

# **An Intelligent Safety Helmet with Front Play of Rearview**

## **Technical Field**

[0001] The present invention relates to a riding device, and, specifically, an intelligent safety helmet with front play of rearview.

## **Background of Present invention**

[0002] With the improvement of living standards, people are paying increasingly closer attention to outdoor exercises, among which riding is a relatively fashionable one, as it both achieves physical and psychological exercise and gives the rider an opportunity to enjoy the landscape along the road. In their riding process, people like to stop their bicycle and take pictures of the beautiful landscape coming into their sight, and this inevitably means that they have to bring along cellphone, camera and other devices that can take pictures and that they have to bear these additional loads during their ride. Meanwhile, stopping the bicycle to take pictures means a significant waste of time in the journey, tightens the pre-defined schedule and causes delay and great inconvenience to the rider.

[0003] In addition, you may need your cellphone or talkback for a talk or communication during the riding process, but the current practice is that they are fixed on the handlebar and directly operated via the line control earphone. This practice causes some potential hazards, as the line control earphone needs a relatively long earphone line, the varying distance between the human body and the handlebar affects the scope of motion, and so forth.

[0004] Currently, the knowledge of the rider about an unfamiliar journey is basically obtained from the Internet, so the rider may not be very familiar with the specific route and road condition. In this case, the rider may be exposed to relatively major and unknown risks, especially when the riding takes place on narrow mountain roads. Furthermore, in the case of an emergency or an accident, the rider has no way but to use cellphone or other communication devices to seek rescue from companions. In that case, if there is no active communication available, the rescue time will be greatly delayed.

[0005] Lastly but not least importantly, the helmets currently on the market have not been provided with a rearview function; in some cases, they are designed with various functions, but these functions are mainly attached onto the helmet and are not removable, as a result of which the user may be unwilling to use these functions or are subject to the inconvenience caused by functional device failure.

## **Summary of Invention**

[0006] The present invention aims to overcome the defects of existing technologies, and to provide an intelligent safety helmet with front play of rearview that is characterized by simple structure, convenient use, low production cost novel structural method.

[0007] The aim of the present invention is to be realized through the following approach: An intelligent safety helmet with front play of rearview, the intelligent safety helmet comprising: a helmet body having a front and a

back, and several ventilation holes designed on the helmet body, wherein the helmet body is set in the back with a rearview camera electrically connected with an intelligent hardware set in its front, the intelligent hardware comprising a removable main bracket installed on one side of the helmet body, and the main bracket is installed with an optoelectronic device and a front-facing camera in the front via a rocker arm module, so that a user can use the front-facing camera to take pictures and store the pictures in a memory or activate the rearview camera and project an image taken by the rearview camera onto the optoelectronic device for viewing of rear conditions by the user. The beneficial effect of the present invention lies in that, the user can use a transmissive optical module set in front of the eyes to play the images or pictures taken by the back-facing camera set in the back of the helmet, so that the user can know about the conditions behind the bicycle and ensure riding safety.

[0008] The said intelligent hardware also comprises a GPS positioning module, a gyroscope, a gravity sensor and an acceleration sensor set inside the main bracket.

[0009] The said intelligent hardware also comprises a Bluetooth module, a microphone module and an earphone module set on the main bracket, so that the user can communicate through connecting the Bluetooth module with the cellphone.

[0010] The said intelligent hardware also comprises a network communication module set inside the main bracket, so that an Internet connection can be activated via a 2G, a 3G, a 4G or a WIFI network.

[0011] The said optoelectronic device is a transmissive optical module.

[0012] The beneficial effects of the present invention:

1. The present invention has the advantages of simple structure, convenient assembly, low production cost, strong market competitiveness, free assembly and disassembly, etc.
2. The user can use the transmissive optical module set in front of the eyes to play the pictures taken by the back-facing camera set in the back of the helmet, so that the user can know about the conditions behind the bicycle and ensure riding safety.
3. The user can also realize music play and cellphone communication via the Bluetooth module, thus to make convenience for the user, avoid the inconvenience caused by traditional wired earphone, prevent the earphone line from distracting the user in the riding process, and so forth.
4. The multimedia module is designed with GPS navigation and other relevant functions, making convenience for the user to record exercise information.

### **Brief Description of the Drawings**

[0013] Depicted in Fig.1, Fig.2 and Fig.3 is the general assembly effect diagram of the present invention.

[0014] Depicted in Fig.4 is the assembly drawing of the main bracket and helmet body of the present invention.

[0015] Depicted in Fig.5 is the structural schematic diagram of the present invention.

## Detailed Description of the Preferred Embodiment

[0016] Further specific explanations of the present invention are provided below in combination with the appended drawings. The present invention relates to an intelligent safety helmet with front play of rearview, which comprises a helmet body 1 and several ventilation holes 2 designed on it (helmet body), wherein, the said helmet body 1 is set in the back with a rearview camera 7 electrically connected with the intelligent hardware set in its front, the said intelligent hardware comprises a removable main bracket 3 installed on one side of the helmet body 1, and the main bracket 3 is installed with an optoelectronic device 4 and a front-facing camera 5 in the front via a rocker arm module 31, so that the user can use the front-facing camera 5 to take pictures and store them in the memory card or activate the rearview camera and project an image taken by the rearview camera onto the optoelectronic device 4 for viewing of rear conditions by the user.

[0017] The said intelligent hardware also comprises a GPS positioning module, gyroscope, gravity sensor and acceleration sensor set inside the main bracket 3.

[0018] The said intelligent hardware also comprises a Bluetooth module, microphone module and earphone module set on the main bracket 3, so that the user can realize communication through connecting the Bluetooth module with the cellphone.

[0019] The said intelligent hardware also comprises a network communication module set inside the main bracket 3, so that Internet connection can be activated via 2G, 3G, 4G or WIFI network.

[0020] The said optoelectronic device 4 is a transmissive optical module.

[0021] Working principle: Before using the helmet described in the present invention, the user may remove the intelligent hardware from the helmet body for charging, data copying and other operations. In actual use, it's only necessary to assemble the two together via connectors. When wanting to take a picture or a video during the riding process, the user first operates the touch control module to send the command, which is then received by the processor to activate the front-facing camera; after that, the user presses the shooting key to complete the command of taking a picture or a video. The pictures and videos taken can be stored in the memory card or transmitted to the cellphone for storage via Bluetooth; the specific operation methods can be correspondingly set by the user in the system. During the ride the rider needs to look behind from time to time to check out the road condition and ensure riding safety; however, bicycles have no rearview mirror, which means that the rider has to turn around for observation. This can be very dangerous for the rider. Thus, in the present invention, a camera is set in the back of the helmet, so that, when the user wants to observe the road condition behind the bicycle, he/she can send the command of activating the back-facing camera module to the processor via the APP. Upon receiving the command, the processor activates the back-facing camera, transmits the pictures and videos taken to the

intelligent hardware via data lines and plays them with the transmissive optical module set in front of the eyes, so that the rider can know about the road conditions behind on a real-time basis and avoid safety accidents. In addition, when the transmissive optical module is playing the contents, the user can also check the road condition in the front via the screen, thus avoiding the blocking of eyesight by the module.

[0022] When the user is riding on an unfamiliar route, the GPS module can be used to determine the current riding position, feed it to the APP to calculate the fastest route to the destination, and send the route information to the processor via Bluetooth; upon receiving the route information, the processor plays the information on the navigation interface via the transmissive optical module, so that the user knows exactly where to go. Meanwhile, in the riding process, the GPS module constantly updates the position of the rider and feeds it to the cellphone APP, thus to ensure the correct riding direction. Furthermore, the APP monitors the front road condition on a

real-time basis, so that, in the case of road repair or traffic jam, it will send a notice via the intelligent hardware. The GPS module can also be electrically connected with the gyroscope, G-sensor, acceleration sensor and other modules for calculation based on GPS information; relevant technical information can also be generated in the system during the ride, so that the user can conveniently conduct a data analysis, to timely know about his/her exercise amount and establish a more effective or healthy exercise plan based on these data.

[0023] To be specific, to enhance the functionality of this device, the intelligent hardware also comprises the network communication module set inside the main bracket 3, so that Internet connection can be activated via 2G, 3G, 4G or WIFI network. Thus, during the ride, the user can check the weather forecast, play music, videos and pictures downloaded from the Internet or stored in the memory and so forth, thus enjoying more entertaining functions.

[0024] In the case of the rider needing to make or answer a call during the ride, the intelligent hardware receives the signal via the Bluetooth module, and conducts communication through the microphone and earphone modules, to realize the goal of wireless communication and avoids the trouble and potential safety hazards caused by the use of wired earphone under traditional technologies. By virtue of its integration of multiple functions in one helmet, the present invention is not only convenient to use, but also fully attract consumers with its novel structure and functions and can be widely promoted.

[0025] Displayed and described above are the basic principle, main characteristics and advantages of the present invention. It should not be difficult for technicians in the industry to understand that the present invention is not limited by the above example, that what is described in the above example and description is only the principle of the present invention, and that, under the premise of not breaking away from the spirit or scope of the present invention, the present invention may have various variations and improvements (like the sectional shape of the guide rail, the material and structure of noise reduction gaskets, etc.), all of which shall fall within the scope of the present invention to be protected.

## CLAIMS

1. An intelligent safety helmet with front play of rearview, the intelligent safety helmet comprising: a helmet body having a front and a back, and several ventilation holes designed on the helmet body, wherein the helmet body is set in the back with a rearview camera electrically connected with an intelligent hardware set in the front, the intelligent hardware comprising a removable main bracket installed on one side of the helmet body, and the main bracket is installed with an optoelectronic device and a front-facing camera in the front via a rocker arm module, so that a user can use the front-facing camera to take pictures and store the pictures in a memory or activate the rearview camera and project an image taken by the rearview camera onto the optoelectronic device for viewing of rear conditions by the user.
2. An intelligent safety helmet with front play of rearview according to Claim 1, wherein the intelligent hardware further comprises a GPS positioning module, a gyroscope, a gravity sensor (G-sensor) and an acceleration sensor set inside the main bracket.
3. An intelligent safety helmet with front play of rearview according to Claim 1, wherein the intelligent hardware further comprises a Bluetooth module, a microphone module and an earphone module set on the main bracket, so that the user can communicate through connecting the Bluetooth module with a cellphone.
4. An intelligent safety helmet with front play of rearview according to Claim 1, wherein the intelligent hardware further comprises a network communication module set inside the main bracket, so that an Internet connection can be activated via a 2G, a 3G, a 4G or a WIFI network.
5. An intelligent safety helmet with front play of rearview according to Claim 1, wherein the optoelectronic device is a transmissive optical module.