

A RIDING HELMET WITH AUTOMATIC BRAKE DETECTION AND STEERING INDICATION FUNCTIONS

Technical field

[0001] The invention relates to a protective article, or, specifically, a riding helmet with automatic brake detection and steering indication functions.

Background

[0002] In the context of advocating energy conservation and environmental protection nowadays, more and more people are selecting bicycle riding as a means of travel or as a way of physical exercise. However, riding can pose certain potential safety hazards when no adequate protective articles are provided. Helmet is hence one of the common protective articles for the rider, which can protect the head of the rider from external injuries. The shell of the helmet is usually made of high-strength materials like metals, engineering plastics, aramid fiber and so forth, through the deformation of which a majority of the impact force would be absorbed, so as to alleviate the injuries to the head and protect the safety and health of the rider. The problem is that, these helmets only provide passive protection, that is, provide protection only after the occurrence of a safety accident. It means that they can provide no prevention against safety accidents in advance; particularly, during the night or on a dark road, given that the bicycles are lighter and mostly do not have a head lamp or steering lamp, it makes it very difficult for others on the road to perceive the position or steering intention of the rider. As a result, damages may be caused by motor vehicles to the rider.

Summary of Invention

[0003] The invention aims to overcome the defects of existing technologies, and to provide a riding helmet with automatic brake detection and steering indication functions that is characterized by simple structure, convenient usage and low production cost and can effectively improve the safety performance of the helmet.

[0004] The aim of the invention is to be realized through the following approach: a riding helmet with automatic brake detection and steering indication functions, which comprises: a helmet body; a left steering lamp and a right steering lamp installed on front and rear sides of the

helmet body, wherein the lamps are electrically connected with a control module, the control module is designed with or having a wireless receiving module that is linked up or communicable with the wireless remote control module mounted on a bicycle, the wireless remote control module is electrically connected with a brake detection device and a manual control device, and the steering lamps can work or are operative according to signals from the brake detection device and the manual control device.

[0005] The brake detection device is a position switch set on a brake handle of the bicycle, adapted such that a rider, through operating the brake handle, can connect or disconnect the position switch to send control signals.

[0006] The manual control device is a control button set on a handlebar of the bicycle.

[0007] The helmet body further comprises a braking indicator in a rear middle position of the helmet body.

[0008] The wireless receiving module on the helmet body and the wireless remote control module on the bicycle adopt or include 2.4G remote control modules.

[0009] The left steering lamp and right steering lamp adopt or include LED lamp panels.

[0010] The braking indicator adopts or includes an LED lamp panel.

[0011] The riding helmet further comprises a gyroscope electrically connected to the control module, wherein the gyroscope is adapted to control service or operation of steering lamps through sensing the turning of head by the rider or a head movement of the rider.

[0012] The invention has the following beneficial effects:

(1) It is characterized by simple structure, convenient assembly, low production cost and enhanced market competitiveness.

(2) The helmet is designed or provided with steering lamps which can be used by the rider to remind the vehicles in front or behind the rider of the steering process, which thus improves the riding safety.

(3) Relying on the different working modes of the steering lamps, steering and braking indications can be provided, thus to not only meet relevant service requirements but also to

reduce the complexity of the system and make or provide convenience for marketing purpose.

(4) The control system is connected with the brake detection device and the manual control device via wireless technologies, thus avoiding the interference with riding process by the power line connection, making or providing further convenience for the rider and protecting the rider in the riding process.

Brief Description of the Drawings

[0013] Figure 1 is the structural space diagram of an embodiment of the invention.

[0014] Figure 2 is the structural rear view of an embodiment of the invention.

[0015] Figure 3 is the structural front view of an embodiment of the invention.

[0016] Figure 4 is the electrical schematic diagram of an embodiment of the invention.

Detailed Description of the Preferred Embodiments

[0017] Further specific explanations of the invention are provided below in combination with the appended drawings. The invention relates to a riding helmet with automatic brake detection and steering indication functions, which comprises of a helmet body 1, a left steering lamp 2 and a right steering lamp 3 installed on front and rear sides of the helmet body 1. The two steering lamps 2, 3 are electrically connected with a control module. The control module is designed or provided with a wireless receiving module that is linked up or communicable with a wireless remote control module mounted on a bicycle. The wireless remote control module of the bicycle is also electrically connected with a brake detection device and a manual control device. The steering lamps 2, 3 can work or operate according to or in response to the signals of the brake detection device and manual control device.

[0018] The brake detection control device is a position switch set on the brake handle, so that the rider, through operating the brake handle, can connect or disconnect the position switch to send control signals to the control module at the helmet body to operate the steering indication lamps as shown in Figure 4.

[0019] The manual control device is a control button set on a handlebar of the bicycle.

[0020] The helmet body 1 may be designed or provided with a braking indicator 4 installed in

the rear middle position of the helmet body.

[0021] The wireless receiving module on the helmet body and the wireless remote control module on the bicycle adopt or include 2.4G remote control modules.

[0022] The left steering lamp 2 and right steering lamp 3 adopt or include LED lamp panels.

[0023] The braking indicator 4 adopts or includes an LED lamp panel.

[0024] The riding helmet may further comprise a gyroscope electrically connected to the control module. The gyroscope may be used to control the service or operation of steering lamps 2, 3 through or by sensing the turning of head by the rider or a head movement of the rider.

[0025] Working principle: In the actual working process, when the rider brakes, the brake handle is driven to move and to connect the position switch on it, thus producing electric signals in the system. The electric signals then send the control signals, via the wireless remote control module at the bicycle, to the wireless receiving module at the helmet body. After receiving the control signals, the wireless receiving module set on the helmet body turns on the left and right steering lamps simultaneously via the control module (Figure 4), thus to remind or indicate to the vehicles both in front of and behind the bicycle. In addition to using the steering lamps simultaneously to send the braking signals or indication, the rider can also set an individual braking indicator 4 on the helmet body (as shown in Fig.2), so that the braking indicator 4 would light on or turn on when the rider brakes.

[0026] When the rider wants to steer, he/she can manually control or operate the manual control device on the fork spanner or handle bar. When the rider wants to steer towards the right, he/she can operate the control button and send the control signals in the form of wireless signals; when the control module receives the signals, the right steering lamp is activated, for example in the form of flashing light, thus to remind or indicate to the vehicles both in front of and behind the bicycle of the rider's intention of steering towards the right and to enhance riding safety.

[0027] Further, to improve the usage convenience of the device, a gyroscope can be set inside the helmet and is electrically connected with the control module, and the control module can be written inside or programmed with a corresponding control code. When the rider turns his/her head towards a certain direction consecutively twice within a certain period of time, the steering

lamp in this direction is turned on; when the rider looks up or down consecutively twice or more within a certain period of time, the braking lamp or indicator is turned on. The specific modes can be set by the manufacturer according to the actual conditions, and are not limited here.

[0028] Displayed and described above are the basic principle, main characteristics and advantages of the invention. It would be understood by the skilled person in the art that the invention is not limited by the above examples, and that what is described in the above only exemplifies the principle of the invention. and that, under the premise of not breaking away from the spirit or scope of the invention the invention may have various variations and improvements (like the working mode of steering lamps, the type and shape of lamps, etc.), and all of which shall fall within the scope of the invention claimed.

CLAIMS

What is claimed is:

1. A helmet comprising:

helmet body;

left steering lamps and right steering lamps installed on front and rear sides of the helmet body, the steering lamps being wirelessly coupled to a brake detection control device on a brake handle of a bicycle, wherein the left steering lamps and right steering lamps include LED lamp panels;

a manual control device including a control button set on a handlebar of the bicycle;

a first wireless receiving module on the helmet body wirelessly coupled to a second wireless receiving module on the bicycle, the wireless receiving modules including 2.4G remote control module connections;

a brake light in the rear middle position of the helmet, the brake light is wirelessly coupled to the brake detection control device on the brake handle of the bicycle, wherein the brake detection control device is a position switch set on the brake handle such that a rider can connect or disconnect the position switch to send control signals to the steering lamps through operating the brake handle, wherein the brake light includes an LED lamp panel, wherein the brake control device is configured such that connection of the position switch causes electric signals to be produced and further causes control signals to be sent wirelessly via the second wireless receiving module on the bicycle to the first wireless receiving module on the helmet in order to turn on both the brake light and the left and right steering lamps during braking; and

a control module electrically coupled the left and right steering lamps and to a gyroscope, the control module being connected wirelessly to the manual control device and the brake detection control device via the wireless receiving module, the control module configured to automatically sense a left or right turn and turn on the corresponding steering lamps thereby producing a turn signal, wherein the control module can be used to control the operation of steering lamps through sensing the turning of the head by the rider wearing the helmet, wherein sensing is accomplished via a control code written into the control module, the control code being written such that when the rider turns his/her head towards a certain direction consecutively twice within a certain period of time, the steering lamp in the certain direction is turned on, wherein the control code is also written such that when the rider looks up or down consecutively twice or more within a certain period of time, the brake light is turned on.