

[0006] Hence, there exists a requirement within the field for an efficient, reliable, and economical solution that addresses the drawbacks, limitations, and deficiencies of conventional gaming controllers and external microphone and speaker devices associated thereto.

OBJECTS OF THE PRESENT DISCLOSURE

[0007] An object of the present disclosure is to provide an accessory of a gaming controller connected to a gaming console or a personal computer, configured to improve utility of gaming controller as well as convenience of a user of the gaming controller.

[0008] Another object of the present disclosure is to provide an accessory of a gaming controller capable of improving communication effectiveness between multiple users engaged in a gaming session.

[0009] Another object of the present disclosure is to provide an accessory of a gaming controller, which is designed to enable efficient utilization of fingers of

the user, when the user wraps his/her hands around the gaming controller with the accessory attached thereto.

[0010] Another object of the present disclosure is to provide an accessory of a gaming controller, designed to effectively prevent any contact with the hands of the user, when the user is gripping palm support regions or grips of the gaming controller in his/her hands.

SUMMARY

[0011] Currently available microphones are uncomfortable, and restrictive to comfortability of users engaged in a gaming session using a gaming controller connected to a gaming console or a personal computer (PC). They also do not provide an easy way for an individual to adjust their volume settings directly from their gaming controllers. The present disclosure provides an accessory for the gaming controller capable of providing the user with the ability to efficiently communicate with other users through the gaming console/PC. The accessory is adapted to be attached to the gaming controller, and includes in-built microphone and speaker for communication. The accessory is adapted to connect to the gaming controller and offers a five-feature volume control set that allows a user to seamlessly take control of the microphone and speaker that is integrated into the accessory. The accessory is equipped with a push-to-talk (PTT) panel/pad positioned underneath the accessory, and extending underneath a bottom surface of the gaming controller. The PTT panel allows the users to effortlessly control when they want to talk or chat with other users engaged in gaming sessions.

[0012] Various objects, features, aspects, and advantages of the inventive subject matter will become more apparent from the following detailed description of preferred embodiments, along with the accompanying drawing figures in which like numerals represent like components.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The accompanying drawings are included to provide a further understanding of the present disclosure, and are incorporated in and constitute a

part of this specification. The drawings illustrate exemplary embodiments of the present disclosure and, together with the description, serve to explain the principles of the present disclosure.

[0014] FIG. 1 illustrates a schematic representation of a gaming controller connected to a personal computer or a gaming console for allowing a user to play a virtual game, in accordance with an embodiment of the present disclosure;

[0015] FIGs. 2A to 2D illustrate various representations of an accessory for improving utility of the gaming controller in accordance with an embodiment of the present disclosure; and

[0016] FIGs. 3A to 3C illustrate various representations of the accessory connected to an expansion port of the gaming controller, in accordance with an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0017] The following is a detailed description of embodiments of the disclosure depicted in the accompanying drawings. The embodiments are in such details as to clearly communicate the disclosure. However, the amount of detail offered is not intended to limit the anticipated variations of embodiments; on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the scope of the present disclosure.

[0018] Embodiments explained herein relate to an accessory designed for a gaming controller, aimed at improving the functionality of the gaming controller while a user engages with an interactive program, such as virtual gaming, image/video editing, software testing, and similar activities.

[0019] Conventionally, gaming controller, especially Xbox controller, are required to be connected to headsets that are usually bulky, uncomfortable, and can become bothersome when worn for extended periods. The proposed accessory of the present disclosure offers a hassle-free communication experience during gaming sessions of a user by eliminating the need to wear or interact with a separate microphones/headsets, allowing users to maintain full freedom of movement during the gaming sessions. The accessory is designed to seamlessly integrate

with gaming controllers, such as Xbox controllers, Playstation Controllers, Nintendo Controllers, and the like, to ensure that the fingers and hands of the user are never impeded during the gaming sessions.

[0020] Wearing a headset can be cumbersome in social situations as it blocks out surrounding sounds. The proposed accessory enables communication with both online friends and those nearby by eliminating the requirement of external headsets to be connected to the gaming controller. Moreover, the accessory facilitates interaction with individuals physically present with the user while also allowing awareness of environmental sounds like doorbell, dishwasher, or a baby in the background, during gaming sessions of the user. The accessory is designed to balance the ability to hear in-game audio and communications with the flexibility of being aware of surroundings, a feature lacking in conventional headsets that completely encase the ears of the user and block external noise.

[0021] FIG. 1 illustrates a schematic representation of a gaming controller 102 connected to a personal computer (PC) or a gaming console 104 for allowing a user to play a virtual game. The gaming controller 102 may be connected to a standard controller port on the game console 104 in the case of a dedicated gaming console. Alternatively, the gaming controller 102 could be connected to any other compatible parallel or serial ports available on a personal computer or dedicated gaming console. The gaming console 104 may be connected to a display device 106, such as a monitor, a television, a projection screen, a portable display, etc., capable of presenting graphics and video content of the video game to the user. The gaming controller 102 may take various forms such as a control pad, a steering wheel, a gun, a joystick, a mouse, a keyboard, or any other suitable input device/peripheral for video gaming.

[0022] The gaming controller 102 may include a plurality of keys, manipulation of which by a user can result in actions of one or more entities/avatars in the virtual game. The gaming controller 102 also includes two separate palm support portions (as shown in FIG. 3A), each adapted to support a palm of a hand of the user, when the user is holding the gaming controller 102 in his/her hands. The gaming controller 102 may include an expansion port (not shown) equipped with

a serial interface, such as Universal Serial Bus (USB) interface, micro-USB interface, USB-C interface and the like, to allow the gaming controller 102 to communicate with external devices like microphones, chargers, mice, keyboards, printers, accessories, and the likes.

[0023] The gaming controller 102 can be connected to an external accessory 108 through the expansion port. The accessory 108 may include a built-in speaker 110 and a microphone 112. The speaker 110 and the microphone 112 may be incorporated directly into the design of the accessory 108. As a result, the accessory 108 allows users to communicate with other players located remotely while engaging in online games, when the accessory 108 is connected to the gaming controller 102. Consequently, users can communicate with fellow online gamers without the need for wearing cumbersome headsets or being inconvenienced by dangling wires. Additionally, the accessory 108 relieves the users from managing external microphones or speakers that may be linked to the game console and/or externally provided to the gaming controller 102, which could obstruct or severely affect gaming experience of the user. The accessory 108 may also is equipped with a built-in video camera 114, which could be a digital video camera. This camera can capture video footage of the user interacting with the gaming controller 102 or other scenes and transmit them via an interface circuitry 116 to the gaming console 104. The captured video images could then be displayed on the display device 106 for the user's viewing, stored in the memory of the game console 104, and/or transmitted to remote game consoles for viewing by players at those remote consoles. Additionally or alternatively, in other configurations, the accessory 108 may be equipped with a port for connecting an external video camera output, either instead of or in addition to the integrated video camera.

[0024] The accessory 108 is designed to seamlessly integrate with the gaming controller 102 to provide unrestricted hand placement when the user wraps his/her hands around the gaming controller 102, ensuring that the gaming experience of the user is not disrupted in any matter while the user is holding the gaming controller 102 in his/her hands. The accessory 108 is equipped with the built-in

speaker 110 and microphone 112, negating the necessity for an external headset during gaming sessions. The speaker 110 may be interfaced with a Natural language model to improve communication effectiveness of the gaming controller 102. The built-in microphone 112 may be configured to capture audio from the user and convert the audio into electrical signals, which can be transmitted through the accessory 108 into the gaming controller 102 and across the gaming console/PC 104 to another gaming console, where it is received by another user. The speaker 110 may be configured to convert the electronic signals back into audio, enabling users with the accessory 108 to hear the transmitted audio.

[0025] The accessory 108 also includes a PTT panel 118, as clearly shown in FIGs. 2B and 2D, located on an exterior surface of the accessory 108, through actuation of which players can effortlessly communicate with teammates or opponents while playing. The PTT panel 118 may be located beneath the accessory 108 to provide easy access to the user, while allowing efficient utilization of little, ring, or middle fingers of the user, when the user wraps his/her hands around the gaming controller 102 with the accessory 108 coupled thereto. The accessory 108 is designed to be small and fit perfectly with the gaming controller 102 so as to not hinder mobility the user while using the gaming controller 102. The PTT panel 118 is adapted to control actuation of the speaker 110 and the microphone 112 of the accessory 108, such that the PTT feature serves two main functions, i.e., allowing users to control when they speak while blocking out unwanted background noise to ensure clear communication. In an example, once the PTT panel 118 is pressed by the user, the microphone 112 automatically gets activated and volume of the audio output emanating from the speaker 110 volume decreases automatically.

[0026] To activate the built-in microphone 112, the user simply needs to press the PTT panel 118 located underneath the accessory 108. The PTT panel 118 may extend outward and smoothly integrates beneath the gaming controller 102 for optimal accessibility. Covering the bottom area of the gaming controller 102, the extended PTT panel 118 allows the user to press anywhere on its surface to engage the microphone 112. Utilizing the PTT feature with the panel 118 on the

underside of the accessory 108, the PTT feature can be activated with any of the fingers of the user wrapped around the gaming controller 102. The user can simply press/push the PTT panel 118 on the bottom of the accessory 108 to selectively enable or disable communication, while ensuring that any unwanted noise does not transmit through the microphone 112, thereby preventing any hindrance to communication between the user and his/her peers. By automatically muting the microphone 112 when the PTT panel 118 is not activated, the accessory 108 prevents any unintended noise transmission. Consequently, the accessory 108 offer the users/gamers a more convenient communication solution, eliminating the discomfort of conventional headsets while maintaining excellent audio quality during gaming sessions.

[0027] Referring to FIG. 2A, where a perspective view of the accessory 108 is shown. The accessory 108 may include a plurality of keys/buttons, each adapted to control a specific function of any or a combination of the speaker 110, the microphone 112, the camera 114 and the PTT panel 118. The keys may be appropriately positioned on an exterior surface of the accessory 108 located near the gaming controller's thumb sticks, such that the keys are readily available for pressing by the user when the user is holding the gaming controller 102 in his/her hands. In an implementation, the accessory 108 may include keys 202 and 204 on the exterior surface thereof for controlling volume emanating from the in-built speaker 110. The user may press the keys 202 and 204 to either increase or decrease the volume of the in-built speaker 110. The accessory 108 may also include a mute key 206 adapted to disable transmission of audio through the microphone 112, when pressed. Additional keys 208 may be provided on the exterior surface of the accessory 108 to provide additional control over different operations of the gaming controller 102 or the gaming console 104. For example, the additional keys 208 may enable the user to toggle a game chat function and/or a party chat function of the gaming controller 102. These additional keys 208 may assist options for party chat and game chat mix, allowing users to adjust their accessory’s speaker audio to prioritize either party chat or game chat.

[0028] The accessory 108 may also include a serial interface 210, such as Universal Serial Bus (USB) interface, micro-USB interface, USB-C interface and the like, to allow the accessory 108 to be operatively coupled with external devices like microphones, chargers, mice, keyboards, printers, accessories, and the likes, and an audio port 212, such as a 3.5mm headphone jack, for enabling connection of external headsets or microphones to the gaming controller 102, as and when required. The audio port 212 enables the user to connect wearable headset to the gaming controller 102 for convenient volume control directly from the accessory 108. This unique capability serves a dual purpose, i.e., enabling communication with peers without the need for a headset and allowing users to manage their wearable headset's volume settings directly from the accessory 108 connected to the gaming controller 102, thereby enhancing gaming communication experience of the user. In an example, audio emanating from the built-in microphone 112 and the speaker 110 may switch automatically, and get routed to an external headset once the same is plugged into the audio port 212. Additionally, the accessory 108 may be equipped with a rechargeable battery and can be conveniently charged using the serial interface 210. An exterior surface of the accessory 108 may also include a speaker outlet 214 for providing a passage for audio output of the built-in speaker 110 to be transmitted towards the user, and a microphone inlet 216 to provide a passage for user speech/audio to be transmitted to the microphone 112.

[0029] FIGs. 2B and 2C illustrate a plan view and a front view of the accessory 108. FIG. 2D shows a side view of the accessory 108. The accessory 108 may be equipped with an input serial interface 218, such as Universal Serial Bus (USB) interface, micro-USB interface, USB-C interface and the like, corresponding to the expansion port of the gaming controller 102 to enable the accessory 108 to be connected to the gaming controller 102, as and when required by the user. The accessory 108 provides a distinctive two-way communication system that activates when the PTT panel 118 is pressed. When the microphone 112 is engaged, the speaker 108 significantly reduces its volume, enabling the user to communicate with another user across the gaming console 104. Simultaneously,

the accessory 108 allows another user to communicate with the user of the accessory 108 in a seamless two-way exchange, ensuring uninterrupted communication. The reduction in volume of the speaker 110 enhances the effectiveness of the noise cancellation features integrated into the built-in microphone 112.

[0030] FIGs. 3A and 3B illustrate a plan view and a perspective view of the accessory 108 connected to the expansion port (not shown) of the gaming controller 102. FIG. 3C shows a front view of the accessory 108 connected to the expansion port (not shown) of the gaming controller 102. As shown, the accessory 108 may be connected to the gaming controller 102 by physical connection of the input serial interface 218 with the expansion port of the gaming controller 102. The accessory 108 may have a three-dimensional (3D) shape designed so as to prevent any kind of obstruction to hands of the user, when connected to the gaming controller 102. In an example, the user may hold the gaming controller 102 in his/her hands by gripping the palm support portions 302, 304 of the gaming controller 102. The accessory 108 may be designed to be flush with one or more surfaces of the gaming controller 102, such that when the accessory is connected to the gaming controller 102, the user is not easily able to distinguish structural differences between the accessory 108 and said surfaces of the gaming controller 102. The accessory 108 may also include side portions having any or a combination of curved profiles, convex profiles, and concave profiles designed so as to effectively prevent any contact with the hands of the user, when the user is gripping the palm support regions 302, 304 of the gaming controller 102 in his/her hands. The accessory 108 is also designed taking into account weight distribution of the gaming controller 102. As a result, the accessory 108, when connected to the gaming controller 102, improves ergonomics of the gaming controller 102.

[0031] The accessory 108 is designed to ensure that the user's handling of the gaming controller 102 is not impeded in any manner. The accessory 108 attaches to a backport (expansion port) of the gaming controller 102 and extends outward, featuring an inward design that directs away from the palm support regions 302, 304 of the gaming controller 102. The accessory 108 effectively avoids contact

with the palm support regions 302, 304 of the gaming controller 102, enabling the users to comfortably wrap their hands around the gaming controller's 102 grips (palm support regions 302, 304) without any obstructive material in the way.

[0032] The accessory 108 operates on a plug-and-play model, making it instantly usable and effortlessly integrating into the gaming controller 102 without any additional setup. By eliminating the necessity for wearing an external headset, the accessory 108 caters to users who prefer a more convenient and unencumbered gaming experience. Designed with the casual gamer in mind, the accessory 108 facilitates seamless interaction and communication with friends during gaming sessions. The accessory 108 may include an operating system capable of embedding a Natural Language Model/Voice activation assistant. This system enables users to speak verbal commands into the microphone 112, which can then be transmitted through the microphone 112 into the operating system. The commands may be processed by the system to trigger various functions within the gaming console 104, ultimately granting users the ability to control their gaming console 104 using voice commands.

[0033] While the foregoing describes various embodiments of the invention, other and further embodiments of the invention may be devised without departing from the basic scope thereof. The invention is not limited to the described embodiments, versions or examples, which are included to enable a person having ordinary skill in the art to make and use the invention when combined with information and knowledge available to the person having ordinary skill in the art.

ADVANTAGES OF THE PRESENT DISCLOSURE

[0034] The present disclosure provides an accessory of a gaming controller connected to a gaming console or a personal computer, configured to enhance functionality of the gaming controller and improve user experience.

[0035] The present disclosure provides an accessory of a gaming controller capable of enhancing communication effectiveness between multiple users engaged in a gaming session.

[0036] The present disclosure provides an accessory of a gaming controller specifically crafted to optimize the user's finger usage. This is achieved when the user wraps their hands around the gaming controller with the accessory attached.

[0037] The present disclosure provides an accessory of a gaming controller, designed to effectively prevent any contact with the hands of the user, when the user is gripping palm support regions or grips of the gaming controller in his/her hands.

[0038]

ABSTRACT

AN ACCESSORY FOR A GAMING CONTROLLER

An accessory (108) for a gaming controller (102) is disclosed. The accessory (108) is configured to improve the functionality of the gaming controller (102) during a user's interaction with various interactive programs, including virtual gaming, image/video editing, software testing, and the likes. The accessory (108) includes built-in speaker (110), microphone (112) and Push-to-Talk (PTT) panel (118). The PTT panel (118) is located on an exterior surface of the accessory (108), through actuation of which users can effortlessly communicate with teammates or opponents during a gaming session. The accessory (108) is adapted to effectively prevent any contact with the hands of the user, when the user is gripping the gaming controller (102) in his/her hands. The accessory (108) improves ergonomics of the gaming controller (102). The accessory (108) is designed to ensure that the user's handling of the gaming controller (102) is not impeded in any manner.

FIG. 2A shall be the reference figure.