The invention relates to personal protective means and specifically to helmets equipped with a built-in recording system, and can be used to prevent head injuries to motorcyclists and to people who engage in extreme activities. The helmet contains a rigid housing and, installed within the housing, a recording system. The housing is equipped with binding elements, cushioning elements and bullet-proof glass. The recording system is equipped with a camera. The camera lens is provided in the central portion of the helmet above the face area and does not protrude past the surface of the housing. The recording system includes a power source, which is built into the helmet housing, a control system, a recording device having built-in memory, a device for connecting an external memory card, and an electrical connector for connecting to external devices and/or to a power grid. The invention allows for broadening the functional possibilities of the device. 2 dep. cl., 2 fig.
HELMET FOR MOTORCYCLISTS AND FOR PEOPLE WHO ENGAGE IN EXTREME ACTIVITIES

TECHNICAL FIELD

[0001] The invention relates to personal protective means and specifically to helmets equipped with a built-in recording system, and can be used to prevent head injuries to motorcyclists and to people who engage in extreme activities, for instance, special group officers.

RELATED ART

[0002] Helmets, that contains a rigid housing and equipped with binding elements, with installed within the housing, a recording system whose camera lens is provided in the central portion of the helmet above the face area and does not protrude past the surface of the housing, with built into the housing, a power source, a control system, a recording device having built-in memory, a device for connecting an external memory card, and an electrical connector for connecting to external devices and/or to a power grid are well known and widely used, ref. e.g. web-sites: http://bokeh.com.au/news/42_video_head_kamera_vytronexaayy_v_shlem; http://videoheadhelmets.com/products.

[0003] Mentioned above helmets are hardly suitable for motorcyclists because of inability to protect a face from little stones flying out from under wheels of vehicle ahead, since the camera lens is provided on the flat end of the housing that makes impossible to install a visor. In the mentioned helmets a bullet-proof glass is not stipulated.

[0004] From the related art there is some information about the helmet for motorcyclists that contains a rigid housing and equipped with binding elements and cushioning elements and installed within the housing, a recording system whose camera lens is provided in the central portion of the helmet above the visor cincher bar and does not protrude past the surface of the housing (ref. license DE 19542835, class A42B 3/04, published 22.05.1997). The disadvantages of the common device are inability of self-contained operation, because connecting (via cable) to external recording devices is necessary, and complexity of data transfer to external devices.

INVENTION DISCLOSURE

[0005] The main problem to solve by the invention is the development of a helmet for motorcyclists and people who engage in extreme activities.

[0006] The developed helmet enables a broadening of the functional possibilities of the device with the realization of all necessary functions, specifically, capability of self-contained operation and capability of data transfer to external devices.

[0007] In order to solve the stated problem helmet for motorcyclists and people who engage in extreme activities contains a rigid housing equipped with binding elements and cushioning elements, bullet-proof glass and, installed within the housing, a recording system whose camera lens is provided in the central portion of the helmet above the visor cincher bar and does not protrude past the surface of the housing. Besides, the recording system includes a power source, which is built into the helmet housing, a control system, a recording device having built-in memory, a device for connecting an external memory card, and an electrical connector for connecting to external devices and/or to a power grid.

[0008] The control system can be made with the possibility of receiving control signals from the remote controller. The camera preferentially enables to record a video and/or take photos and is equipped with a microphone to record audio signals.

BRIEF DESCRIPTION THE DRAWING VIEWS

[0009] The matter of the suggested solution is illustrated by drawings.

[0010] In the FIG. 1 the photo of the main view of the suggested helmet is presented.

[0011] In the FIG. 2—position of the camera lens

[0012] Suggested helmet involves a rigid housing 1, equipped with binding elements 2 and cushioning elements, for instance, foam rubber. A recording system is installed within the housing, whose camera lens 3 is provided in the central portion of the helmet above the face area and does not protrude past the surface of the housing. The glass camera lens is built into the central portion of the helmet above the visor cincher bar and is protected by a sapphire glass 4.

[0013] The camera enables to record video and to take photos, and is equipped with microphone to record audio signals. The recording system also includes, built into the helmet housing, a power source, a control system, a recording device having built-in memory, a device for connecting an external memory card, and an electrical connector for connecting to external devices and/or to a power grid. Through the electrical connector the recording system can connect to a computer for following photo, audio and video processing, to a power grid for battery recharging or to an external monitor display for a direct information viewing. The control system is projected with the possibility of receiving control signals from the remote controller which can be fastened on the wearer’s clothes. Besides, a visual indicators of the running mode, sealed connector (meant to connect a head-mounted display to the PC the following photo, audio and video processing), battery recharging and direct information viewing through external TV monitor, external remote controller of the whole unit, microphone can be installed into the helmet.

Embodiment of Invention

[0014] According to a suggested invention, a prototype model was manufactured (FIG. 1-2). As the helmet itself a safety helmet K-1C by “Special Materials, Corp.” was used. As a recording system a driving dash camera (professional automobile camera Full HD) was used, whose all elements were removed from the standard housing and placed in the inner part of the helmet.

[0015] The glass camera lens was built into central portion of the helmet above the visor cincher bar and protected by a sapphire glass 4. The recording device with a built in memory is attached from inner part of the helmet and shielded from the external inputs. It has following characteristics:

[0016] Video recording Full HD, HD, resolution 1920x1080;

[0017] Accumulator battery 1050 mAh;

[0018] Photo resolution 16 Mp;

[0019] Viewing angle 120°.

[0020] A cycle recording is carried out to the built-in memory or to a memory card MicroSD with the memory space up to 32 Gb. The device for connecting an external memory card is located in the inner part of the helmet between the housing and the cushioning elements.
In order to turn on the recording system a control system in the form of toggle-switch was provided. There are power button and play button on the toggle-switch. In order to operate in a recording mode and photographic mode a remote controller is provided.

For watching records without connecting to a computer or TV it is possible to use a display monitor, which can be connected to the recording system through the connector located on the recording device itself. A USB 2.0 socket is equipped on the backside of the helmet for battery recharging and taking information from built-in memory or MicroSD card. Taking information through this socket increases the working time of MicroSD card significantly.

INDUSTRIAL APPLICABILITY

All components of the recording system are arranged in such manner as not to create to a person wearing the helmet any disturbance. Working temperature is from −28°C to +40°C. Weight of the recording system without the helmet is 125 g.

Since all elements of the recording system are located inside the helmet housing it remains mobile and convenient in exploitation and its outside appearance didn’t change significantly. At the same time availability of multi-functional means of connection to external devices makes it more compatible with modern peripheral.

1-3. (canceled)

4. A helmet for motorcyclists and people who engage in extreme activities, the helmet comprising:
   a rigid housing including a plurality of securing elements and cushioning elements;
   a bullet-proof glass installed within the housing;
   a recording system mounted inside the rigid housing, the recording system including a camera with a camera lens, the camera lens being installed in a central portion of the helmet above a visor cincher bar and not protruding over a surface of the housing, the recording system further including a power source built into the rigid housing, a control system, a recording device having a built-in memory, a device for connecting an external memory card, and an electrical connector for connecting to external devices or to a power grid.

2. The helmet in accordance with claim 1, wherein said control system is configured to receive control signals from a remote controller.

3. The helmet in accordance with claim 1, wherein said camera is enabled to record a video and to take photos, and comprises a microphone to record audio signals.

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