



(51) International Patent Classification:

B60Q 1/26 (2006.01) B62J 99/00 (2020.01)

B62J 6/16 (2020.01) B62H 1/00 (2006.01)

(21) International Application Number:

PCT/IN2020/050163

(22) International Filing Date:

22 February 2020 (22.02.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201941009996 14 March 2019 (14.03.2019) IN

(71) Applicant: TVS MOTOR COMPANY LIMITED

[IN/IN]; "Jayalakshmi Estates", No. 29 (Old No.8), Haddows Road, Chennai 600 006 (IN).

(72) Inventors: SUBRAMONIAM, Chidambaram; TVS Motor

Company Limited, "Jayalakshmi Estates", No. 29 (Old No.8), Haddows Road, Chennai 600 006 (IN). CHIPPA, Sunil Kumar; TVS Motor Company Limited, "Jayalakshmi Estates", No. 29 (Old No.8), Haddows Road, Chennai 600 006 (IN).

nai 600 006 (IN). MAZUMDAR, Dipanjan; TVS Motor Company Limited, "Jayalakshmi Estates", No. 29 (Old No.8), Haddows Road, Chennai 600 006 (IN). SAXENA, Soumya; TVS Motor Company Limited, "Jayalakshmi Estates", No. 29 (Old No.8), Haddows Road, Chennai 600 006 (IN).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

(54) Title: AN ILLUMINATING DEVICE CONTROLLED BY SPEED, LIGHT, AND POSITION SENSORS

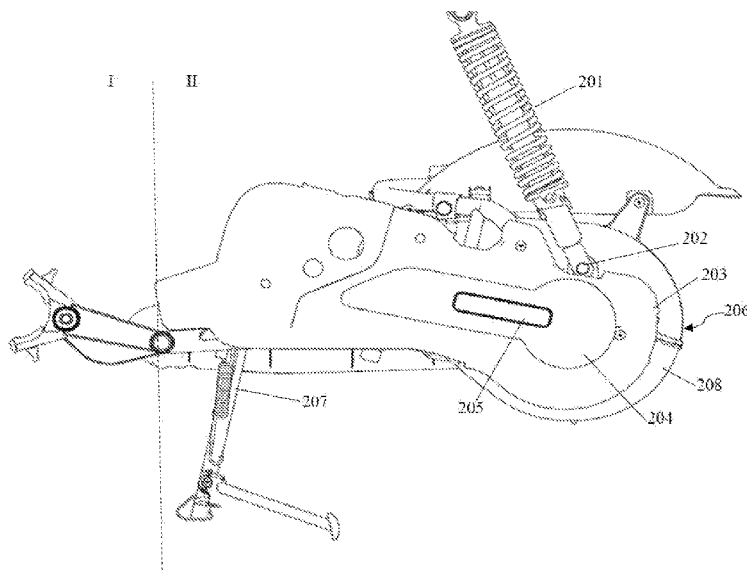


Fig. 2

(57) Abstract: The present subject matter relates to a saddle ride type vehicle (100) with an illuminating device (205). The present subject matter specifically relates to an illuminating device (205) which is controlled by the position of the vehicle supporting device (207) and the ambience light. The present subject matter can also be used for finding the vehicle (100) parked in a low light condition.



EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *of inventorship (Rule 4.17(iv))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

AN ILLUMINATING DEVICE

TECHNICAL FIELD

[0001] The present subject matter generally relates to a saddle type vehicle. More particularly but not exclusively the present subject matter relates to a system
5 to an illuminating device for said saddle type vehicle.

BACKGROUND

[0002] A vehicle's identity is an important symbol for the vehicle manufacturers to set apart in the market from other available options. Along with the vehicle's identity the symbol, the emblem or the logo need to be appealing and
10 eye catching. The manufacturers try to incorporate several colour effect, light effect to and the combination thereof to make it more appealing.

[0003] An illuminating emblem device, in order to identify two- wheeled vehicle, is usually installed on the side of the fuel tank of the side cowl of a saddle type- vehicle. The illuminating emblem devices are generally restricted for aesthetic
15 purpose which may have a light housing with a transparent cover and a circuit board.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Figure 1 illustrates a side view of the exemplary two-wheeled vehicle, in accordance with an embodiment of the present subject matter.

20 [0005] Figure 2 illustrates a side view of the rear portion of the two-wheeled vehicle.

[0006] Figure 3 illustrates a perspective view of the inner portion of the transmission cover.

[0007] Figure 4 illustrates a top view of the transmission system cover provided
25 with the present subject matter.

[0008] Figure 5 illustrates a block diagram of achieving the operation of the present subject matter.

[0009] Figure 6 illustrates a flow of operation of the present subject matter through a flow chart.

[0010] Figure 7 and figure 8 illustrates a circuit diagram of the present subject matter.

5

DETAILED DESCRIPTION

[0011] An illuminating device functioning as an emblem are purposely given to identify the vehicle. Some of the illuminating devices on the vehicle are provided with LED to enable onlooker to see the car model during night time. But
10 the available illuminating devices in the market have only aesthetic value attached to it.

[0012] An illuminating device can provide a great help when a vehicle is parked in the low light area and also enables other people to know when the vehicle is in ON condition as vehicle. Additionally, in case of a vehicle running on electric
15 powertrain, since it generates very less noise, there exists a problem of difficulty for the people in vicinity to be able to easily identify the approach of a vehicle which can be potentially unsafe.

[0013] Also, when a saddle type vehicle is started the light loads are provided on the front as well as the posterior part of the vehicle. In vehicles with
20 side stand for parking, When the user of the vehicle tries to retract the side stand before driving the vehicle, the user has to put one of his leg to sense the side stand. Accidentally, sometimes, the user might hit the leg against some other part of the vehicle potentially injuring oneself. Thus, there is a need for adequate, focused & timely illumination of the side portion of a vehicle for enabling it to be safely
25 conspicuous to the user as well as other travelers in vicinity like pedestrians, other vehicle users etc. In case of vehicle configured with an electric power train & energy source, there exists an additional need to be able to conspicuously & distinctly identify the vehicle as well as indicate the charging condition / status of the vehicle during running as well as especially when the vehicle is in parked
30 condition when the user is at a distance from the vehicle.

[00014] Hence, the present subject matter discloses an illuminating device for a saddle type vehicle of saddle type to solve the above mentioned problems. The present subject matter allows the user of the saddle type vehicle to operate the side stand without hitting the leg and provides adequate targeted illumination at right
5 time in locating the side stand and the center stand during the low light conditions.

[00015] Another embodiment of the present subject matter provides an illumination device with a light sensing diode to detect the ambience light intensity and the light sensing diode sends the signal to a controller to evaluate the light intensity in order to activate the illuminating device.

10 [00016] Yet another embodiment of the present subject matter provides an illuminating device which is mounted on a transmission case provided to cover a transmission system of the saddle type vehicle.

[00017] Another embodiment of the present subject matter provides an illuminating device which starts radiating light when the power source such as a
15 battery is in charging status. The illuminating device illuminates both when the battery is getting charged during running condition or when the vehicle is being charged during OFF condition using a raw power supply.

[00018] Yet another embodiment of the present subject matter provides an illuminating device which illuminates for a predetermined time after the vehicle is
20 started and after the elapse of the predetermined time the illuminating device gets turned off so that when the vehicle is in running condition the illuminating device remains in OFF state which eliminates the distraction which may be caused to the neighboring vehicle being driven on the road.

[00019] Another embodiment of the present subject matter provides an
25 illumination device which starts glowing when the vehicle is parked in a parking area allowing the user to find the vehicle among several vehicles. Also, enabling the vehicle to be visible when parked in a low lighted area or dark area.

[00020] Yet another embodiment of the present subject matter is to provide a hall sensor to detect the speed of vehicle. The information related to the speed of
30 the vehicle captured by the hall sensor is sent to the controller to switch OFF the illuminating device.

[00021] Still another embodiment of the present subject matter provides a position sensor located in close proximity to a vehicle supporting in order to determine the position of the vehicle supporting device (207). In one embodiment a vehicle supporting device (207) is a side stand and in an another embodiment
5 vehicle supporting device (207) is a center stand. The illuminating device gets switched OFF when the position sensor detects the retraction of the both side stand and center stand.

[00022] Another embodiment of the present subject matter provides a controller with wireless communication device such as GPS/GSM, Bluetooth etc.
10 to enable the user to use a vehicle detection key for detecting the location of the vehicle equipped with present subject matter parked in a dark location or crowded location. Using the vehicle detection key which is also a wireless device supporting GPS/GSM, it pairs with the controller and the illuminating device starts blinking.

[00023] Another embodiment of the present subject matter provides a
15 transmission system cover with tier structure and having multiple tiers. The transmission system cover has a top cover portion, a middle cover portion and a bottom cover portion. The illuminating device can be mounted on any of the top cover portion or the middle cover portion or the bottom cover portion but in close proximity of the center stand and side stand.

20 [00024] Yet another embodiment of the present subject provides a side stand which is mounted on a bracket which is attached to the frame of the vehicle. The side stand is provided in close proximity to the illuminating device. The illuminating device illuminates during low light condition thereby allowing the user to locate the side stand & operate it safely with the foot.

25 [00025] another embodiment of the present subject matter provides a side stand and a center stand which triggers the illuminating device through a position sensor. The illuminating device gets switched OFF only if both side stand and center stand gets retracted. When either of the center stand or side stand remains in unretracted condition, the illuminating device also remains in an ON condition.

30 [00026] Another embodiment of the present subject matter provides a controller which evaluates the ambience light intensity with a pre-determined value

of light intensity to allow the user to locate the side stand by illuminating the illuminating device.

[00027] These and other advantages of the present subject matter would be described in greater detail in conjunction with the figures in the following
5 description.

[00028] **Fig. 1** illustrates a left side view of an exemplary motor vehicle (100), in accordance with an embodiment of the present subject matter. The vehicle (100) illustrated, has a frame member (105). In the present embodiment, the frame member (105) is step-through type including a head tube (105A), and a main frame
10 (105B) that extend rearwardly downward from an anterior portion of the head tube (105A). The main frame (105B) extends inclinedly rearward to a rear portion of the vehicle (100).

[00029] The vehicle (100) includes one or more prime movers that are connected to the frame member (105). In the present implementation, one of the
15 prime movers is an internal combustion (IC) engine (115) mounted to the frame member (105). In the depicted embodiment, the IC engine (115) is mounted to a structural member (135) that is pivoted to the frame member (105). In one embodiment, the structural member (135) is a rigid member made including metal. The vehicle (100) also includes another prime mover, which is an electric motor
20 (120). In a preferred embodiment, the electric motor (120) is hub mounted to one wheel of the vehicle (100). In another embodiment, one or more than one electric motor is mounted to wheels or to the frame of the vehicle. In the depicted embodiment, the vehicle (100) includes at least two-wheels and the electric motor (120) is hub mounted to the rear wheel (125) of the vehicle. A front wheel (110) is
25 rotatably supported by the frame member (105) and is connected to a handle bar assembly (130) that enables maneuvering of the vehicle (100).

[00030] Further, the vehicle (100) includes a high capacity on-board battery (not shown) that drives the electric motor (120). The high capacity battery may include one or more high capacity battery packs or one or more low capacity cells.
30 The high capacity battery can be disposed at a front portion, a rear portion, or at the center of the vehicle (100). The high capacity battery is supported by the frame

member (105) and the vehicle (100) includes plurality of body panels, mounted to the frame member (105) for covering various components of the vehicle (100). The plurality of panels includes a front panel (140A), a leg shield (140B), an under-seat cover (140C), and a left and a right-side panel (140D). A glove box may be mounted
5 to a leg shield (140B).

[00031] A floorboard (145) is provided at the step-through portion defined by the main tube (105B). A seat assembly (150) is disposed rearward to the step-through portion and is mounted to the main frame (105B). The seat assembly (150) that is elongated in a longitudinal direction F-R of the vehicle (100) enables the user
10 to operate the vehicle in a saddle ride-type posture. One or more suspension(s) connect the wheels (110), (125) to the vehicle (100) and provide a comfortable ride. The vehicle (100) comprises of plurality of electrical and electronic components including a headlight (155A), a taillight (155B), a starter motor (not shown), a horn etc. Also, the vehicle (100) includes a master control unit (not shown) that takes
15 control of the overall operation of the vehicle (100) including the function of the IC engine (115), the electric motor (120), charging of the batteries from a magneto/integrated starter generator (ISG), driving of loads by the magneto/ISG, charging of the high capacity batteries by the electric motor operating in generator mode, and any other operations associated with the operation of the vehicle (100).
20 The vehicle (100) shown in fig. 1 is an exemplary vehicle and the present subject matter can be used in a two-wheeled vehicle, three-wheeled vehicle or a four-wheeled vehicle.

[00032] **Fig. 2** illustrates side view of the rear portion of the two-wheeled vehicle. The rear portion of the two-wheeled vehicle comprising a transmission
25 system responsible for transmitting the power from the engine or the electric motor to a final drive. The transmission system is protected from the external factors like dust, mud slush by covering the transmission system with a transmission system cover (206).

[00033] A vehicle supporting device (207) is pivotally disposed immediately
30 below the front portion of the transmission system cover (206). The movement of the vehicle supporting device (207), when, retracted to an OFF condition by rotating

the vehicle supporting device (207) is restricted till the transmission system cover (206) and the vehicle supporting device (207) comes in close proximity to the illuminating device (205).

[00034] The transmission system cover (206) is formed into a shape to form a top cover portion (204), a middle cover portion (203) and a bottom cover portion (208). At least a portion of the surface area of the top cover portion (204) is configured to dispose the illuminating device (205). The illuminating device (205) further comprises of a transparent portion which may have an embossed surface (not shown) with one or more color to display the vehicle model name and the style. Further the illuminating device (205) comprising an display module (e.g. LED type) coupled to a control circuit. A shock absorber (201) is mounted on a bracket supported by a swing arm (not shown).

[00035] **Fig. 3** illustrates a perspective view of the inner portion of the transmission system cover (206). The back portion (303) of the Illuminating device (205) is provided with an electrical connection and a cable (302). The cable (302) is routed in the direction of the controller (501) (not shown in fig.3) and the cable (302) terminates with a coupler (301).

[00036] **Fig. 4** illustrates a top view of the transmission system cover (206) with the illuminating device (205). The illuminating device (205) is provided with a light sensor (401) e.g. diode which is responsible for detecting the ambient light intensity. The light sensor (401), after the ignition key is turned ON, starts sensing the ambient light and the information about the ambience light intensity is sent to the controller (501) (refer fig. 8). The controller (501) controls the operation of the illuminating device (205) depending on the ambient light intensity.

[00037] In one of the embodiments when the ignition key is turned ON the light sensor (401) starts detecting the ambient light. If the ambient light intensity is less than a predetermined value of the light intensity which can be fixed by the manufacturer, then the illuminating device (205) starts glowing and allowing the user of the vehicle to detect the vehicle supporting device (207) in a dark or low light condition and helping the user to avoid any accident by preventing the leg being hit by the vehicle body. When the vehicle supporting device (207) gets

retracted by the user of the vehicle then the illuminating device (205) gets switched OFF. A position sensor (not shown) mounted on the bracket of the vehicle supporting device (207) checks for the position of the vehicle supporting device (207). The same position sensor detects the position of the center stand as well.

5 Depending on the position of the vehicle supporting device (207) the illuminating device (205) either remains ON or gets switched OFF. The illuminating device (205) remains in ON condition as long as the vehicle supporting device (207) remains in unretracted condition. Only when both the vehicle supporting device (side stand and center stand) are retracted by the user then the illuminating device
10 (205) gets switched OFF.

[00038] In an alternate embodiment the ignition key is switched ON and if the ambience light intensity is greater than the predetermined value of the light intensity then the illuminating device (205) starts glowing & a hall sensor (502) provided in the vehicle checks for the speed of the vehicle. Subsequently when the
15 vehicle starts moving, the illuminating device (205) gets switched OFF after the elapse of fixed time interval which can be set by the manufacturers. In another embodiment the illuminating device (205) can also be kept in an ON state after the vehicle sets in motion until the ignition key is turned OFF.

[00039] In another embodiment the illuminating device (205) starts glowing
20 when the power source such as a battery (506) is being charged when the vehicle is in OFF condition. The glowing illuminating device (205), when vehicle connected to a raw power signal, represents that the battery (506) is not fully charged and the battery (506) is still under charging condition.

[00040] **Fig. 5** illustrates a block diagram of achieving the working of the
25 illuminating device (205) which is controlled by the controller (501) and other devices. The Controller (501) is connected to a power source like a battery (506). The controller (501) takes several input signals from input devices such as a hall sensor (502) which detects whether the vehicle is in running condition or not. The ignition key (504) provided in the vehicle to switch ON the vehicle ignition or the
30 powertrain system due to which the illuminating device (205) starts glowing after the ignition key (504) is switched ON. An ignition key can be replaced by mode

switches or throttle switch for electric or hybrid vehicle or can also be a remote key fob or a keyless actuation device. As per an alternate embodiment, the vehicle detection key may be replaced with a remote access actuation of the vehicle e.g. a remote immobiliser, etc. Thus, ignition key & keyless actuation are used interchangeably.

[00041] A vehicle detection key (503) is provided to find the vehicle when parked in a parking area which enables the user of the vehicle to trace the vehicle. The illuminating device (205) starts blinking when the vehicle detection key (503) is operated. The vehicle detection key (503) is enabled with a wireless system such as a Bluetooth or a GSM/GPS device. The controller (501) communicates with the vehicle detection key (503) such that the controller (501) is also provided with a GSM/GPS system or other wireless system such as Bluetooth and after confirming the authentication / user the controller (501) takes the command from the user. The controller (501) signals the illuminating device (205) to blink. A charger (505) is provided on the vehicle body to charge the battery (506).

[00042] The light sensor (401) mounted on the illuminating device (205) monitors the ambience light intensity for which the information is transferred to the controller (501). If the ambience light is less compared to predetermined value of light intensity (in lumens), then the illuminating device (205) starts glowing. The illuminating device is provided on the transmission cover (206) in a close proximity to the vehicle supporting device (207) as well as side stand.

[00043] The vehicle supporting device (207) is provided with a position sensor in order to detect the motion of the vehicle supporting device (207) as to whether the vehicle supporting device (207) is in un-retracted position or retracted position. The information regarding the position of the vehicle supporting device (207) is sent to the controller (501) which controls the operation of the illuminating device (205). The illuminating device (205) remains ON as long as the vehicle supporting device (207) remains in an unretracted position. As soon as the side stand is retracted the illuminating device (205) stops glowing.

[00044] **Fig.6** illustrates a flow of operation of the illuminating device (205) through a flow chart. The ignition key is switched ON or not depending on the

condition several steps are performed through the controller (501). If the user switches ON the ignition key as depicted in step 601 the light sensor (401) starts detecting the ambient light intensity in step 602. Further, the information regarding the ambient light is sent to the controller (501) which compares the ambient light intensity with the predetermined value of the light intensity in step 603, the predetermined value of the light intensity is fixed and stored in the memory of the controller (501).

[00045] In step 604, it is checked whether the ambient light intensity is less or not comparable to the predetermined value of the light intensity. If the value of ambience light intensity comes out to lower or not matching to the predetermined value of the light intensity, then in step 605 the illuminating device gets switched ON and in step 606 the controller checks whether the vehicle supporting device (207) (center stand and side stand both) has been retracted by the user or not. If the vehicle supporting device (207) get retracted, the change in the position of the vehicle supporting device (207) gets detected by a position sensor provided on the side stand mounting bracket then in step 616 the illuminating device (205) stops glowing. The illuminating device remains ON if the vehicle supporting device (207) remains in an un-retracted position.

[00046] In step 604 if the ambience light intensity is greater than the predetermined value of the light intensity then the illuminating device gets switched ON in step 607. Further, in step 608 the speed of the vehicle is checked whether if the vehicle is running at a speed greater than the idle speed. When the vehicle starts moving the motion is recorded by hall sensor provided in the vehicle. As soon as the vehicle crosses speed greater than the idle speed, the illuminating device (205) gets switched OFF in step 610 else the illuminating device keeps glowing, in step 610.

[00047] In step 601, if the ignition key remains OFF then it is checked whether the power source is in charging mode or not in step 611. If the battery (506) is in charging mode, then in step 612 the illuminating device (205) glows to indicate that the vehicle battery (506) is in charging condition. But if the battery (506) is not in charging mode then the controller (501) checks for any signal received from a

vehicle detection key (503) in step 613. The vehicle detection key (503) is equipped with a wireless system such as GPS/GSM system which communicates with the wireless system provided in the controller (501) of the vehicle. The controller (501) is also equipped with wireless system such as a Bluetooth or GSM/GPS system. If the vehicle detection key (503) sends out signal to the controller (501) equipped with a wireless system, then the illuminating device (205) starts blinking in step 614 to help the user to navigate in a parking area or any congested area to detect the parking location of the vehicle. If the vehicle detection key is not operating, then the illuminating device remains in OFF condition and performs no action such as blinking or glowing (step 615). As per an embodiment, the color of the light illuminated by the illumination device can be a of different hue or shade for each of the steps outlined above to indicate specific information to the user from a distance.

[00048] As per an alternate embodiment, When the vehicle is in OFF condition then a secondary battery provides power to the controller (501) equipped with wireless system so that the drainage of the primary (or the main) battery (506) which provides current to the vehicle loads like traction motor, speedometer, head lamp, tail lamp, turn signal lamp, do not gets drained.

[00049] **Fig. 7** illustrates a circuit layout of the present subject matter. The controller (501) connected to hall sensors (502). Hall sensor (502) comprises a plurality of hall sensors (three hall sensors) dedicated to monitor the rotor's position in the electric motor. When the rotor traverses at least one of the plurality of the hall sensor then either a high or a low signal is produced to indicate the rotor pole (either a south pole or a north pole) has traversed. Hence, the switching of the plurality of the hall effect sensor provides the information regarding the position of the rotor after an interval of 60 degrees. Hall sensor (502) transfers a signal comprising information regarding the speed of the motor and the information is sent to the controller (501). The hall sensor (502) also gives the speed of the vehicle to the controller (501). The illuminating device (205) is connected to a 12-volt supply (e.g. a speedometer may provide the power to the illuminating device (205)). The function of the illuminating device (205) is controlled by an ignition lock (504). A

light sensor (401) provides information related to the ambient light intensity to the controller (501). A vehicle detection key (503) is configured with the wireless module provided in the speedometer to enable the user of the vehicle to locate the vehicle in a parking area.

5 **[00050]** At least one or more fuse (702) are provided in the circuit to prevent the circuit from getting damaged from any surge in current. An interface box (703) is provided in the circuit of the present subject matter to supply 12 Volt power to several other loads (704) like turn signal lamp, head lamp etc. A battery (506) gets charged through a charger (505).

10 **[00051]** The position sensor (701) of the vehicle supporting device (207) switch provides the position of the vehicle supporting device (207) to the controller (501) in order to switch off the illuminating device (205).

[00052] **Fig. 8** provides a circuit layout with same configuration without using the interface box (703).

15 **[00053]** Arrows provided in the top right corner of each figure depicts direction with respect to the two-wheeled vehicle (100), wherein an arrow **F** denotes front direction, an arrow **R** indicated Rear direction, **T** denotes top and **D** denotes down direction as and where applicable. Improvements and modifications may be incorporated herein without deviating from the scope of the invention

20 **[00054]** Many modifications and variations of the present subject matter are possible in the light of above disclosure. Therefore, within the scope of claims of the present subject matter, the present disclosure may be practiced other than as specifically described.

We claim:

1. A saddle type vehicle (100) comprising:
a swing arm disposed on a rear portion of said vehicle (100); said swing arm swingably supporting a transmission system; said transmission system provided with a transmission system cover (206); and an illuminating device (205) securely disposed on said transmission system cover (206).
2. The saddle type vehicle (100) as claimed in claim 1, said illuminating device (205) configured to be electrically connected to a light sensor (401) and a position sensor through a controller (501).
3. The saddle type vehicle (100) as claimed in claim 1, wherein said one or more cover portions are a top cover portion (204), a middle cover portion (203) and a bottom cover portion (208).
4. The saddle type vehicle (100) as claimed in claim 1, wherein a light sensor (401) is mounted on said illuminating device (205).
5. The saddle type vehicle (100) as claimed in claim 1, wherein said illuminating device (205) is mounted in a close proximity to a vehicle supporting device (207).
6. The saddle type vehicle (100) as claimed in claim 1, wherein said vehicle (100) is provided with a hall sensor (502) to detect a speed of said vehicle (100).
7. The saddle type vehicle (100) as claimed in claim 1, wherein said controller (501) is configured to communicate electronically with a vehicle detection key (503).
8. The saddle type vehicle (100) as claimed in claim 5, wherein said vehicle supporting device (207) is a side stand and a center stand.
9. A method of operating an illuminating device (205) for a saddle type vehicle (100) comprising the steps of:
sensing an ambient light by a light sensor (401);
determining and comparing an intensity said ambience light by a controller (501);

- switching ON said illuminating device (205);
switching OFF said illuminating device (205) after retracting a vehicle supporting device (207); and
switching OFF said illuminating device (205) after said vehicle (100) speed is greater than an idle speed.
- 5
10. The method of operating an illuminating device (205) for a saddle type vehicle (100) as claimed in claim 9, wherein switching OFF said illuminating device (205) after retracting of said vehicle supporting device (207) when said intensity of said ambience light is less than a predetermined value of light intensity and switching OFF said illuminating device (205) after said vehicle (100) speed becomes greater than said idle speed.
- 10

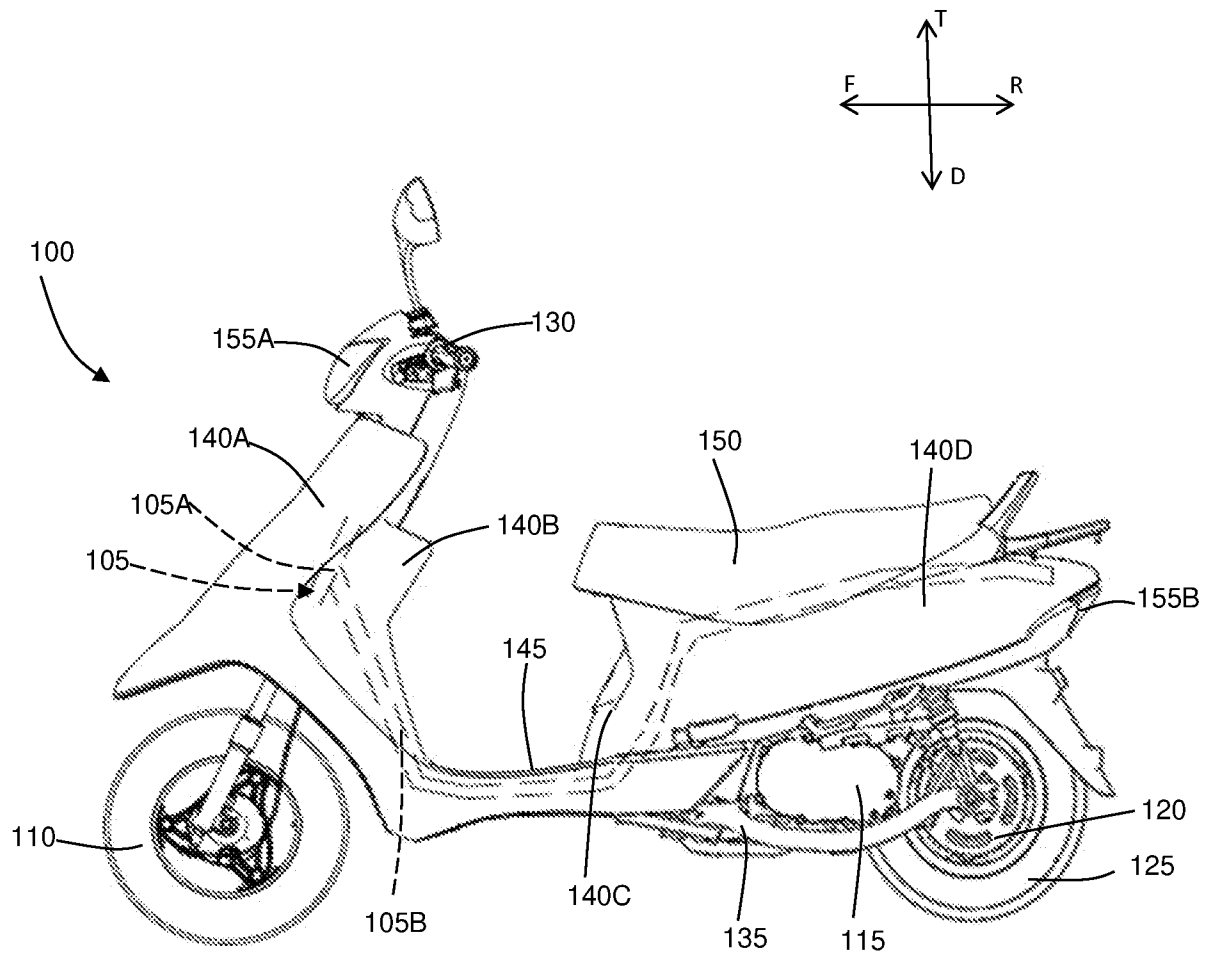


Fig. 1

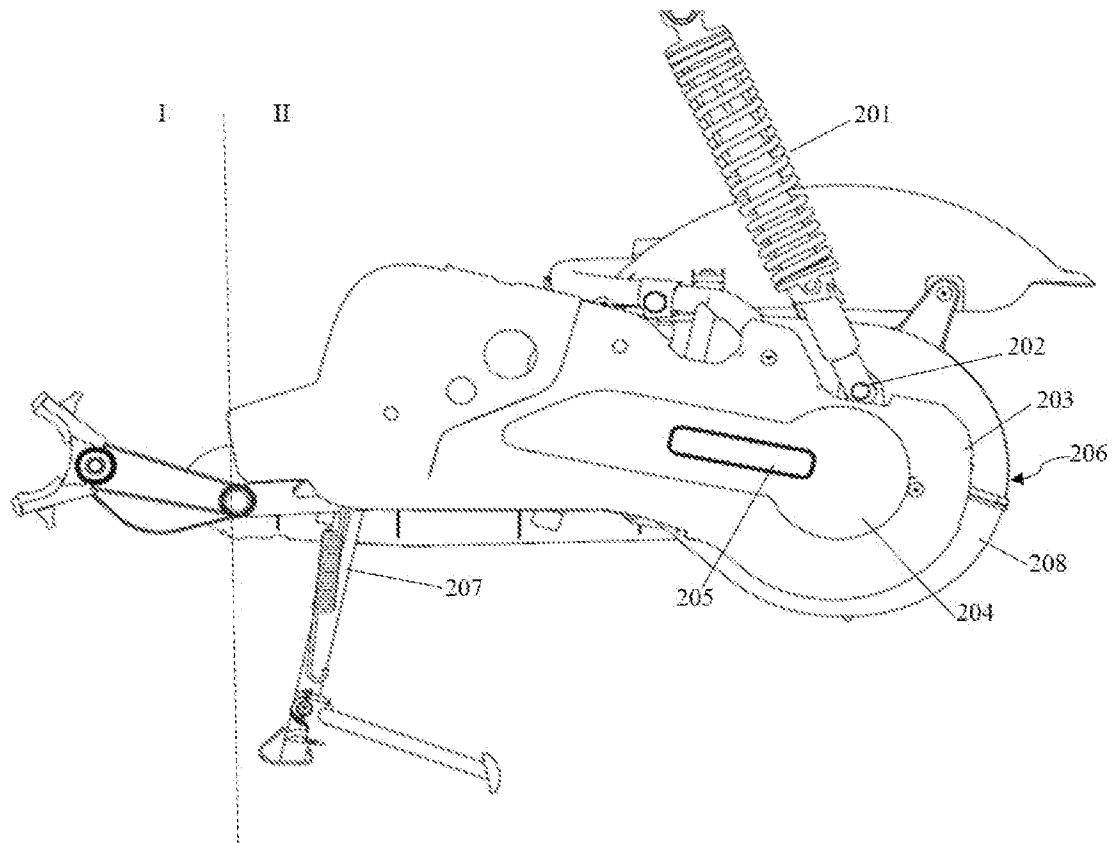


Fig. 2

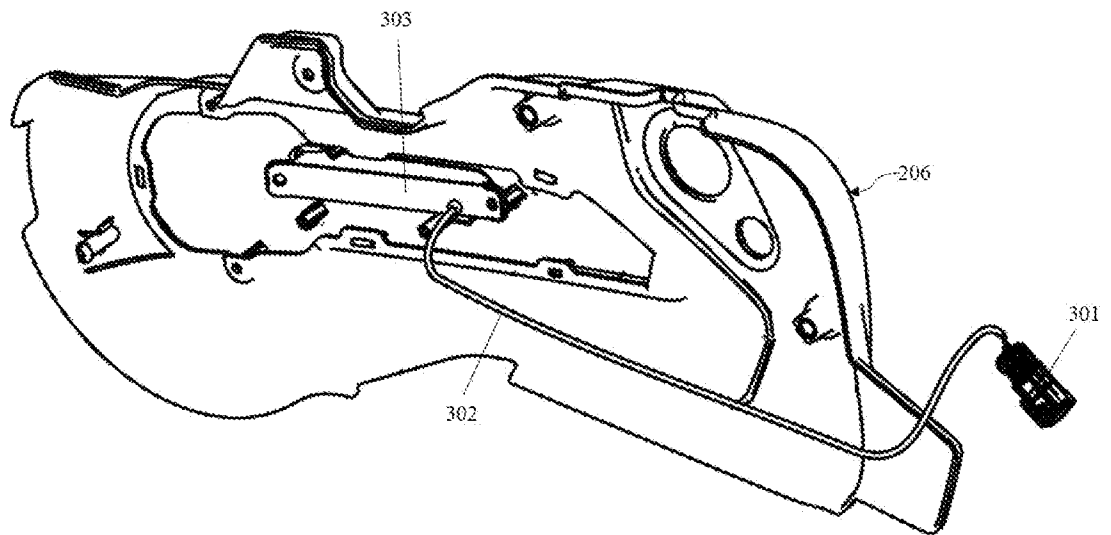


Fig. 3

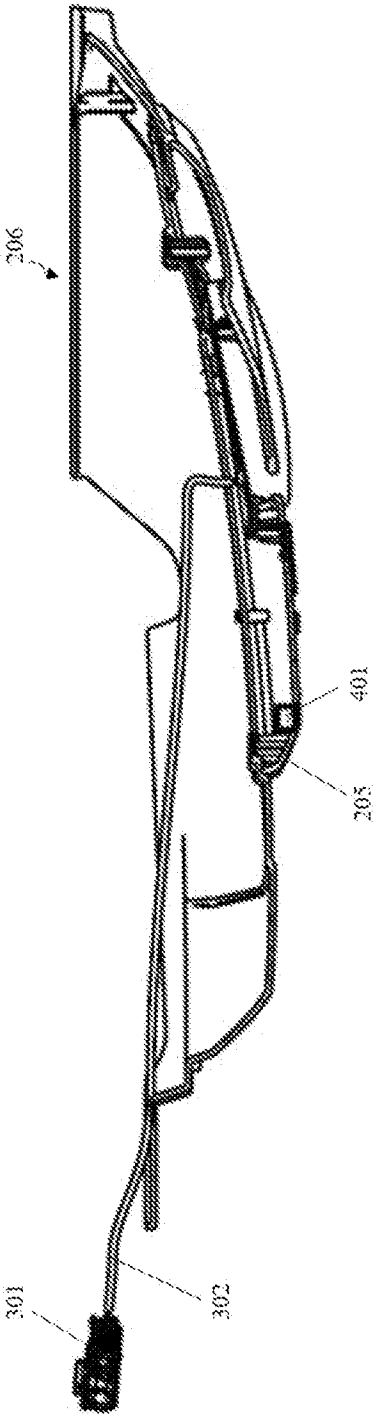


Fig. 4

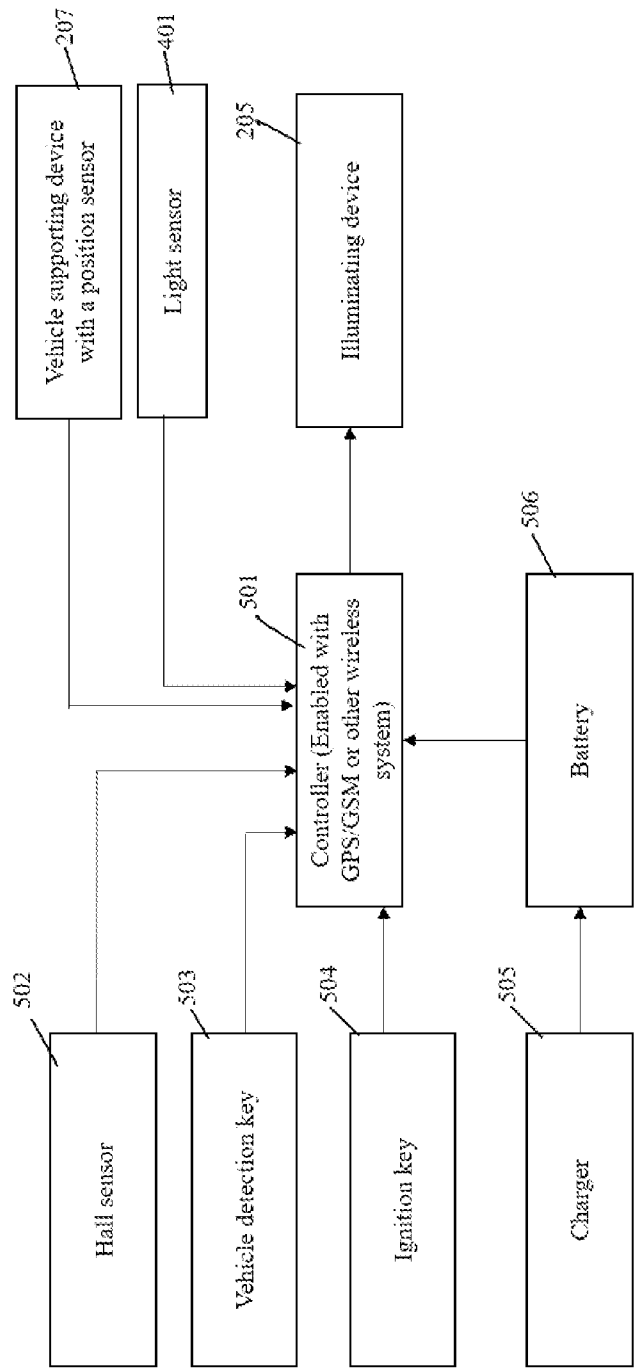


Fig. 5

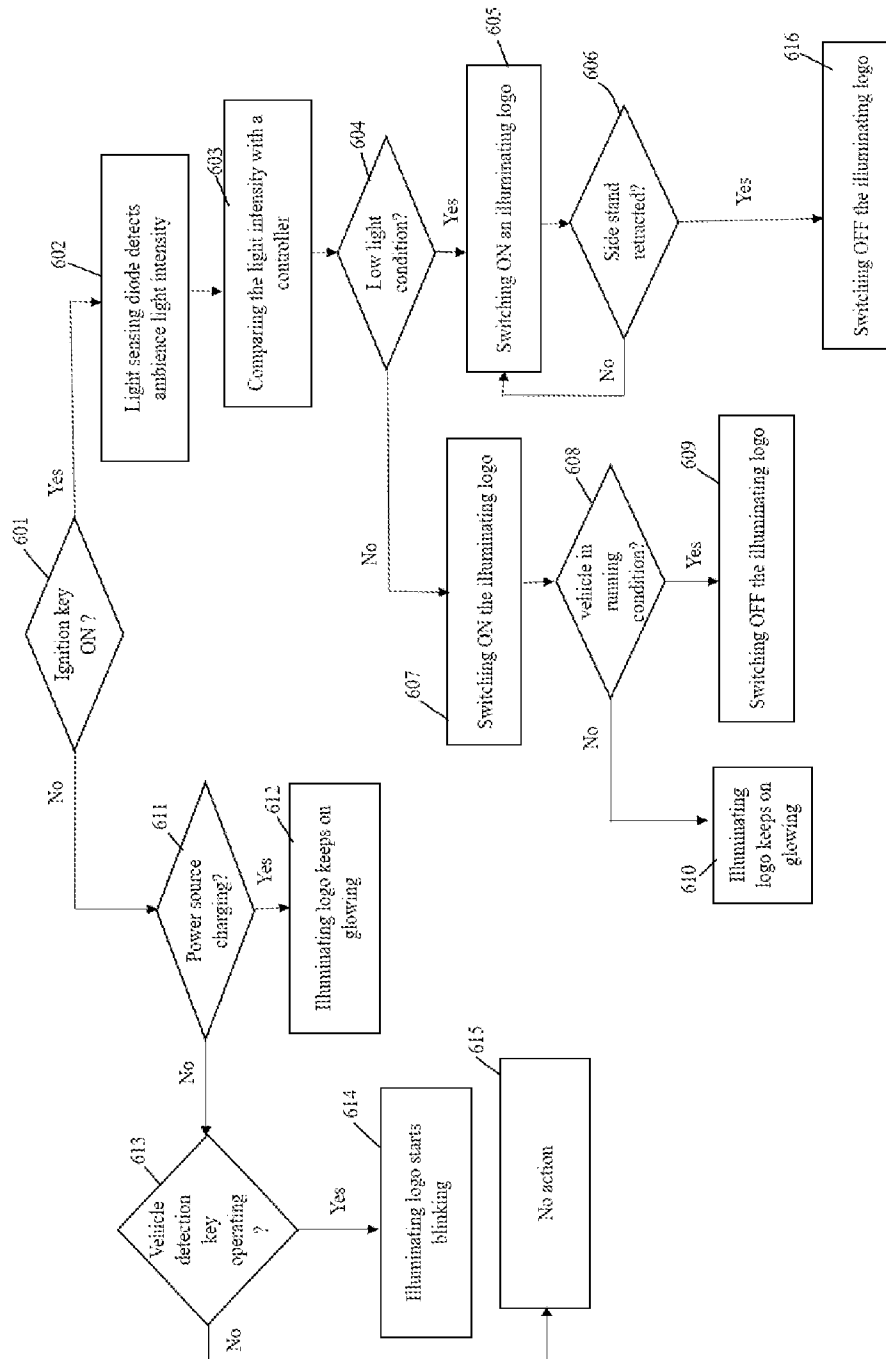


Fig. 6

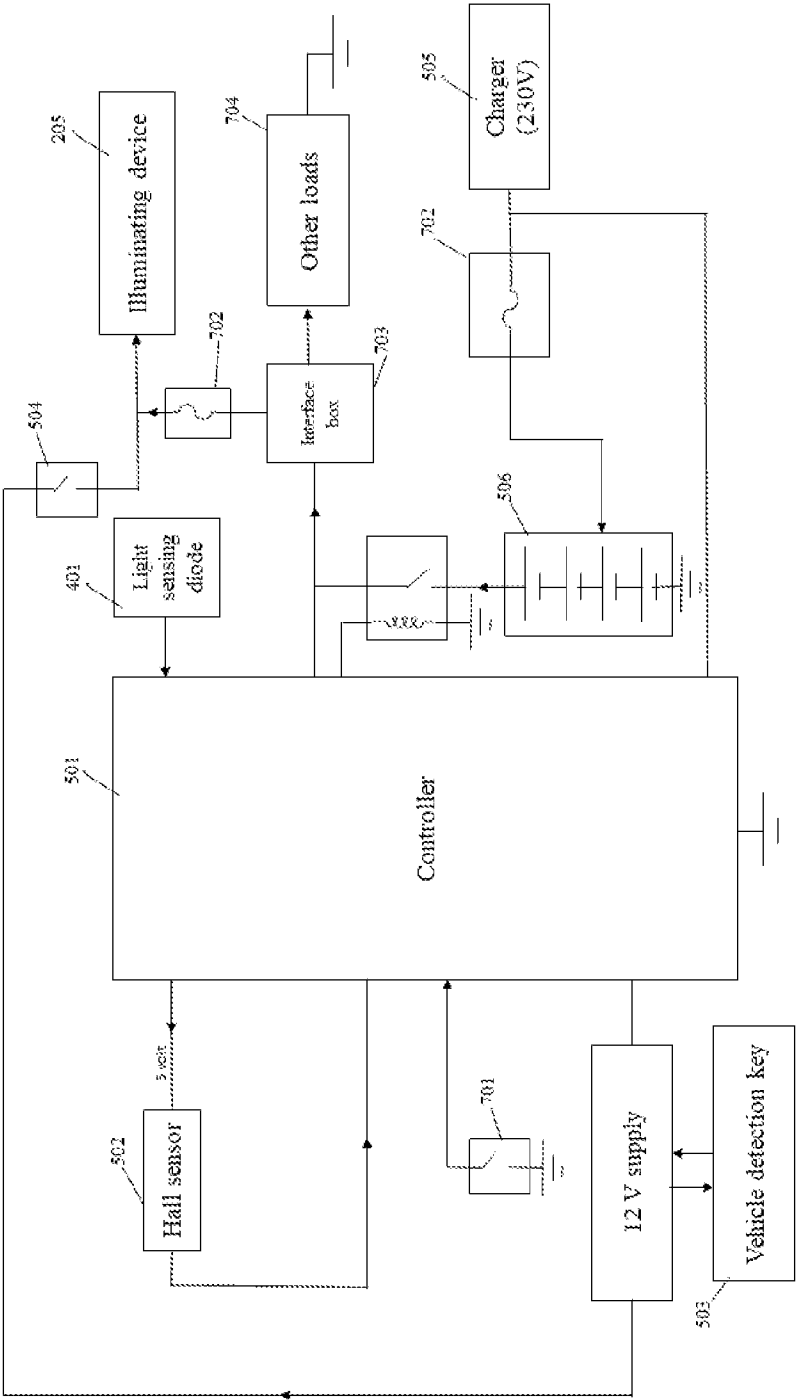


Fig. 7

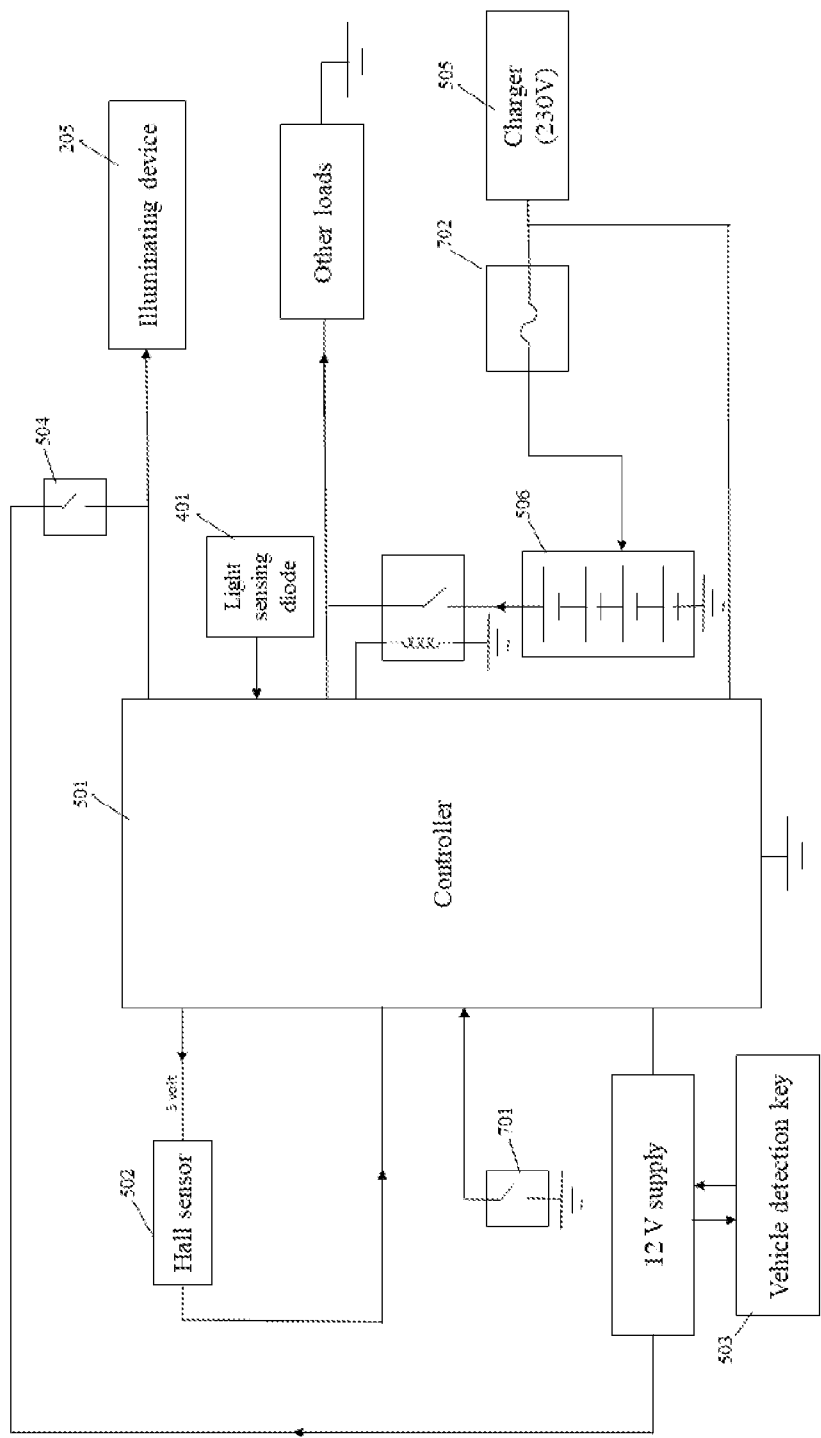


Fig. 8

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IN2020/050163

A. CLASSIFICATION OF SUBJECT MATTER

B60Q1/26, B62J6/01, B62J6/16, B62J99/00, B62H1/00 Version=2020.01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60Q, B62J, B62H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DATABASES: TotalPatent One, IPO Internal Database, Google Patents
KEYWORDS: bike, saddle, light, position, speed, sensor, transmission, ambient

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO2018/056819A2 (BOLT MOBILITY B.V.) 29 MARCH 2018 (29-03-2018) ABSTRACT; FIGURES 1-7; PAGE 1, LINES 32-35; PAGE 2, LINES 18-24; PAGE 3, LINES 6-7; PAGE 14, LINES 6-12; PAGE 15, LINE 34 TO PAGE 16, LINE 4; PAGE 42, LINE 11 TO PAGE 43, LINE 9.	1, 9
Y	CLAIMS 12-17, 37-40, 65.	2-8, 10
Y	IN432DEL2015A (KAPOOR DIVNEET SINGH, et. al.) 26 AUGUST 2016 (26-08-2016) ABSTRACT; FIGURES 1a-1b, 2; PAGES 6-10	2-8, 10

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

09-07-2020

Date of mailing of the international search report

09-07-2020

Name and mailing address of the ISA/

Indian Patent Office
Plot No.32, Sector 14, Dwarka, New Delhi-110075
Facsimile No.

Authorized officer

Rahul Dhakad

Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IN2020/050163

Citation	Pub.Date	Family	Pub.Date
WO 2018056819 A2	29-03-2018	NL 2017515 B1	29-03-2018
		CN 110248864 A	17-09-2019
		JP 2019532864 A	14-11-2019
		US 20200130771 A1	30-04-2020
		EP 3515798 A2	31-07-2019