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 **COMPLETE SPECIFICATION**

(See section 10 and rule 13)

**NAVIGATION SYSTEM FOR A VEHICLE AND METHOD FOR NAVIGATION**

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**The following specification particularly describes the invention and the manner in which it is to be performed.**

**FIELD**

[001] The present disclosure relates to a navigation system and method. Particularly, the present disclosure relates to a navigation system for a vehicle and method for receiving navigation indications during moving condition of a vehicle.

**BACKGROUND**

[002] While riding a two-wheeler vehicle such as a bicycle, bike or scooter, a rider generally keeps the mobile phone either in the pocket of rider’s clothing or in the rider’s bag/handbag or in vehicle’s utility box. As both of the rider’s hands are occupied in handling the vehicle’s handlebar, the rider finds it difficult to each time to remove and view any of the navigation application available in the mobile phone. Also, if a provision is made to mount the mobile phone on the chassis of the vehicle, it is likely that the mobile phone may accidently fall either during mounting or while riding specially on jerky roads. Also, if mounted, there may be visibility problem in day-light or the mobile phone may be subjected to rain and render no use. Accidental fall or falling of rains may damage the mobile phone and hence may need replacement which results in costly affair.

[003] Hence, there is a need for a navigation system and method that provides ease of navigation for a rider of a two-wheeler vehicle.

**OBJECTS**

[004] Some of the objects of the arrangement of the present disclosure are aimed to ameliorate one or more problems of the prior art or to at least provide a useful alternative and are listed herein below.

An object of the present disclosure is to provide a navigation system that provides ease of navigation at less cost for a rider/driver of a vehicle.

Another object of the present disclosure is to provide a navigation system that has a navigation device connected to an internet connected portable device such as a mobile phone to provide at least one of visible navigation indications and audible navigation indications.

Still another object of the present disclosure is to provide a navigation system that has an internet connected portable device defined with a hardware stored with a navigation application having voice packs which are replaced by customized voice packs.

Yet another object of the present disclosure is to provide a navigation system that is cost effective and requires fewer efforts to install and use thenafter.

Another object of the present disclosure is to provide a navigation system that has a navigation device which is easily attached and removed with the handlebar of a vehicle.

Still another object of the present disclosure is to provide a navigation system that provides sufficient visibility in day-light.

Other objects and advantages of the present disclosure will be more apparent from the following description when read in conjunction with the accompanying figures, which are not intended to limit the scope of the present disclosure.

**SUMMARY**

[005] Embodiment of the present disclosure discloses a navigation system for a vehicle. The navigation system includes an internet connected portable device, a customized voice pack and a navigation device. The internet connected portable device has a hardware installed with a navigation application. The hardware is defined with an inbuilt voice pack which has a plurality of unique voice messages. Each unique message is defined with a unique name. The customized voice pack has a plurality of customized voice messages. Each customized voice message is defined with a name corresponding to the unique name and/or customized name and a defined frequency. The customized voice pack is installed in the hardware. The navigation device includes a connector and housing. The connector is selectively attached with the navigation device with the vehicle. Housing includes a power source, a signal receiver, an operational amplifier, a controller and an indicator. The signal receiver is powered by the power source is paired with the internet connected portable device to receive customized voice signals from the navigation application. The operational amplifier amplifies received voice signals. The controller receives amplified voice signals and compares frequency of each amplified voice signal with pre-fed frequencies and thereupon provide an output signal in event when an amplified voice signal equal to a pre-fed frequency. The indicator is in communication with the controller and is selectively activated upon output signals received from the controller to form at least one of visible navigation indications and audible navigation indications.

The present disclosure also discloses an embodiment for method for receiving navigation indications during moving condition of the vehicle by the navigation system. The method includes providing an internet connected portable device which have a hardware that is installed with a navigation application. The hardware is defined with an inbuilt voice pack having a plurality of unique voice messages. Each unique message is defined with a unique name. A customized voice pack is provided which have a plurality of customized voice messages. Each customized voice message is defined with a name corresponding to the unique name and/or customized name and a defined frequency. The customized voice pack is installed in the hardware. A navigation device is fitted on the vehicle by a connector of the navigation device such that a housing of the navigation device is connected with the vehicle. The housing is provided with a power source. A signal receiver is powered by a power source and is paired with the navigation application of the internet connected portable device. The signal receiver receives customized voice signals from the navigation application. Received voice signals are amplified in an operational amplifier. Amplified voice signals are received in a controller. The controller compares frequency of each amplified voice signal with pre-fed frequencies and thereupon provide an output signal in event when an amplified voice signal equal to a pre-fed frequency. An indicator, which is in communication with the controller, is selectively activated to provide at least one of visible navigation indications and audible navigation indications based on output signal.

**BRIEF DESCRIPTION OF ACCOMPANYING DRAWINGS**

[006] A navigation system of the present disclosure will now be described with the help of the accompanying drawings, in which:

**Figure 1** illustrates a block diagram of the navigation system, in accordance with one embodiment of the present disclosure;

**Figure 2** illustrates a perspective view of a navigation device mounted on a vehicle;

**Figure 3** illustrates a perspective view of an exploded view of the navigation device and indicator cover; and

**Figure 4** and **Figure 5** respectively illustrate perspective views of a fixed element and a removable element of a connector.

**Figure 6** illustrates a pictorial view of different indicators as displayed on the screen of the navigation device.

**DETAILED DESCRIPTION**

[007] Referring now to the drawings, Figures 1-6, where the present invention is generally referred to with numeral (100), it can be observed that a navigation system, in accordance with one embodiment, is provided that includes an internet connected portable device (10), a customized voice pack (20) and a navigation device (30).

[008] The internet connected portable device (10) is typically a mobile phone/a smart phone because of ease of availability with everyone. However, the internet connected portable device (10) is not limited to the mobile phone/the smart phone and any other devices having internet connectivity can be used. The internet connected portable device (10) has a hardware (11) installed with a navigation application (12). Typically, the navigation application (12) is Google Maps because Google Maps has voice packs. However, the navigation application (12) is not limited to Google Maps, however, any other navigation applications can be used that has voice packs. The hardware (11) is defined with an inbuilt voice pack (13) having a plurality of unique voice messages (14), each unique message (14) defined with a unique name. For example, the unique messages (14) with unique names are turn left, go straight, turn right, take a bridge and the like.

[009] The customized voice pack (20) has a plurality of customized voice messages (21). The customized voice messages (21) are turn left, go straight, turn right, take a bridge, your destination is on right and the like. The customized voice messages (21) can be same as the unique voice messages (14) or can include more or less messages. Each customized voice message (21) is defined with a name, such as turn left or turn right, and a defined frequency. The names of the customized voice messages (21) are corresponding to the unique names and/or can be customized names. The customized voice pack (20) is installed in the hardware (11). Typically, the customized voice pack (20) is an mp3 file.

[010] The navigation device (30) is defined with a connector (31) and a housing (32). The connector (31) is selectively attached with the navigation device (30) with the vehicle. The connector (31) includes a fixed element (31a) and a removable element (31b). The fixed element (31a) is fixedly connected to a handlebar of the vehicle. The fixed element (31a) is to be fixed one time and will remain attached to handlebar until removed. The removable element (31b) is fixedly attached to the housing (32). The removable element (31b) is selectively detachable from the fixed element (31a) such that the housing (32) can be portable. The removable element (31b) is selectively attachable with the fixed element (31a) for fixing or removing the housing (32) with the vehicle. Typically, the connector (31) is Garmin Quarter mount.

[011] The housing (32) includes a power source (33), a signal receiver (34), an operational amplifier (35), a controller (36) and an indicator (37). The power source (33) is typically a portable power storage battery positioned in the housing (32). The portable power storage battery can be replaceable or rechargeable. The portable power storage battery can be of electric power, solar power or like or combinations thereof. Typically, the portable power storage battery is LI-ion battery. The signal receiver (34) is powered by the power source (33) and is paired with the internet connected portable device (10) to receive customized voice signals from the navigation application (12). The signal receiver (34) is a short-range wireless communication such as a Bluetooth or similar other. The operational amplifier (35) amplifies the received voice signals. A voltage regulator (not illustrated in Figures) is also provided to regulate the voltage. The controller (36) receives amplified voice signals and compares frequency of each amplified voice signal with pre-fed frequencies and thereupon provide an output signal in event when an amplified voice signal equal to a pre-fed frequency. Typically, the controller (36) is Arduino Pro mini. The indicator (37) is in communication with the controller (36) and is selectively activated upon output signals received from the controller (36) to form at least one of visible navigation indications (37) and audible navigation indications. Typically, the visible navigation indications (37) are an array of LED’s and audible navigation indications are voice indications. Typically, the array is of size 8X8. Additionally, vibration indications can be provided so that upon vibration of the handlebar, the user can view the visible navigation indications (37). In one embodiment, the housing (32) further includes an indicator cover (32a).The advantage (32) of housing (32) is that the housing (32) is compact.

[012] The navigation system (100) is basically used for user’s for riding a two-wheeler wheelers as it is difficult to view navigation. However, the present disclosure shall not be limited to use the navigation system (100) for two-wheeler vehicles and can be used for other vehicles such as four wheelers, vehicles used for disabled and similar other. The navigation system (100) can also be used for automation of vehicles to achieve manless drive. The navigation device (30) of the navigation system (100) when mounted behind the vehicle, like a bicycle, the navigation device (30) can be used as an indicator. The use of the navigation device (30) can also avoid the use of headphones connected to mobile phone/smart phone and hence prevents accidents caused thereby.

[013] The navigation system (100) is easy to use as it does not require cost intensive and time consuming application program interface (API’s) for establishing connection with any navigation application. The navigation system (100) because of usage of voice packs provides benefit of being comparatively less costly.

[014] The navigation device (30) of the navigation system (100) is water resistant and compact. The navigation device (30) also provides visible display in both day time and night time. The use of the navigation device (30) prevents mounting of personal mobile phone/smart phone and hence protects mobile phone/smart phone from external damages or unintended fallings. The use of the navigation device (30) replaces use of mobile phone/smart phone for navigation and helps to save mobile phone/smart phone battery for other important uses.

[015] The present disclosure also discloses a method for receiving navigation indications during moving condition of the vehicle by the navigation system (100). The method includes the step of providing the internet connected portable device (10) having the hardware (11) installed with the navigation application (12). The hardware (11) is defined with the inbuilt voice pack (13) having the plurality of unique voice messages (14). Each unique message (14) is defined with the unique name. The next step is providing the customized voice pack (20) which has a plurality of customized voice messages (21) and each customized voice message (21) is defined with a name corresponding to the unique name and/or customized name and a defined frequency. The customized voice pack (20) is an mp3 file. The customized voice pack (20) is installed in the hardware (11). The navigation device (30) is installed on the vehicle by the connector (31) such that the housing (32) connects with the vehicle. The housing is provided with the power source (33). The signal receiver (34), which is powered by the power source (33), is paired with the navigation application (12) of the internet connected portable device (10). The signal receiver (34) receives customized voice signals from the navigation application (12). Received voice signals are amplified in the operational amplifier (35). Amplified voice signals are received in the controller (36). The controller (36) compares the frequency of each amplified voice signal with pre-fed frequencies and thereupon provide an output signal in event when an amplified voice signal equal to a the pre-fed frequency. The indicator (37), which is in communication with the controller (36), is selectively activated to provide at least one of the visible navigation indications (37) and the audible navigation indications based on the output signal.

[016] The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments, steps or alternatives may be made of the inventive concept of this invention. It is to be understood that all matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense.

**ABSTRACT**

**NAVIGATION SYSTEM FOR A VEHICLE AND METHOD FOR NAVIGATION**

Navigation system (100) has a navigation device (30) that is selectively connected to an internet connected portable device (10) modified with a customized voice pack (20) and the method which not require any cost intensive application program interface. The internet connected portable device (10) has a hardware (11) having a navigation application (12) cooperating with an inbuilt voice pack (13) having a plurality of unique voice messages (14). The customized voice pack (20) has a plurality of customized voice messages (21). Each customized voice message (21) is defined with a name and defined frequency corresponding to the unique names. The navigation device (30) is removably connected to the handlebar of the vehicle has a controller (36) that receives frequency of customized voice signals and compares with pre-fed frequency and based on the result activates the desired indication on the indicator (37).

*(To be published with Figure 1)*