(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 November 2023 (16.11.2023)

WIPO | PCT

(10) International Publication Number
WO 2023/218284 A1

(51) International Patent Classification:
*A63F 13/219* (2014.01) *F41A 21/26* (2006.01)
*A63F 13/25* (2014.01) *F41G 3/26* (2006.01)
*A63F 13/30* (2014.01) *G09B 9/00* (2006.01)
*A63F 13/92* (2014.01)

(21) International Application Number:
PCT/IB2023/054523

(22) International Filing Date:
01 May 2023 (01.05.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/339,474 08 May 2022 (08.05.2022) US

(71) Applicant: **BAGIRA SYSTEMS LTD.** [—/IL]; 26 Ha'K-ishor St., 5886708 Holon (IL).

(72) Inventor: **MIZRACHI, Yaron**; c/o Bagira Systems Ltd., 26 Ha'Kishor St., 5886708 Holon (IL).

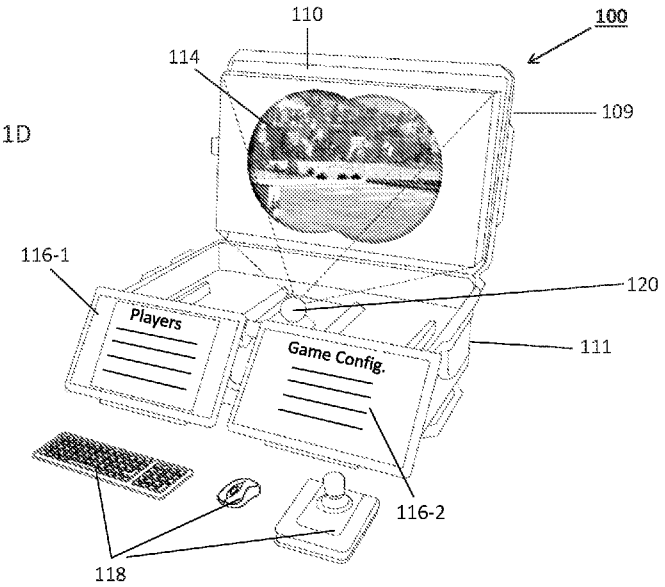
(74) Agent: **NATHAN, Daniela**; Nathan & Associates Patent Agents LTD, P.O. BOX 10178, 6110101 Tel Aviv (IL).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: PORTABLE GAMING CONSOLE

FIG. 1D




(57) Abstract: A portable gaming console and method of use, the gaming console including: an enclosure; a controller housed in the enclosure and including a processor and a non-transitory computer readable medium; a main display housed in a lid of the enclosure and in data communication with the controller; and a sub-display housed in the enclosure and in data communication with the controller, wherein the sub-display is configured to be folded out of the enclosure, wherein the gaming console is configured to run a game using the controller and to display the game on the main display and supplemental game data on the sub-display.

WO 2023/218284 A1

*[Continued on next page]*

**Published:**

— *with international search report (Art. 21(3))*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

# PORTABLE GAMING CONSOLE

## CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of priority from U.S. provisional patent application No. 63/339,474 filed May 8, 2022, which is incorporated herein by reference in its entirety.

## FIELD

Embodiments disclosed herein relate to simulator systems and, in particular, to a gaming system packaged in a portable console.

## BACKGROUND

Target practice and shooting simulation systems that use specially adapted weapons that fire lasers instead of live fire may add a new dimension to the shooter gaming experience. Alternatively and additionally, such systems may be useful for shooting skills development. Variations of such systems may be used for gaming simulations of other areas such as flight or vehicle simulation. However, such gaming systems are generally installed at dedicated entertainment facilities thus requiring players to spend valuable time travelling to these entertainment centers. Some users might prefer to use such an immersive system while hosting other players at home or at some other ad-hoc playing facility.

There is therefore a need for a fully functional gaming system that may be mobile (portable) for deployment at convenient locations.

## SUMMARY

This disclosure describes systems and methods for simulation gaming. A shooting simulator gaming console as disclosed herein includes a computing device, multiple display options and one or more trackers for detecting simulated weapon activity. Advantageously, the gaming console may be fully self-contained, enabling provision of gaming sessions at convenient and ad-hoc locations.

As used herein the terms virtual ammunition, virtual firing, virtual hit, and similar terms relate to use of the disclosed system in methods for simulated use of weapons such as for

gaming purposes. As used herein the terms "user", "player" and/or "gamer" may refer to a human user of the console described herein. As used herein a "game" may refer to any gaming environment for performing simulated activities including but not limited weapon usage, reconnaissance, piloting vehicles, or a combination of these or other activities.

Consistent with some embodiments, a portable gaming console, includes: an enclosure; a controller housed in the enclosure and including a processor and a non-transitory computer readable medium; a main display housed in a lid of the enclosure and in data communication with the controller; and a sub-display housed in the enclosure and in data communication with the controller, wherein the sub-display is configured to be folded out of the enclosure, wherein the gaming console is configured to run a game using the controller and to display the game on the main display and supplemental game data on the sub-display.

In some embodiments, the portable gaming console further includes a tracking unit, wherein the tracking unit is configured to detect a laser beam reflected off the main display. In some embodiments, the portable gaming console is configured to display the game on an external display, wherein the tracking unit is configured to detect a laser beam reflected off the external display.

In some embodiments, the laser beam is generated by a laser transmitter attached or integrated into a weapon. In some embodiments, when a plurality of weapons each with an integrated or attached laser transmitter each generate a laser beam, the tracking unit is configured to differentiate between the generated laser beam of each laser transmitter reflected off the main display or the external display.

In some embodiments, the portable gaming console further includes interface components for interaction of a user with the gaming console. In some embodiments, the sub-display includes a touch screen and wherein the touch screen is configured for interaction of a user with the gaming console. In some embodiments, the portable gaming console is configured for data communication with other portable gaming consoles.

In some embodiments, the main display is coated on a display surface with a transparent dispersive material. In some embodiments, the enclosure has the form of a ruggedized trolley suitcase.

In some embodiments, a method for multiplayer gaming includes providing the portable gaming console as described above and using the portable gaming console to play a multiplayer game. In some embodiments, the method further includes, defining players, game scenarios and player roles for playing a game on the portable gaming console.

In some embodiments, a method for multiplayer gaming, includes, providing a plurality of the portable gaming consoles described above; using data networking to connect the plurality of portable gaming consoles, thereby obtaining a plurality of networked portable gaming consoles; defining player roles and scenarios for each of the portable gaming consoles, wherein at least two of the portable gaming consoles run different scenarios; and using the plurality of networked portable gaming consoles to play a multiplayer game.

This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description below. It may be understood that 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 details of one or more implementations are set forth in the accompanying drawings and the description below. Other features will be apparent from the description and drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

Aspects, embodiments and features disclosed herein will become apparent from the following detailed description and claims when considered in conjunction with the accompanying drawings. In the drawings:

FIG. 1A is a block diagram a portable gaming console according to some implementations;

FIGS. 1B-1E are illustrative drawings of portable gaming consoles according to some implementations;

FIG. 2A is a flowchart showing a process for operation of a portable gaming console according to some implementations;

FIGS. 2B-2D show exemplary simulation configurations using a portable gaming console according to some implementations.

## DETAILED DESCRIPTION

Reference will now be made in detail to non-limiting examples of gaming systems and methods which are illustrated in the accompanying drawings. The examples are described below by referring to the drawings, wherein like reference numerals refer to like elements. When similar reference numerals are shown, corresponding description(s) are not repeated, and

the interested reader is referred to the previously discussed figure(s) for a description of the like element(s).

Aspects of this disclosure may provide a technical solution to the challenging technical problem of portable gaming consoles and may relate to a system for providing portable gaming with the system having at least one processor (e.g., processor, processing circuit or other processing structure described herein), including methods, systems, devices, and computer-readable media. For ease of discussion, example methods are described below with the understanding that aspects of the example methods apply equally to systems, devices, and computer-readable media. For example, some aspects of such methods may be implemented by a computing device or software running thereon. The computing device may include at least one processor (e.g., a CPU, GPU, DSP, FPGA, ASIC, or any circuitry for performing logical operations on input data) to perform the example methods. Other aspects of such methods may be implemented over a network (e.g., a wired network, a wireless network, or both).

As another example, some aspects of such methods may be implemented as operations or program codes in a non-transitory computer-readable medium. The operations or program codes may be executed by at least one processor. Non-transitory computer readable media, as described herein, may be implemented as any combination of hardware, firmware, software, or any medium capable of storing data that is readable by any computing device with a processor for performing methods or operations represented by the stored data. In a broadest sense, the example methods are not limited to particular physical or electronic instrumentalities, but rather may be accomplished using many differing instrumentalities.

Embodiments disclosed herein relate to a portable gaming console. FIG. 1A is a block diagram a portable gaming console **100** according to some implementations. FIGS. 1B-1E are illustrative drawings of a portable gaming console **100** according to some implementations. As shown in FIG. 1A, portable gaming console **100** may be contained in an enclosure **110**. The components of portable gaming console **100** that may be contained in enclosure **110** include a controller **112**, a main display **114**, and one or more sub-displays **116**. Other components of portable gaming console **100** may be removable from enclosure **110** including interface components **118**, and one or more tracker units **120**.

Portable gaming console **100** may include computer graphics interfaces **123** to enable use of portable gaming console **100** with one or more external displays **124**. Shooting games may make use of a simulated weapon **130** with an integrated or attached laser transmitter **132** configured to emit laser light responsive to the pulling of a trigger of simulated weapon **130**.

Enclosure **110** may have the form a trolley suitcase as known in the art including wheels and carrying/pulling handles. In some embodiments, the exterior of enclosure **110** may be formed of an impact resistant material. In some embodiments, enclosure **110** may be ruggedized. In some embodiments, enclosure **110** may have dimension of 2.7 ft. wide by 1.7 ft. tall. In some embodiments, enclosure **110** and the contents therein may have a weight that can be borne by single individual to thus enhance the portability of portable gaming console **100**. Enclosure **110** may be openable for use of the components of system **100** therein and closeable for transport or protection of portable gaming console **100**.

FIG. 1B shows enclosure **110** in closed and open states. FIG. 1C shows enclosure **110** in a closed cross-sectional view with main display **114** in lid section **109** and one of sub-displays **116** as well as controller **112** fixedly mounted in base **111**. FIG. 1D shows open enclosure **110** including a lid section **109** and a base section **111**.

Controller **112** and the modules and components that are included in controller **112** may include a processor and non-transitory computer readable medium containing instructions that, when executed by the at least one processor, are configured to perform the functions and/or operations necessary to provide the functionality described herein. Controller **112** may manage the operation of the components of portable gaming console **100** and may direct the flow of data between the components of portable gaming console **100**. Where portable gaming console **100** may be said herein to provide specific functionality or perform actions, it should be understood that the functionality or actions are performed by controller **112** that may call on other components of portable gaming console **100**. In some embodiments, controller **112** includes water cooling **113** (FIG. 1C) for the components of controller **112**. Controller **112** is configured to store (such as on the non-transitory computer readable medium) and operate one or more gaming applications such as but not limited to a target practice (shooting) game.

Main display **114** may be fixedly attached to the upper lid **109** of enclosure **110**. In some embodiments, main display **114** may be coated on a display surface with a transparent dispersive material (such as but not limited to foil, net, or paint) for increasing the dispersive reflectivity of the display surface to reduce reflections from laser beams aimed at main display **114** during shooting simulations, such as laser transmitter **132** mounted on or integrated into simulated weapon **130**. In some embodiments, main display **114** may have a diagonal of 32 inches. In some embodiments, the image of display **114** may be duplicated onto one or more external displays **124**.

As shown in FIG. 1A, for example, two external displays **124-1** and **124-2** may be connected to portable gaming console **100**. It should be appreciated that only one, or more than two external displays may be connected to portable gaming console **100**.

In some embodiments, two sub-displays **116**, shown in FIGS. 1A-1E as sub-displays **116-1** and **116-2**, may be provided. In some embodiments, sub-displays **116** may display supplementary simulator information and/or configuration/settings related to a simulation application displayed on main display **114**. In some embodiments, a game/simulation or part of a game/simulation may be shown on one or both of sub-displays **116**. In some embodiments, sub-displays **116** may include touch screens for interacting by a user with a simulation application. In some embodiments, such as shown in FIGS. 1B, 1D and 1E, sub-displays **116** may fold out of enclosure **110**. The folded-out position of sub-displays **116** is exemplary and other positions may be contemplated. In some embodiments, sub- displays **116** may have a diagonal of 15.6 inches.

FIGS. 1B, 1D and 1E show exemplary usage of sub-displays **116**. For example (FIG. 1D), while main display **114** may show a simulated target for users to shoot at, a first sub-display **116-1** may show supplementary information (user scoring), and a second sub-display **116-2** may display other supplementary information (configuration settings) for the target practice shown on main display **114**. In a further example (FIG. 1E), while main display **114** may show a pilot view of a flight simulator, a first sub-display **116-1** may show a map, and a second sub-display **116-2** may display simulated aircraft operational indicators.

Interface components **118** may be provided as part of console **100** for interaction by a user with portable gaming console **100** such as for controlling simulation applications running on portable gaming console **100**. Interface components **118** may be provided with a wired or wireless connection to controller **112**. Interface components **118** may include devices known in the art for computing interaction such as but not limited to mouse, keyboard, touchscreens, microphone (for voice interaction/control), and speakers/headset (for audio output). In some embodiments, interface components **118** may include a simulation specific interface component such as a joystick. Interface components **118** may include data network interfaces (such as but not limited to LAN and/or WiFi interfaces) for connection of portable gaming console **100** to data networks and/or to other portable gaming consoles **100**.

Tracking unit **120** (FIG. 1D) may include a camera **121** and tracker controller **122**. Tracker controller **122** may be a computing device as defined herein. Tracker controller **122** may include a processor and non-transitory computer readable medium containing instructions that when executed by the at least one processor are configured to perform the functions and/or

operations necessary to provide the functionality described herein related to tracking unit **120**. In some embodiments, the at least one processor of tracker controller **122** may run a video analysis processing application (not shown) configured to analyze video data provided by camera **121** and to feed analyzed video data to controller **112**.

In some embodiments camera **121** may be a high-speed industrial camera. In some embodiments, camera **121** may have a resolution of 1440x1080 and support a frame rate of up to **238** FPS. In some embodiments, tracking unit **120** may be in wireless communication with controller **112**. In some embodiments, tracking unit **120** may be configured to be mounted on lid **109** when lid **109** is in an open state. In some embodiments, tracking unit **120** may be configured to be mounted inside enclosure **110** when lid **109** is in an open state.

In some embodiments, a laser transmitter **132** may be coupled to or mounted onto a weapon **130** in order to use simulated weapon **130** in a simulation. The laser transmitter **132** may emit laser light responsive to the pulling of the trigger of weapon **130**. The propagation of the emitted laser light may be descriptive of the trajectory of live ammunition that would be fired by the weapon **130** responsive to the pulling of the trigger.

In some embodiments, tracking unit **120** may detect reflected laser light that is generated by laser transmitter **132** and reflects off main display **114** or external display **124**. In use, camera **121** may be positioned so as to substantially capture a view of all of main display **114** (FIG. 1D) or all of external display **124** to thereby perform analysis by tracker processor **122** on the images that are provided by camera **121**. Tracker controller **122** may then determine based on a laser position on a displayed target whether or not a laser transmitted by laser transmitter **132** as part of virtual firing has scored a virtual hit on a target and also what part of a target has been hit.

In some embodiments, multiple players using multiple weapons **130** may be simultaneously used in a multiplayer game/simulation operated by portable gaming console **100**. In some embodiments, each portable gaming console **100** may support up to 10 weapons.

In some embodiments, in multiplayer games, each laser transmitter **132** may transmit a code or other form of unique identifier in the fired laser that can be determined by tracker unit **120** to belong to the laser transmitter **132** of a specific player to thereby track the shooting performance of a player, particularly in multiplayer games where each player may have their own weapon with an embedded/attached laser transmitter **132.** In such a multiplayer game tracker unit **120** may thus associate the laser emitted from each separate laser transmitter **132** with a specific player, to thereby track the player's shooting once the game commences and

multiple laser transmitters **132** each corresponding to a player emit lasers simultaneously or near simultaneously that may be reflected off main display **114** or external display **124**.

In some embodiments, in order to increase the number of supported players, multiple portable gaming consoles **100** may be networked together such as by using network interfaces of portable gaming consoles **100**. In some embodiments, when networked together, each of portable gaming consoles **100** may adopt a different role in a game/simulation. In a non-limiting example, some players on a first console may be allocated shooting roles, while other players on a second console are allocated driving or flying roles, where all players are playing within the same game environment in cooperative or competition modes.

FIG. 2A is a flowchart showing a process **200** for operation of a portable gaming console according to some implementations. FIGS. 2B-2D show exemplary simulation configurations using a portable gaming console **100** according to some implementations. A non-transitory computer readable medium may contain instructions that when executed by at least one processor performs the operations described at each step as part of process **200**. Process **200** may be performed using portable gaming console **100** and the non-transitory computer readable medium and at least one processor may correspond to controllers **112** and tracker controller **122**.

In step **202**, console **100** may be set up for usage including positioning on a surface for convenient operation by a user such as on a table, connecting to a power source, opening enclosure **110**, powering on console **100**, folding out sub-displays **116**, connecting console **100** to one or more external displays **124** and placing interface components **118** in convenient usage positions. In some embodiments, a desired simulation application may be activated (such as by a user using interface components **118**).

In step **204**, tracker **120** may be calibrated by being positioned facing main display **114** or positioned facing external display **124** (such that camera **121** is sufficiently far from main display **114** or external display **124** to capture all of a displayed image). In some embodiments, calibration is initiated automatically once tracker **120** is positioned facing main display **114** or positioned facing external display **124**. In some embodiments, calibration may be initiated following positioning of tracker **120** by interaction of a player portable gaming console such as through interfaces **118**. Calibration as used herein refers to the identification by tracker **120** of image points of interest needed for the game such as the image boundaries and target positions on the image displayed on main display **114** or external display **124**.

In step **206**, one or more users may be defined in the simulation application such as by interaction of a user with sub-displays **116**. Where multiple portable gaming consoles **100** are networked together, a single of the portable gaming consoles **100** (acting as a "master" console) may be used to define the players associated with each portable gaming console **100**.

In step **208**, where training (simulated) weapons **130** are used, these may be calibrated opposite main display **114** or external display **124**. In some embodiments, a shooter may stand in front of display **114** or external display **124** and shoot several calibration shots (using laser transmitter **132** to thereby perform zeroing of a weapon **130**. Where interface components include a simulation specific interface component such as a joystick, this interface component may be calibrated as part of step **208**.

In some embodiments, in multiplayer games, each laser transmitter **132** may transmit a code in the fired laser that can be determined by tracker unit **120** to belong to the laser transmitter **132** of a specific player to thereby track the shooting performance of a player. As part of step **208**, each player having their own weapon with an embedded/attached laser transmitter **132** may in turn shoot several calibration shots, thus enabling tracker unit **120** to associate the laser emitted from each separate laser transmitter **132** with a specific player, to thereby track the player's shooting once the game commences and multiple laser transmitters **132** each corresponding to a player emit lasers simultaneously or near simultaneously that may be reflected off main display **114** or external display **124**.

In step **210**, a user may choose the game scenario and/or environment and/or other game parameters such as by interaction of a user with sub-displays **116**. In a non-limiting example, a target practice scenario may be chosen such as shown in FIGS. 2B or 2C. In a non-limiting example, a reconnaissance style game scenario may be chosen such as shown in FIG. 2D.

In some embodiments, when networked together, the role of each of portable gaming consoles **100** may be defined including the roles of each player associated with each portable gaming console in a game/simulation. In a non-limiting example, some players on a first console may be allocated shooting roles, while other players on a second console may be allocated reconnaissance, driving or flying roles, where all players are playing within the same game environment in cooperative or competition modes.

In step **212**, the game may be started. Exemplary simulation configurations are contemplated using console **100** and optionally external display **124**. In some embodiments, such as shown in FIG. 2B target practice may be provided for user's firing towards main display **114**.

In some embodiments, such as shown in FIG. 2C target practice may be provided for players firing towards external display **124** while console **100** is operated by a user viewing main display **114**.

In some embodiments, such as shown in FIG. 2D a reconnaissance vehicle game scenario may be provided for a player viewing main display **114** and viewing and interacting with sub-displays **116** that provide supplemental data related to the game such as vehicle instruments.

Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art. The materials, methods, and examples provided herein are illustrative only and not intended to be limiting.

Implementation of the method and system of the present disclosure may involve performing or completing certain selected tasks or steps manually, automatically, or a combination thereof. Moreover, according to actual instrumentation and equipment of preferred embodiments of the method and system of the present disclosure, several selected steps may be implemented by hardware (HW) or by software (SW) on any operating system of any firmware, or by a combination thereof. For example, as hardware, selected steps of the disclosure could be implemented as a chip or a circuit. As software or algorithm, selected steps of the disclosure could be implemented as a plurality of software instructions being executed by a computer using any suitable operating system. In any case, selected steps of the method and system of the disclosure could be described as being performed by a data processor, such as a computing device for executing a plurality of instructions.

It should be appreciated that the above described methods and apparatus may be varied in many ways, including omitting or adding steps, changing the order of steps and the type of devices used. It should be appreciated that different features may be combined in different ways. In particular, not all the features shown above in a particular embodiment or implementation are necessary in every embodiment or implementation of the invention. Further combinations of the above features and implementations are also considered to be within the scope of some embodiments or implementations of the invention.

While certain features of the described implementations have been illustrated as described herein, many modifications, substitutions, changes, and equivalents will now occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the scope of the

implementations. It should be understood that they have been presented by way of example only, not limitation, and various changes in form and details may be made.

WHAT IS CLAIMED IS:

1. A portable gaming console, comprising:

an enclosure;

a controller housed in the enclosure and including a processor and a non-transitory computer readable medium;

a main display housed in a lid of the enclosure and in data communication with the controller; and

a sub-display housed in the enclosure and in data communication with the controller, wherein the sub-display is configured to be folded out of the enclosure,

wherein the gaming console is configured to run a game using the controller and to display the game on the main display and supplemental game data on the sub-display.

2. The portable gaming console of claim 1, further comprising a tracking unit, wherein the tracking unit is configured to detect a laser beam reflected off the main display.

3. The portable gaming console of claim 2, configured to display the game on an external display, wherein the tracking unit is configured to detect a laser beam reflected off the external display.

4. The portable gaming console of claim 3, wherein the laser beam is generated by a laser transmitter attached or integrated into a weapon.

5. The portable gaming console of claim 4, wherein, when a plurality of weapons each with an integrated or attached laser transmitter each generate a laser beam, the tracking unit is configured to differentiate between the generated laser beam of each laser transmitter reflected off the main display or the external display.

6. The portable gaming console of claim 1, further comprising interface components for interaction of a user with the gaming console.

7. The portable gaming console of claim 1, wherein the sub-display includes a touch screen and wherein the touch screen is configured for interaction of a user with the gaming console.

8. The portable gaming console of claim 1, configured for data communication with other portable gaming consoles.

9. The portable gaming console of claim 1, wherein the main display is coated on a display surface with a transparent dispersive material.

10. The portable gaming console of claim 1, wherein the enclosure has the form of a ruggedized trolley suitcase.

11. A method for multiplayer gaming comprising:

providing the portable gaming console according to any one of the above claims; and

using the portable gaming console to play a multiplayer game.

12. The method of claim 11, further comprising, defining players, game scenarios and player roles for playing a game on the portable gaming console.

13. A method for multiplayer gaming, comprising:

providing a plurality of the portable gaming consoles according to any one of the claims 1-10;

using data networking to connect the plurality of portable gaming consoles, thereby obtaining a plurality of networked portable gaming consoles;

defining player roles and scenarios for each of the portable gaming consoles, wherein at least two of the portable gaming consoles run different scenarios; and

using the plurality of networked portable gaming consoles to play a multiplayer game.

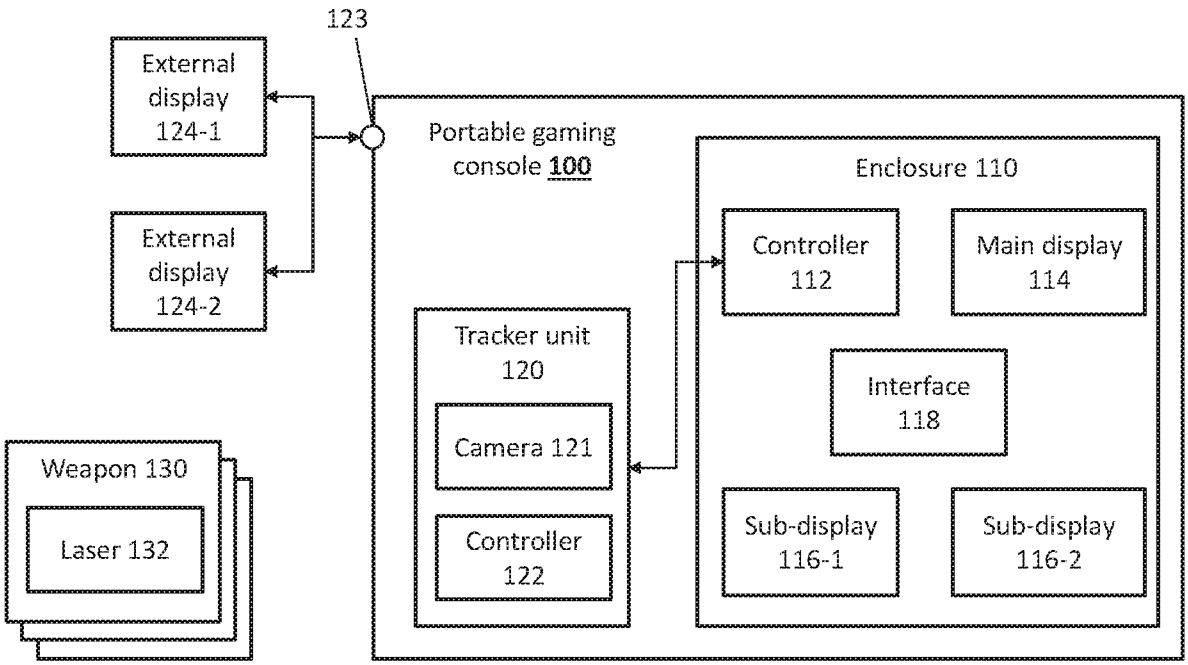

123
External display 124-1
External display 124-2
Portable gaming console 100
Enclosure 110
Controller 112
Main display 114
Interface 118
Tracker unit 120
Camera 121
Controller 122
Sub-display 116-1
Sub-display 116-2
Weapon 130
Laser 132

FIG. 1A

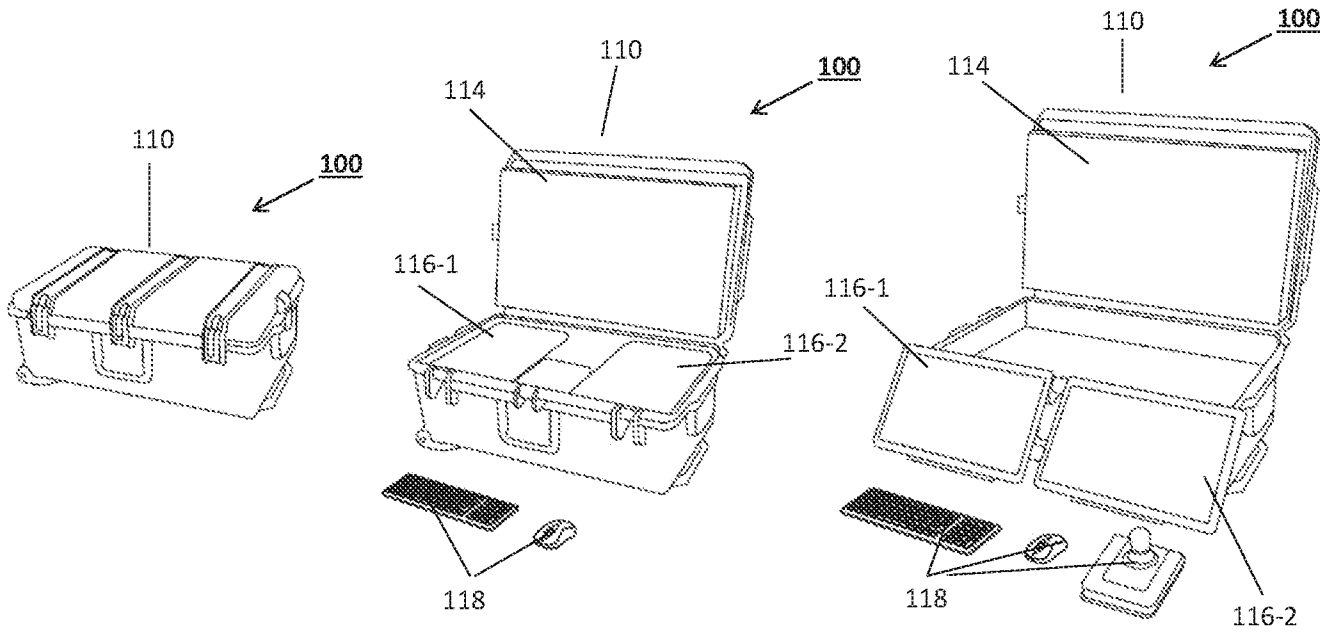



FIG. 1B

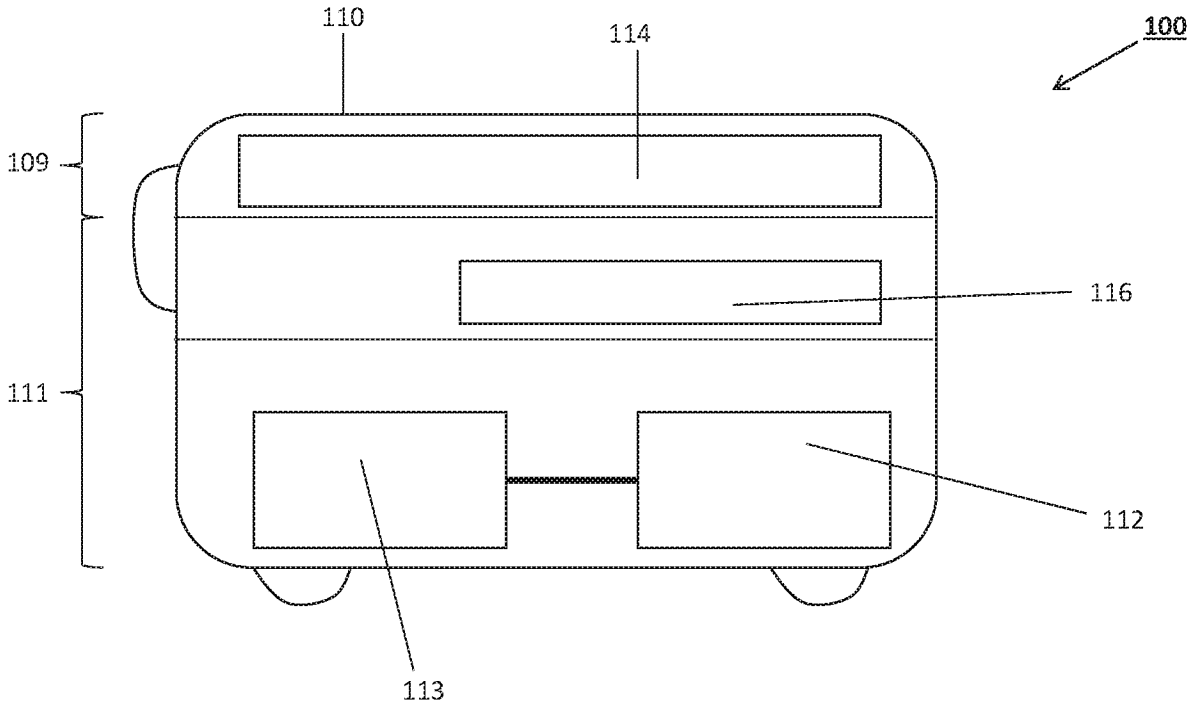



FIG. 1C

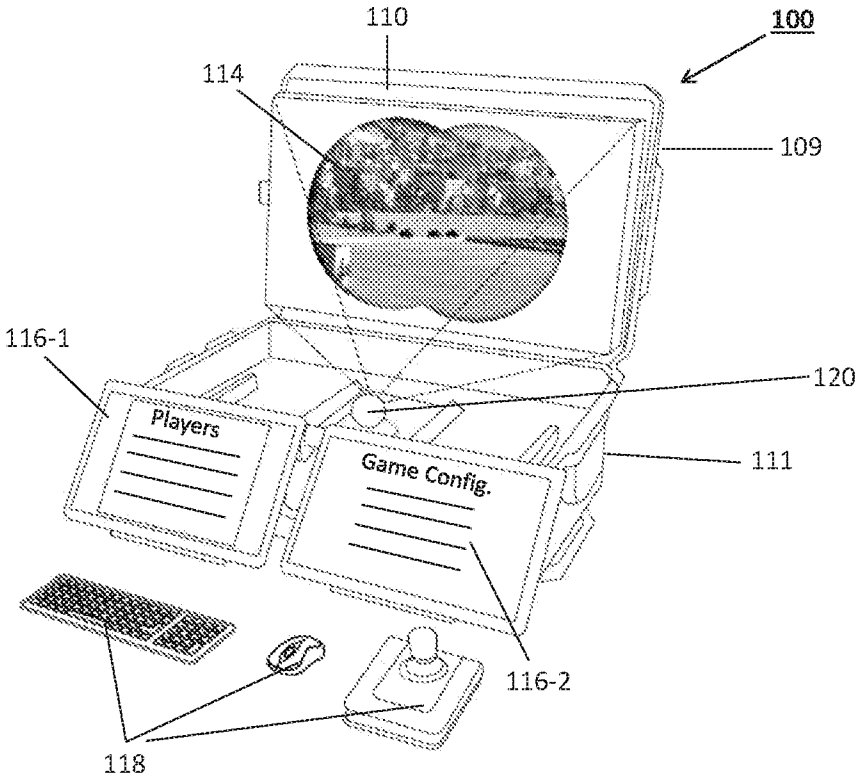



FIG. 1D

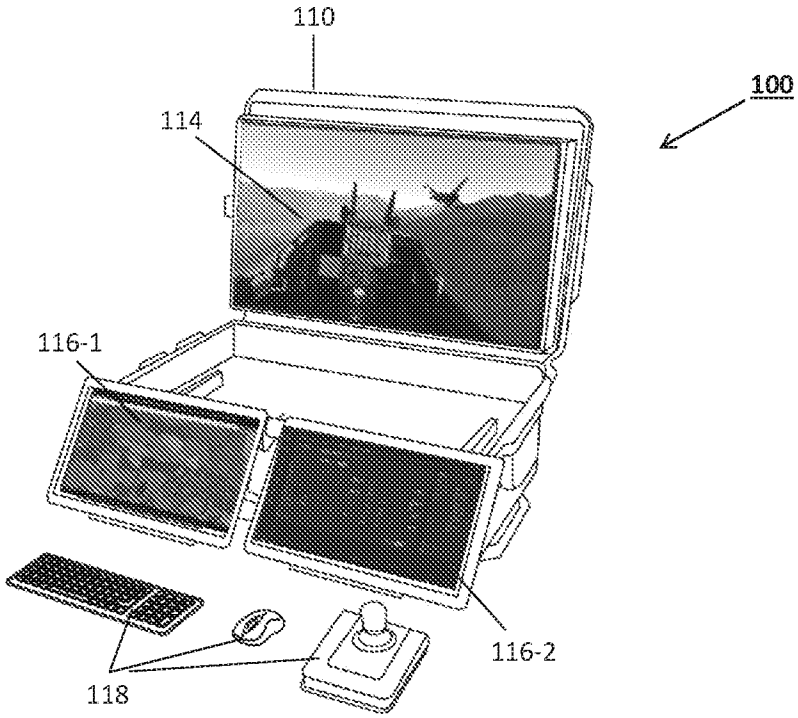



FIG. 1E

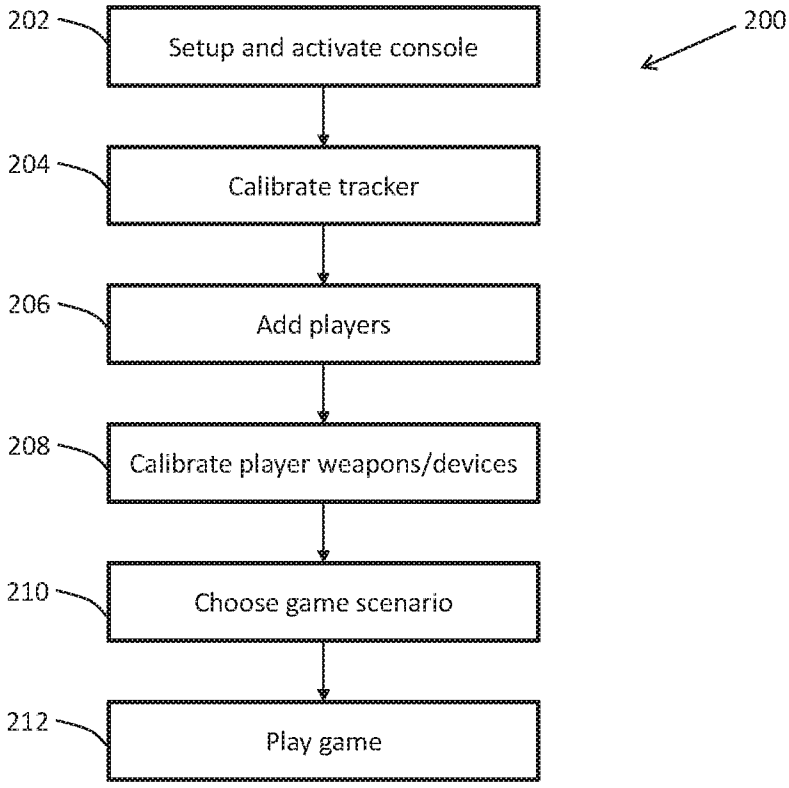

202
Setup and activate console
200
204
Calibrate tracker
206
Add players
208
Calibrate player weapons/devices
210
Choose game scenario
212
Play game

FIG. 2A

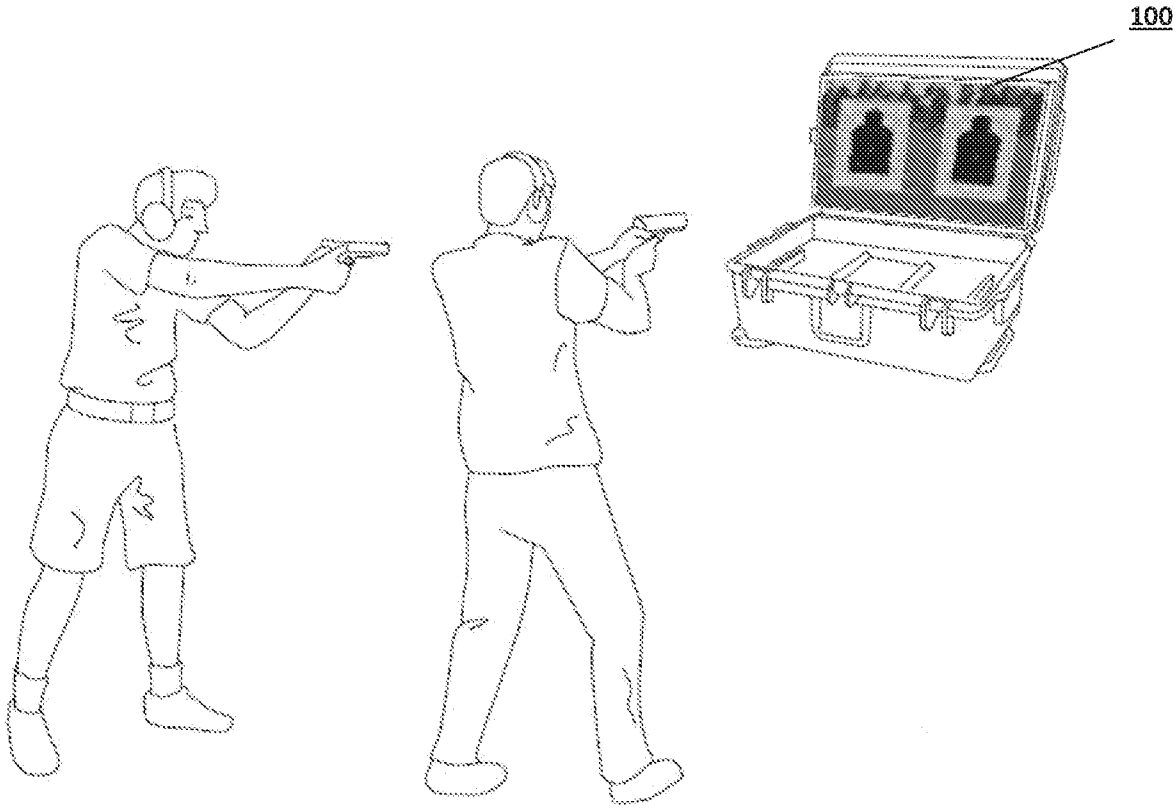



FIG. 2B

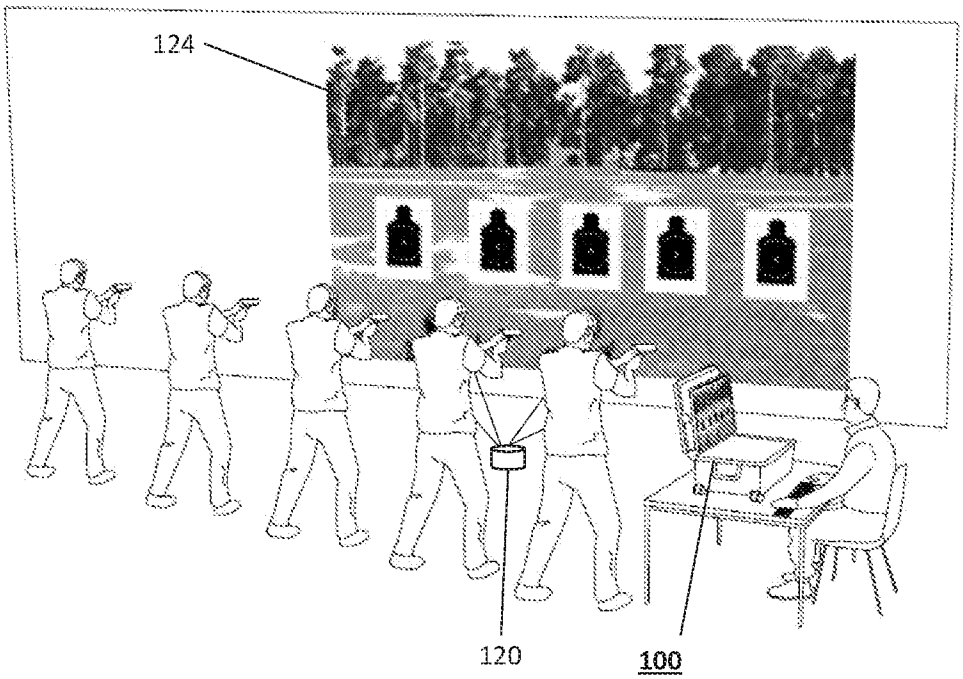



FIG. 2C

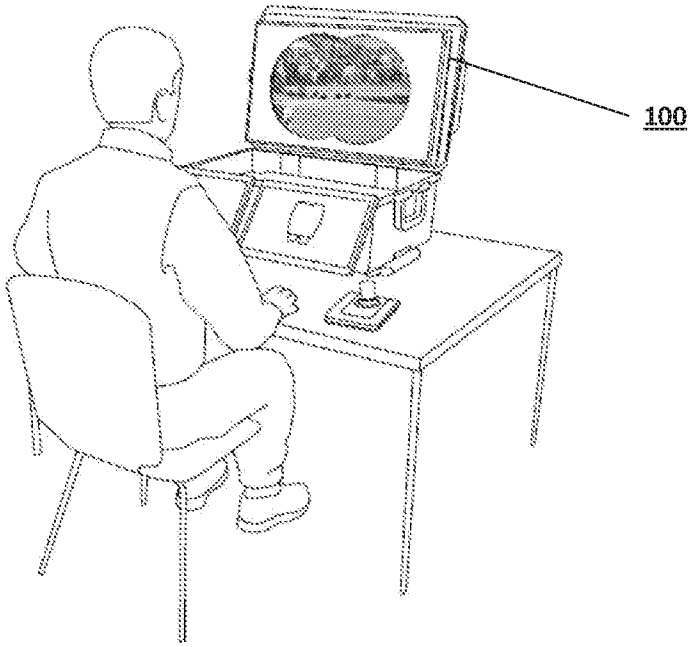



FIG. 2D

# INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 23/54523

A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A63F 13/219, A63F 13/25, A63F 13/30, A63F 13/92 (2023.01)
ADD. F41A 21/26, F41G 3/26, G09B 9/00 (2023.01)

CPC - INV. A63F 13/219, A63F 13/25, A63F 13/30, A63F 13/92

ADD. F41A 21/26, F41G 3/2655, G09B 9/003

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| X<br>—<br>Y | US 2002/0197584 A1 (Kendir et al.) 26 December 2002 (26.12.2002); entire document, especially para [0003], [0031]-[0032], [0035], [0041], [0048]-[0049], [0056], [0060], [0074]-[0075], [0089], Fig.1A-1B, 2-9, 11-13 | 1-6, 8, 10, 11-13/(1-6, 8, 10)<br>7, 9, 11-13/(7, 9) |
| Y | US 2006/0100021 A1 (Yoshino et al.) 11 May 2006 (11.05.2006); entire document, especially Abstract, Fig. 1 | 7, 11-13/(7) |
| Y | US 5,991,081 A (Haaland et al.) 23 November 1999 (23.11.1999); entire document, especially col 2, ln 53-54, col 4, ln 23 | 9, 11-13/(9) |
| A | LIPTAK, M. On Point and On Target: South Carolina Leads the Way with Virtual Marksmanship System. Citizen Soldier Magazine. 11 February 2019 [retrieved on 2023-07-05]. Retrieved from the Internet: <https://citizen-soldiermagazine.com/on-point-and-on-target>; entire document | 1-13 |
| A | PINHEIRO, É.B. et al. RealShooting: Expanding the Experience of Point-and-Click Target Shooting Games. In 2021 20th Brazilian Symposium on Computer Games and Digital Entertainment (SBGames) (pp. 144-152). IEEE. 20 December 2021 [retrieved on 2023-07-05]. Retrieved from the Internet: <https://www.sbgames.org/proceedings2021/ComputacaoFull/218077.pdf>; entire document | 1-13 |

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| 09 August 2023 (09.08.2023) | SEP 11 2023 |
| Name and mailing address of the ISA/US<br>Mail Stop PCT, Attn: ISA/US, Commissioner for Patents<br>P.O. Box 1450, Alexandria, Virginia 22313-1450<br>Facsimile No. 571-273-8300 | Authorized officer<br>Kari Rodriquez<br>Telephone No. PCT Helpdesk: 571-272-4300 |

**INTERNATIONAL SEARCH REPORT**

International application No.
PCT/IB 23/54523

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | BHAGAT, K.K. et al. A Cost-Effective Interactive 3D Virtual Reality System Applied to Military Live Firing Training. Virtual Reality, 20 (pp. 127-140). Springer-Verlag London. 27 April 2016 [retrieved on 2023-07-05]. Retrieved from the Internet: <https://d1wqtxts1xzle7.cloudfront.net/45587612/A_cost-effective_interactive_3D_virtual_reality_system_applied_to_military_live_firing_training-libre.pdf?1463109261=&response-content-disposition=inline%3B+filename%3DA_cost_effective_interactive_3D_virtual.pdf&Expires=1688953541&Signature=ZPorE~5Eds2OrLtYOLkmpX-6o4mWxc~kCGfBtNMpZWs52LsLf9OSH9CUmdd4o53IOyEN191YIzhlydLpQF2CI3K2FFE~m93flyuDq9Ngwgct8HZpmjzpPQ3tabhWO5MREwlUvv9hrdfrnyuwEMs~rWgGYUp~OeMLbB16EkB6psUI5pjYb8YH3MDd7L47U~f88pnK5hNnGFi1C-pdEQQw2Zo2Qqb1xLl81hOkiTrd4uZYO8ZRIcijwZYn6~JtjXCwBgGfknw5gxE6b-uz9N | 1-13 |

Form PCT/ISA/210 (continuation of second sheet) (July 2022)