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(54) **PERSONAL PROTECTION ASSEMBLY AND METHOD FOR CONFIGURING A WEARABLE PROTECTIVE DEVICE TO PROTECT A USER**

(57) The present disclosure relates to an assembly for the protection of a user (10) and a method for protection of a user by means of said assembly. The assembly comprises a wearable protective device (12) and a user device (40); at least one inflatable element (20) configured to assume a deflated condition and an inflated condition, at least one inflation device (30), configured to inflate said inflatable element (20) from said deflated condition to said inflated condition; one or more sensors configured to detect data relating to a user condition; and a control unit having a unique activation configuration for processing said data and identifying a danger situation or a fall situation based on said data. The user device (40) is designed to be moved close to and to be at least temporarily connected with the control unit (32) and is configured to transmit to the control unit (32) said unique activation configuration (42). The user device (40) is preferably configured to be connected to a remote server (50) from which it receives at least two activation configurations (42, 43) from a plurality of activation configurations (42, 43, 44). The user device (40) and said control unit are configured so that a transmission of an activation configuration (42, 43) from the user device to said control unit (32) corresponds to or results in a replacement or overwriting of said unique activation configuration (42).

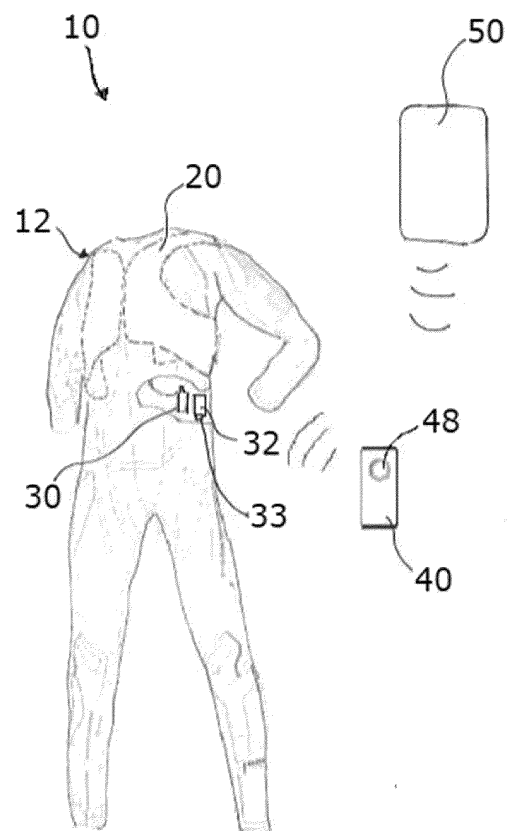


FIG. 1

Description

[0001] The present disclosure relates in general to a personal protection assembly and relates furthermore to a method for configuring a wearable protective device for the protection of a user. Preferably it relates to a system for protection by means of an airbag, so as to protect the user from impacts due to falling or slipping, when travelling on a means of transport, such as a vehicle or any other means of transport, such as a horse or other animal, sports equipment, such as a pair of skis or a bobsleigh, or similar means of transport. It is understood, however, that the wearable protective device may also be used by a user while simply walking or during other travel conditions not involving a means of transport.

[0002] It is known to use a wearable protective device, namely a device which is worn as a garment and comprises at least one inflatable element or airbag. More particularly, such a wearable protective device is normally worn by a user when using the aforementioned means of transport, such as a motorcycle, a bicycle, skis, a horse or other means of transport.

[0003] Generally, in the event of danger for a user, for example if there is a collision, impact or fall, the airbag may be inflated by means of an inflation device which usually comprises a pressurised gas generator.

[0004] In this way, the airbag assumes an inflated condition and may protect at least partially the user's body, absorbing at least partly the impact energy.

[0005] The activation of the inflation device and the consequent inflation of the airbag may be triggered by the detection, by means of one or more sensors present in the wearable protective device, of acceleration data, angular speed data or other data which is processed by a control unit in order to identify a danger situation for the user such as a collision, impact or fall.

[0006] More specifically, the control unit is configured to identify the danger situation on the basis of a predefined algorithm, called activation algorithm, and then send an inflation signal for inflating the inflatable element. The entire assembly/group including the control unit, the sensors and the inflation device is mounted in the wearable protective device so as to form a so-called "autonomous wearable protective device."

[0007] It is also known to provide the wearable protective device with a memory for storing at least two activation algorithms and/or two different parameters and to allow a user to select one of the two activation algorithms and/or one of the two different parameters depending on a specific travel condition of the user on the means of transport, depending on the terrain on which the user is travelling, or depending on whether the travel condition is a walking condition or a condition involving the riding of a bicycle.

[0008] In fact, depending on the travel condition and the terrain, it may be necessary to use a different activation algorithm which may be configured in a specific manner and which is more sensitive to one type of terrain

or to one type of travel condition rather than another one.

[0009] The known solution, while being advantageous from many points of view, has the drawback that it is required to store two or more algorithms or, more generally, two or more activation parameters in the same memory of the wearable device. In order to create a universal wearable protective device which may be suitable for many travels conditions or many types of terrain, it is therefore required to save beforehand in the memory of the device many algorithms or parameters in a predefined manner. This results in the provision of a wearable protective device which is not very versatile and a prior activity involving the configuration of the memory and, more generally, the provision of large-size memories, in order to save all the possible parameters and data. Furthermore, once the dimensions of the memory have been defined for containing the prechosen number of algorithms or parameters, it might not be possible to add other algorithms or parameters.

[0010] The starting point of the present disclosure is therefore the technical problem of providing a protective assembly and a method for configuring a wearable protective device for protecting a user which are able to satisfy all the aforementioned requirements mentioned with reference to the prior art and/or achieve further advantages.

[0011] This is obtained by means of an assembly and a method according to the respective independent claims. Secondary characteristics of the subject of the present disclosure are defined in the corresponding dependent claims.

[0012] More particularly, according to the present disclosure, an assembly which includes a wearable protective device and a user device are provided. The wearable protective device includes at least inflatable element, configured to assume a deflated condition and an inflated condition, at least one inflation device, configured to inflate said inflatable element from said deflated condition to said inflated condition; one or more sensors configured to detect data relating to a user condition, and a control unit configured to process said data and identify a danger situation or a fall situation based on said data. The control unit has, associated with it, a unique activation configuration for activating the inflation device and inflating the inflatable element. The user device has, stored in it, at least two activation configurations which are different from each other and the user device is configured to be moved close to said control unit and connected at least temporarily with said control unit in order to transmit to the control unit said unique activation configuration selected from said at least two activation configurations.

[0013] Furthermore, the user device and the control unit are also configured so that a transmission of an activation configuration from the user device to said control unit corresponds to or determines a replacement, substitution or overwriting of said unique activation configuration.

[0014] The control unit therefore has stored inside it a

unique activation configuration, and not more than one configuration for selection.

[0015] Basically, in accordance with the present disclosure, in order to improve the prior art, it is proposed providing an assembly for the protection of a user, comprising at least one inflatable element, configured to assume a deflated condition and an inflated condition, at least one inflation device, configured to inflate the inflatable element from the deflated condition to the inflated condition, sensors configured to detect data relating to a user condition, and a control unit having a unique activation configuration for processing said data and identifying a danger situation or fall situation based on said data. According to the present disclosure, the protection assembly includes a user device, namely a device separate from the control unit and designed to transmit to the control unit an activation configuration and able to be connected to said control unit in a nearby position. The user device is configured to transmit at least a first activation configuration and a second activation configuration which are different from each other. Said user device therefore has a memory in which the at least one first activation configuration and one second activation configuration are stored, and said user device is configured for a proximal connection with said control unit in order to allow saving of said unique activation configuration of the control unit selected from said first activation configuration and said second activation configuration, namely selected from one of the activation configurations present in said user device. In other words, the control unit may be configured with a single activation configuration, and the user device acts as a proximal server from which it is possible to download the activation configuration which is most suitable for the use of the wearable protective device at the moment of use by the user. The user device can be connected preferably to a remote server from which it receives or downloads a plurality of activation configurations.

[0016] The control unit may therefore have only one configuration at a time. In other words, only one configuration may be stored at a time.

[0017] The assembly according to the present disclosure offers the advantage that it allows a user to have access to a control unit which may be updated as required, with replacement of the activation configuration. The replacement or substitution may be performed quickly by the user, without the need for a large number of activation configurations in the control unit.

[0018] In other words, the user is able to download at any time the activation configuration which is most suitable for the travel condition and/or terrain to be travelled across, or other environmental conditions, without overloading the control unit with data or logic.

[0019] It is therefore possible to obtain a very versatile assembly in which the number and type of activation configurations can be updated without overloading the memory, both in the user device and in the wearable protective device.

[0020] In other words, the assembly according to the present disclosure includes a control unit which may be provided with firmware and other configurations according to a "standard" production procedure for ensuring a predefined efficiency and which may be configured as required with an activation configuration most suitable for the use. The control unit therefore has only one configuration at a time.

[0021] The term "user device" is understood as meaning for example a smartphone or a tablet provided with a wireless data transmission interface or a wired data transmission interface, which can be physically moved close to the control unit. The user device may have a conventional screen which may act as a communication interface for showing information relating to the activation configuration to be selected. Alternatively, the user device may be a PC, a notebook or other device which may be placed close to the control unit of the wearable protective device.

[0022] Preferably, the user device can be connected to the control unit for transmission of wireless data, more preferably via a Bluetooth connection, namely via standard network technology for wireless point-to-point transmission and with a data connection between two different digital devices.

[0023] In this way, a user who usually carries on their person a smartphone or a tablet may download at any time onto the control unit the most appropriate activation configuration, even in zones where there is no network or coverage for remote data transmission, and at the same time without overloading with data the control unit of the wearable protective device. In other words, the association of a unique activation configuration with the control unit or the replacement or substitution or overwriting of the unique activation configuration may take place in zones where there is no data network.

[0024] The term "activation configuration" is understood as meaning the set of activation parameters, set of operating parameters, calculation algorithms, danger assessment thresholds, possible operation firmware, or other data and calculations, which allow identification of a situation which determines the triggering of a signal for activation of the inflation device. The activation configuration may be stored in a memory of the control unit or in a separate memory of the wearable protective device.

[0025] Consequently, the replacement of the unique activation configuration is performed by overwriting the firmware and/or the set of operating parameters. The procedure for updating the firmware and/or the parameters may be performed in the same way.

[0026] In other words, each activation configuration corresponds, preferably in a unique manner, to a travel condition, or "riding condition", namely a movement condition of a user using the wearable protective device. Preferably, the user device includes a communication interface for showing a user the activation configuration to be selected

[0027] For example, the communication interface may

be further configured to signal to the user, by means of a visual and/or sound signal or any other type of signal, the "active" activation configuration. In this way, the user may be informed in good time as to the need to replace the activation configuration and to replace it with the most suitable one. Therefore, the protection assembly allows the activation configuration of the protection assembly to be updated when the protection is no longer guaranteed, or simply informs the user as to the risk of continuing to use the protection assembly.

[0028] The protection assembly described above therefore includes, as mentioned, a wearable personal protective device. In particular, the wearable personal protective device may be formed like a garment or may be part of a garment or may generally be formed like or be part of a wearable article.

[0029] Said device may be an autonomous wearable device, namely a device which does not require other components in order to function and allow inflation of the inflatable element in the event of danger.

[0030] According to a preferred aspect of the present disclosure, the user device is configured to store a smaller number of activation configurations than the number of activation configurations of said remote server. In this way, it is possible to store only a small number of activation configurations without overloading even the memory of the user device.

[0031] Preferably, the protection assembly also includes the remote server so as to have available a plurality of activation configurations.

[0032] The present disclosure also relates to a method for configuring a wearable protective device for the protection of a user by means of an assembly for protecting a user. In particular, the assembly comprises at least one wearable protective device and a user device. The wearable protective device comprises in turn an inflatable element configured to assume a deflated condition and an inflated condition, at least one inflation device, configured to inflate the inflatable element from the deflated condition to the inflated condition, one or more sensors configured to detect data relating to a user condition, and a control unit having a unique activation configuration for processing said data and identifying a danger situation or a fall situation based on said data, and wherein the method comprises the following steps:

- storing in a user device different from said control unit at least two activation configurations different from each other for activating the inflation device and inflating the inflatable element;
- moving the user device close to the control unit, or vice versa, in order to store a unique activation configuration of the control unit or in order to replace or substitute the unique activation configuration with an activation configuration selected from said at least two activation configurations.

[0033] In other words, the method of the present dis-

closure involves:

- storing in a user device a plurality of activation configurations, preferably downloaded from a remote server;
- moving the user device close to the control unit or vice versa;
- replacing the unique activation configuration of the control unit with an activation configuration, selected from said plurality of activation configurations.

[0034] The inflation device may be activated for example in the event of a danger situation for the user, such as a collision, an impact or a fall, which may be detected by one or more sensors configured to transmit to the control unit or CPU a signal relating to said danger situation. The control unit or CPU may command activation of the inflation device after receiving the signal from one or more sensors.

[0035] The user device is, for example, a smartphone or tablet provided with a communication interface. The mobile device has a conventional screen which may act as a communication interface in order to show the activation configuration selected or allow a user to make the selection.

[0036] Preferably, only two activation configurations are downloaded in the user device in order to reduce the amount of memory space used in the mobile device.

[0037] Preferably, the user device is connected temporarily, i.e. when needed, to said control unit in order to transmit to the control unit said unique activation configuration.

[0038] Preferably, the user device is provided with a communication interface configured to show the user an activation configuration and allow a user to choose the activation configuration to be saved in the control unit.

[0039] Each activation configuration represents, preferably in a unique manner, a travel condition of a user who is wearing said wearable protective device and the user replaces said unique activation configuration after choosing it in the user device.

[0040] Further advantages, characteristic features and modes of use forming the subject of the present disclosure will become clear from the following detailed description of embodiments thereof, provided by way of a non-limiting example.

[0041] It is in any case clear that each embodiment forming the subject of the present disclosure may have one or more of the advantages listed above; in any case it is not required that each embodiment should have simultaneously all the advantages listed.

[0042] Reference will be made to the figures of the attached drawings in which:

- Figure 1 shows a schematic view of an assembly according to an embodiment of the present invention;
- Figure 2 shows, in schematic form, an operating

mode of the assembly according to the present disclosure.

[0043] With reference to the attached figures, an assembly for protecting a user is denoted overall by the reference number 10.

[0044] In particular, the assembly 10 includes a wearable protection device 12 integrated in a motorcycle suit. Basically the wearable protective device 2 is associated with a garment, which may be a suit, or other type of garment, such as a vest or other protective garment which covers at least partially the bust region of a garment. It is also quite possible to envisage a situation where the wearable protection device 12 coincides with the garment itself, for example in the case where the wearable device is more structured and overall is formed like a garment.

[0045] The user wearing the wearable protective device 12 may be a motorcyclist and therefore the wearable protective device 12 may be intended for motorcycling. Alternatively, the wearable protective device 12 may be worn by other users of a means of transport, such as a vehicle, or any other means of transport, such as a horse or other animal, sports equipment, such as a pair of skis or a bobsleigh, or similar means of transport. It is understood, however, that the wearable protective device may also be used by a user without means of transport, for example while simply walking.

[0046] According to the use of the wearable protective device 12 which may depend on the means of transport, or the terrain where the wearable protective device 12 is used, or the movement condition, or the stresses to which it is exposed, a specific travel condition is therefore defined, namely a form of movement or displacement or, in general, a manner of proceeding.

[0047] The wearable protective device 12 comprises at least one inflatable element 20, configured to assume a deflated condition and an inflated condition, at least one inflation device 30, configured to inflate the inflatable element 20 from the deflated condition to the inflated condition. The wearable protective device also includes a control unit 32 and sensors 33, which are associated, for example, with the control unit 32, for detecting data relating to said travel condition, for example the riding condition of the motorcycle on which the user is travelling. If the predefined threshold values, also called parameters, for said data are exceeded, depending on the travel condition, this may be an indication of a possible fall or slipping of the user and, more generally, of a situation where there is danger or the risk of injury for the user. The control unit 32 is configured to process said data and evaluate, based on given logic and calculation algorithms, the degree to which one or more parameters are exceeded.

[0048] All of these parameters, as well as any logic and algorithms or any firmware which includes said logic for each travel condition, may be understood in the context of the present disclosure as being an "activation configura-

tion".

[0049] The assembly 10 further comprises a user device 40 which is in fact a device different from the control unit 32. The user device 40 has, stored in it, at least two activation configurations which are different from each other, wherein the user device 40 is designed to be connected, at least temporarily, to a remote server 50 from which it is possible to download the activation configurations. The remote server 50 may be understood as being part of said assembly 10.

[0050] Even more particularly, according to the present disclosure, the control unit 32 may have, associated with it, a unique activation configuration, which is represented for example by parameters (param) and by a firmware (FW) 1. In other words, one and only one firmware, namely a single calculation logic, is provided, for example installed in the control unit 32, and one or only one set of operating parameters (param 1) is provided, saved in a respective memory of the personal protection device. Firmware and parameters are preferably both saved in one or more memories of the control unit 32. It should be pointed out that FW and parameters may be stored "also separately" in several separate internal memories of the control unit.

[0051] A user device in which other activation configurations 42, 43 are stored is also envisaged, these being indicated for example by parameters (param) 1 and firmware (FW) 1, parameters (param) 2 and firmware (FW) 2 in Figure 2, respectively. The remote server 50, instead, has preferably stored in it a greater number of activation configurations 42, 43, 44 for example indicated by parameters (param) 1 and firmware (FW) 1, parameters (param) 2 and firmware (FW) 2, parameters (param) 2 and firmware (FW) 1 in Figure 2, respectively.

[0052] According to the present disclosure, the user device 40 can be moved close to and connected to the control unit 32, namely with an approaching movement which may be mutual, so as to allow the replacement or substitution of the activation configuration 42 associated with the control unit 32 of the wearable protective device 12.

[0053] The replacement may be performed following an action taken by the user. Consequently, the replacement of the various algorithms, parameters and/or control logic, based on the chosen travel condition, is performed by overwriting the firmware and/or the set of operating parameters. The user device 40 may be a smartphone, a PC or a notebook. Therefore, the procedure for replacement of the firmware and/or the parameters may be performed both by means of connection to the PC and by means of a smartphone provided with a cable connection or a Bluetooth connection. As a result, the replacement operation does not require a data network and may be quick, wherever the user is located.

[0054] Preferably, the user selects a so-called travel condition, or "riding condition", on the user device 40 which, as mentioned, is configured to transmit the new firmware and/or set of parameters to the control unit 32.

Only the travel conditions or riding conditions to be selected may be identified or displayed, by means of respective symbols, on a display of the user device 40, which acts as a communication interface 48. The so-called riding conditions are therefore solely a means for correctly identifying the firmware and/or set of operating parameters to be installed.

[0055] The user device 40 intended to transmit the new firmware and/or set of parameters is solely a nearby means or instrument, namely a proximal server, for installing the new firmware and/or set of parameters; it does not participate in any way in the functioning of the "airbag system" or the wearable protective device 12.

[0056] The user device 40 is therefore a proximal server, closer to the user than the remote server 50.

[0057] The user device may therefore be provided with a communication interface 48 for showing the user which activation configuration has been set. The wearable protective device 12 may also be provided with said user interface or communication interface.

[0058] With regard to inflation, preferably, the at least one inflation device 30 comprises a pressurised gas generator, configured to release the pressurised gas, or other fluid, into the inflatable element 20 so as to cause it pass from the deflated condition into the inflated condition, and one or more sensors, configured to assess a possible danger situation for a user of the protection assembly 10, for example a collision or a fall.

[0059] Even more preferably, the inflation device 30 is configured to activate inflation of the inflatable element 20 in the event of danger for a user.

[0060] In order to perform inflation of the inflatable element 20, in the event of a fall and/or slipping and/or a sudden impact suffered by a user or a vehicle on which the user is travelling, the gas generator may be for example a canister containing a compressed cold gas, for example helium. The canister may be provided with a respective shut-off valve. Alternatively, the inflation fluid source may comprise gas generators preferably of the pyrotechnic or hybrid type or other types known in the prior art.

[0061] It should also be noted that the activation methods, while being a particularly important aspect for efficient operation of the device, will not be further described in greater detail, since they constitute a logic essentially already known to the person skilled in the sector relating to the protection of persons from sudden impacts.

[0062] Preferably, the inflation device 30 can be replaced after one or more inflation operations of the inflatable element 20, and preferably the communication interface 48 may be configured to show a signal or a warning for signalling further useful information for a user, such as the need to replace the inflation device 30 following one or more uses, or the need to replace the inflatable element 20 following one or more inflation operations.

[0063] Based on the information provided above, it can be seen that the present disclosure also relates to a

method for configuring a wearable protective device 12 for the protection of a user by means of an assembly for protecting a user 10, for example such as that described.

[0064] The method involves using an assembly comprising at least one inflatable element 20, for example such as that described above. A unique activation configuration 42, as mentioned, is associated with the control unit 32.

[0065] In particular, said method involves:

- storing in a user device 40 at least two configurations 42, 43 different from each other and preferably downloaded from a remote server 50;
- moving the user device 40 close to the control unit 32 or vice versa;
- replacing the unique activation configuration 42 associated with the control unit 32 with an activation configuration 43, selected from said plurality of activation configurations 42, 43, 44.

[0066] The selection and the replacement may be performed manually by a user of the assembly using the user device 40. The connection between the user device 40 and the control unit 32 may be realized via a Bluetooth connection or by cable.

[0067] As mentioned, the activation configuration is associated with the control unit 32. This expression, in the context of the present disclosure, includes the case where the control unit 32 is understood as being a unit having the main function of storing the entire activation configuration for activation of the inflation device, or where the control unit 32 is a more complex management unit which also has, stored in it, system firmware of the entire wearable protective device, namely checks as to the state of the inflatable element, sensors for detecting the fall or slipping or danger in general, the number of activations, operation of the inflation device, or other safety checks. Alternatively again, the control unit stores only the logic for activation of the inflation device, while the threshold parameters are saved in a separate memory, so as to obtain a modular protection device.

[0068] The subject-matter of the present disclosure has been described hitherto with reference to its embodiments. It is to be understood that other embodiments relating to the same inventive idea may exist, all of these falling within the scope of protection of the claims which are attached below.

Claims

1. Assembly for the protection of a user (10) comprising a wearable protective device (12) and a user device (40), wherein the wearable protective device (12) comprises:

at least one inflatable element (20) configured to

- assume a deflated condition and an inflated condition;
 at least one inflation device (30), configured to inflate said inflatable element (20) from said deflated condition to said inflated condition;
 one or more sensors (33) configured to detect data relating to a user condition; and
 a control unit (32) configured to process said data and identify a danger situation or a fall situation based on said data, wherein said control unit (32) is associated with a unique activation configuration (43, 43, 44) for activating the inflation device (30) and inflating the inflatable element (20);
 and wherein at least two activation configurations (42, 43) different from each other are stored in the user device (40), and wherein the user device (40) is configured to be moved close to said control unit (32) and connected at least temporarily with said control unit (32) in order to transmit to the electronic control unit (32) said unique activation configuration (42) chosen from said at least two activation configurations (42, 43);
 and wherein the user device (40) and said control unit (42) are further configured so that a transmission of an activation configuration (42, 43) from the user device (40) to said control unit (32) corresponds to or determines a replacement, substitution or overwriting of said unique activation configuration (42) associated with the control unit (32).
2. Assembly for the protection of a user (10) according to claim 1, wherein the user device (40) is configured to be connected to a remote server (50) and to receive said at least two activation configurations (42, 43, 44) from the remote server (50).
 3. Assembly for the protection of a user (10) according to claim 2, wherein the user device (40) is configured to store a number of activation configurations smaller than the number of activation configurations of said remote server (50).
 4. Assembly for the protection of a user (10) according to any one of the preceding claims 2 or 3, comprising said remote server (50).
 5. Assembly for the protection of a user (10) according to any one of the preceding claims 2 to 4, wherein said user device (40) acts as a proximal server closer to said control unit (32) than said remote server (50).
 6. Assembly for the protection of a user (10) according to any one of the preceding claims, wherein said user device (40) can be connected to said control unit (32) via Bluetooth or via short range wireless communication.
 7. Assembly for the protection of a user (10) according to any one of the preceding claims, wherein said user device (40) is a smartphone.
 8. Assembly for the protection of a user (10) according to any one of the preceding claims, wherein the activation configuration includes a set of activation parameters, set of operating parameters, calculation algorithms, danger assessment thresholds, operation firmware and/or other data and calculations that allow identification of a situation which determines the triggering of a signal for activation of the inflation device (30).
 9. Assembly for the protection of a user (40) according to any one of the preceding claims, wherein each activation configuration is representative of a travel condition, or "riding condition", i.e. a movement condition of a user who is using said wearable protective device (12).
 10. Assembly for the protection of a user (40) according to any one of the preceding claims, wherein said user device (40) includes a communication interface (48) for displaying to a user the activation configuration (42, 43, 44) to be selected.
 11. Assembly for the protection of a user (2000, 3000) according to any one of the preceding claims, wherein the wearable protective device (12) is part of a garment or wearable article or is formed like a garment or wearable article.
 12. Assembly for the protection of a user according to any one of the preceding claims, wherein the control unit has only one activation configuration at a time and does not include more than one activation configuration to be selected.
 13. Method for configuring a wearable protective device (12) for the protection of a user, wherein the wearable protective device (12) includes at least one inflatable element (20) configured to assume a deflated condition and an inflated condition, at least one inflation device (30), configured to inflate said inflatable element (20) from said deflated condition to said inflated condition, one or more sensors (33) configured to detect data relating to a user condition, and a control unit (32) which processes said data and identifies a danger situation or a fall situation based on said data; and wherein the method involves:
 - storing in a user device (40) at least two activation configurations (42, 43) different from each other for activating the inflation device (30) and inflating the inflatable element (20);

- moving the user device (40) close to the control unit (32), or vice versa, in order to associate a unique activation configuration (42) with the control unit (32), or to replace or substitute or overwrite the unique configuration activation configuration (42) with an activation configuration (43) selected from said at least two activation configurations (42, 43, 44). 5

14. Method for configuring a wearable protective device (12) for the protection of a user according to the preceding claim, wherein the association of a unique activation configuration (42) with the control unit (32) or the replacement or substitution or overwriting of the unique activation configuration (42) may take place in a region where there is no data network. 10 15
15. Method for configuring a wearable protective device (12) for the protection of a user according to claim 13 or 14, wherein the two activation configurations (42, 43) are received from a remote server (50) and the method involves updating or saving further activation configurations in addition to the at least two configurations (42, 43) from a plurality of activation configurations (42, 43, 44) of the remote server (50). 20 25
16. Method for configuring a wearable protective device (12) for the protection of a user according to claim 13, 14 or 15, wherein the remote server (50) comprises a greater number of activation configurations (42, 43, 44) than the activation configurations (42, 43) of the user device (40). 30
17. Method for configuring a wearable protective device (12) for the protection of a user according to any one of claims 13 to 16, wherein the user device (40) displays the activation configurations (42, 44) to a user via a communication interface (48) and allows a user to select the activation configuration (42, 43, 44) to be associated with the control unit (32). 35 40
18. Method for configuring a wearable protective device (12) for the protection of a user according to any one of the preceding claims 13 to 17, wherein each activation configuration (42, 43, 44) represents a travel condition of a user who is wearing said wearable protective device (12) and a user replaces said unique activation configuration (42, 43, 44) after selecting it in the user device (40). 45 50
19. Method for configuring a wearable protective device (12) for the protection of a user according to any one of the preceding claims 13 to 18, wherein the protection assembly is according to any one of claims 1 to 12. 55

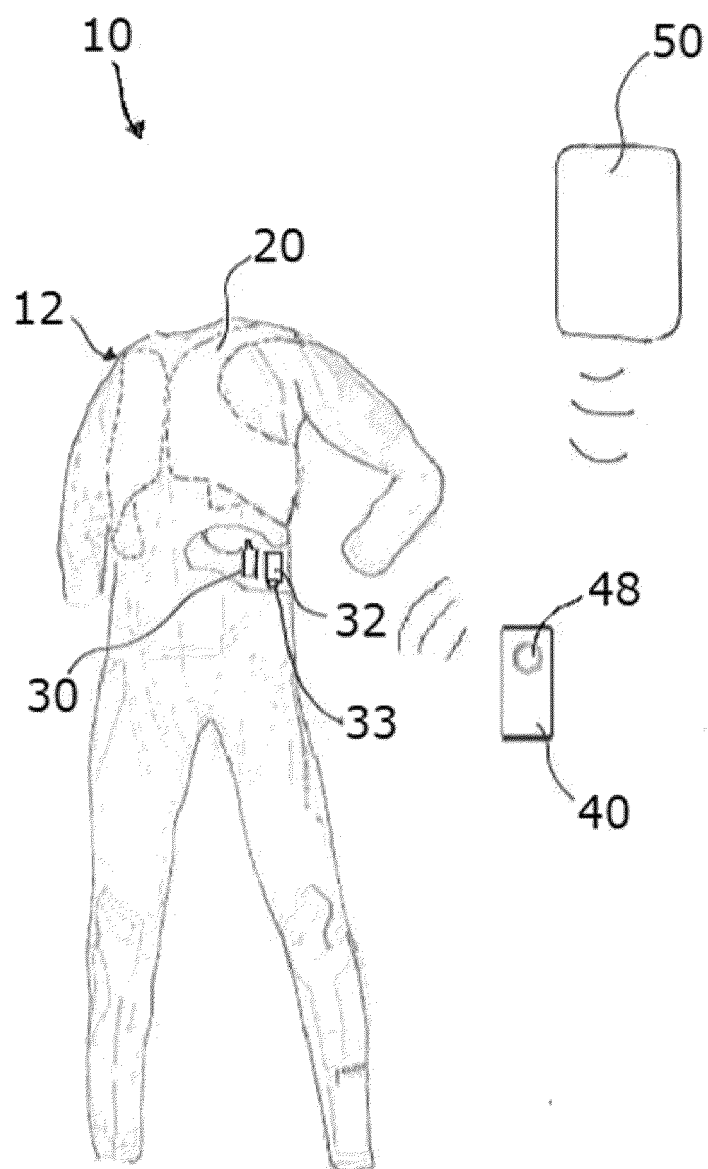


FIG. 1

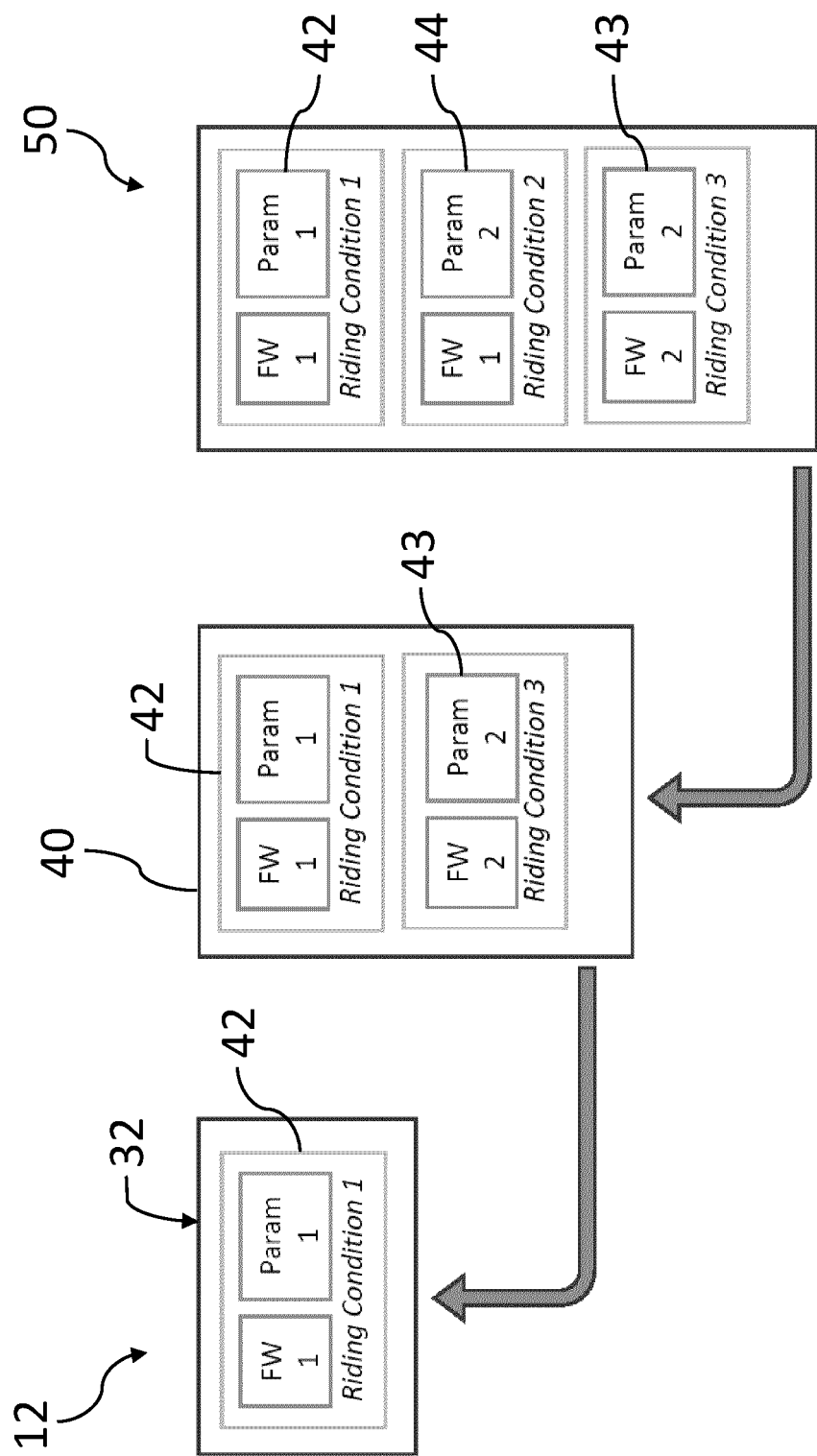


FIG. 2



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Application Number

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Place of search The Hague		Date of completion of the search 16 December 2024	Examiner Nelis, Yves
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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