Automatic Side Indicator On/Off When Turning For Two Wheeler And Four Wheeler

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Abstract- *There is disclosed here in automatic turn signal activating and deactivating turning indicator for vehicles wherein the turn signal is automatically activating and deactivating upon the steering or handle of the vehicle being turn and returned to a predetermined position. The system is particularly applicable to motorcycles, four wheeler and other vehicles must steering system is present. The system includes a specially designed frictional lever and lever type micro-switch which activating and deactivating a signal representing a steering angle corresponding to the operation of the steering device. The right or left indicator signals activate to deactivate signal when the steering device has been turn to return by a predetermined amount toward its normal position. On the other hand, while the application of such automobile automatic turn-signal cancelling devices to motorcycles has been considered, it is relatively difficult because of the different steering arrangement for motorcycles which involves not only the steering angle of the handle bars but also the shift or tilt angle of the front wheel of the motorcycle. The shift or tilt angle of the front wheel is about the same as the steering angle of the handle bars and, therefore, the amount of change in the steering angle of the handle bars required in changing the running direction of the motorcycle is relatively small. Furthermore, the arrangements used in automobiles have further disadvantage if applied to motorcycles because although the steering angle is measured with respect to the center position of the handle bars, accurate determination of the center position of the handle bars of a motorcycle is difficult in the manufacture and use of the motorcycle, thereby resulting in difficulties in accurately measuring the steering angle. Additionally, when the running speed of the motorcycle is reduced, and after a turn signal has been turned on but before a sufficient change in the running direction of the motorcycle, the turn signal may be cancelled because of the necessary movement by the operator of the handle bars for maintaining balance.*

I. INTRODUCTION

There automatic turn signal activating and deactivating turning indicator for vehicles wherein the turn signal is automatically activating and deactivating upon the steering or handle of the vehicle being turn and returned to a predetermined position. The system is particularly applicable to motorcycles, four wheeler and other vehicles must steering system is present. The system includes a specially designed frictional lever and lever type micro-switch which activating and deactivating a signal representing a steering angle corresponding to the operation of the steering device. The right or left indicator signals activate to deactivate signal when the steering device has been turn to return by a predetermined amount toward its normal position. On the other hand, while the application of such automobile automatic turn-signal cancelling devices to motorcycles has been considered, it is relatively difficult because of the different steering arrangement for motorcycles which involves not only the steering angle of the handle bars but also the shift or tilt angle of the front wheel of the motorcycle. The shift or tilt angle of the front wheel is about the same as the steering angle of the handle bars and, therefore, the amount of change in the steering angle of the handle bars required in changing the running direction of the motorcycle is relatively small. Furthermore, the arrangements used in automobiles have further disadvantage if applied to motorcycles because although the steering angle is measured with respect to the center position of the handle bars, accurate determination of the center position of the handle bars of a motorcycle is difficult in the manufacture and use of the motorcycle, thereby resulting in difficulties in accurately measuring the steering angle. Additionally, when the running speed of the motorcycle is reduced, and after a turn signal has been turned on but before a sufficient change in the running direction of the motorcycle, the turn signal may be cancelled because of the necessary movement by the operator of the handle bars for maintaining balance. Various vehicles, such as automobiles, are in general equipped with an automatic turn- signal cancelling device, sometimes referred to as an automatic winker or flasher cancelling device. In automobiles, steering wheels commonly are used and the cancelling device is arranged to measure by mechanical means a certain return amount of the steering wheel from the maximum steering position, and then the turn-signal is automatically cancelled when the measured movement of the steering wheel exceeds a set level. Such arrangements take advantage of the relatively

large degree of rotation of the steering wheel or large steering angle involved with automobiles. Now the project mainly concentrates on designing a suitable operating system. To maintain simplicity and economy in the design the locally fabricated unit has been used. Our project achieves higher safety, reduces human effort, increases the efficiency, reduces the work load, reduces the fatigue of workers and reduces maintenance cost.

Additional features:

1 Field of the Invention

The field of the invention pertains to systems and methods for operating a vehicle, and more particularly, to systems and methods for activating and/or deactivating a turn signalling system of a vehicle. 1.3 Background the exterior turn signal lights of a vehicle serve many important functions during operation of the vehicle. For examples, activation of the exterior turn signal light informs pedestrian and/or drivers that the driver of the subject vehicle is about to make a turn or wish to make a lane change. In addition, activation of the exterior turn signal light warns other drivers that one is making a lane change. This is particularly important when operating a vehicle in a highway or freeway. Drivers of vehicles occasionally make lane change and turn at intersections, but many of these drivers fail to use the exterior turn signal lights to inform other drivers of the lane change and turn maneuvers. As the result, this increases the risk of having an accident. Each year, approximately 50,000 people die and approximately three million people are injured as the result of traffic accidents. Traffic accidents cost insurance companies and automobile manufacturers over a hundred million dollars each year. Numerous accident avoidance systems and safety features have been proposed that are intended to prevent or reduce a risk of an accident by warning a driver and/or controlling the vehicle upon recognizing an imminent hazard. For example, U.S. Pat. No. 6,321,159B1 describes a driving lane tracking system that maintains a moving vehicle +within a lane. U.S. Pat. No. 6,226,389 B1 describes a motor vehicle warning and control system that uses fuzzy logic to determine a hazardous condition and warns the driver or operates the vehicle when a hazardous condition is detected. Many of these systems are difficult and costly to implement. In addition, the These additional features enhance the functionality, versatility, and efficiency of the Pneumatic TMT Bar Bending Machine, making it a valuable asset in modern construction practices where precision, speed, and reliability are paramount.effectiveness of many of these systems depends on the accuracy and reliability of the system in detecting the hazardous condition. An accurate and reliable hazard recognition system is difficult to implement because it is almost impossible to account for all possible road hazards. Hazard recognition systems are also expensive to test. Furthermore, because the dependability of many of the proposed systems that use hazard recognition systems is yet to be determined, drivers of vehicles that use these systems may not feel completely confident or may have difficulty accepting the technologies associated with the systems. Until any of these systems is proven safe and reliable, the preferable accident avoidance system is still the one that relies on drivers' awareness and judgment. The use of exterior turn signal lights while making lane change has the benefit of improving the awareness of other drivers, and hence, allowing the drivers to make better judgment, such as to brake or to change a direction of motion, in order to avoid an accident. Unfortunately, as mentioned previously, many drivers nowadays are becoming more lazy and reluctant to use the exterior turn signal lights, especially during a lane change situation. Also, some drivers find it inconvenient and/or hazardous to take their hands off the steering wheel to position the lever of the turn signal lights. As such, it would be desirable to have an automatic signaling system that can automatically activate the exterior turn signal lights of a vehicle in order to assist drivers in making lane change or turning maneuvers, and/or to provide warnings to pedestrians and to drivers of other vehicles. U.S. Pat. No. 5,712,618 describes an automatic signaling device that activates turn signal lights of a vehicle based on a determination of an angle of rotation of a steering wheel, lateral speed and lateral acceleration of the vehicle. U.S. Pat. No. 3,771,096 discloses a lane changing signaling device that employs a rotary electrical connector joined to the steering wheel. None of these systems takes into account that a contour of a lane is constantly changing as one is driving along a roadway. For example, a driver needs to turn a steering wheel in order to steer a vehicle such that it stays within a curved lane. Also, a wheel of a vehicle may be steered towards a right direction (i.e., from a driver's perspective), but yet, the vehicle may be moving towards an adjacent left lane, and vice versa. Because the above described systems activate exterior signallights based on a rotation of a steering wheel or a turning angle of the wheels of a vehicle, described systems would inaccurately activate exterior turn signal lights when the vehicle is making a lane change, and sometimes, even when the vehicle is not making a lane change. Furthermore, different drivers have different driving styles. For example, some drivers tend to sway left and right within a lane more often than other drivers. As such, it would b

Photo 1: Pneumatic TMT bar Bending Machine

II. IDENTIFY, RESEARCH ANDCOLLECTIDEA

1. Conceptual Design

- **Purpose**: To enhance safety by automatically signaling turns, reducing the chance of human error in forgetting to turn off indicators.
- **Components Needed**: Sensors (such as gyroscopes or steering angle sensors), microcontroller, indicator relay, and power supply.

2. Research and Development Steps

2.1 Sensor Integration

- **For Two-Wheelers**: Use a gyroscope sensor to detect leaning angles which typically indicate turning.
- **For Four-Wheelers**: Utilize steering angle sensors to detect the direction the vehicle is turning.

2.2 Control Logic

- **Microcontroller**: Program it to receive inputs from sensors and interpret them to activate the appropriate turn signal.
- **Timing**: Set a timer to automatically turn off the indicator after a specified time or distance traveled.

2.3 Safety Considerations

- Ensure the system does not interfere with manual override by the driver/rider.
- Include fail-safe mechanisms to prevent malfunction (e.g., manual indicator override).

3. Prototype Development

- **Breadboarding**: Create a basic circuit on a breadboard to test sensor integration with the microcontroller.
- **Coding**: Write code to interpret sensor data and control the indicator relay.
- **Testing**: Conduct extensive testing to ensure reliability and accuracy in different driving conditions (e.g., different speeds, weather conditions).

4. Implementation

- **Installation**: Integrate the prototype into a vehicle, ensuring it does not interfere with other systems.
- **Field Testing**: Conduct real-world testing to gather feedback and improve the system's performance.
- **Certification**: Depending on regulations, ensure the system complies with safety standards for automotive electronics.

5. Market Research and Viability

- **Market Potential**: Evaluate the market demand for such a system, considering safety benefits and regulatory requirements.
- **Cost Analysis**: Estimate production costs and potential pricing to ensure profitability.
- **Patenting**: Consider patenting the technology to protect intellectual property.

6. Feedback and Iteration

- Gather feedback from users and make necessary improvements based on their experience.
- Continuously update the system to incorporate new technologies or address any issues discovered in real-world use.

COSTRUCTION AND WORKING OF PROJECT

Parts used in the project

1. Two wheeler handle
2. Micro- Switch
3. Side Indicator
4. Specially designed friction lever
5. Battery
6. Wires
7. Frame structure

Operational Features:

Automation Level: Determine the level of automation in existing machines, such as manual, semi-automatic, or fully automatic.
Control Systems: Investigate the types of control systems used, including mechanical

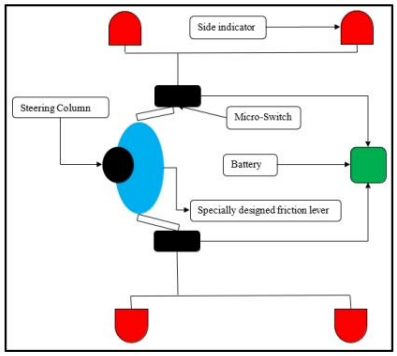

Figure 1 Diagram of the project

Working of the project

The automatic turn signal activating and deactivating turning indicator for vehicles wherein the turn signal is automatically activating and deactivating upon the steering or handle of the vehicle being turn and returned to a predetermined position. The system is particularly applicable to motorcycles, four wheeler and other vehicles must steering system is present. The system includes a specially designed frictional lever and lever typ micro-switch which B. Evaluate Strengths and Weaknesses activating and deactivating a signal .representing a steering angle corresponding to the operation of the steering device. The right or left indicator signals activate to deactivate signal when the steering device has been turn to return by a predetermined amount toward its normal position

III. FUTURE SCOPE

[1] **Safety Enhancement**: Automatic indicators can significantly improve road safety by ensuring that vehicles always indicate their intention to turn or change lanes. This reduces confusion among other drivers and helps prevent accidents caused by sudden lane changes or turns.

[2] **User Convenience**: Many drivers forget to turn off their indicators after completing a turn or lane change, which can confuse other road users. Automatic indicators would alleviate this issue, making driving more convenient and intuitive.

[3] **Integration with Vehicle Systems**: Future vehicles are likely to be more integrated with electronic and sensor systems. Automatic indicators can be linked with GPS navigation systems or onboard cameras to anticipate turns or lane changes, further enhancing their effectiveness.

[4] **Adaptability to Traffic Conditions**: Advanced automatic indicators could adjust their blinking frequency or intensity based on traffic density or driving speed, providing clearer signals to surrounding vehicles.

[5] **Regulatory Compliance**: Some regions may introduce regulations mandating automatic indicators to improve road safety standards. Manufacturers would then need to adapt their designs to meet these requirements, potentially leading to standardized systems across vehicles.

[6] **Technological Advances**: As technology progresses, automatic indicators could be part of broader autonomous driving systems, where vehicles communicate with each other to coordinate maneuvers safely.

[7] **Market Adoption**: Initially, premium vehicles or higher-end models might incorporate automatic indicators, but as costs decrease and technology becomes more widespread, they could become a standard

[8] **Environmental Impact**: Efficient use of indicators can contribute to reducing fuel consumption in vehicles by minimizing unnecessary electrical loads, contributing positively to environmental conservation efforts.

[9] **User Education and Acceptance**: Introducing automatic indicators would require educating drivers about their operation and benefits. Ensuring user acceptance and understanding could influence the widespread adoption of this technology. In accordance with some embodiments, an automatic signaling system includes a processor having an input for receiving a signal from a sensor, and an output configured to be coupled to a signaling system of a vehicle, the signaling system having a turn signal light, wherein the processor is configured to automatically activate the turn signal light based at least in part on the signal received from the sensor. In accordance with other embodiments, a method for activating a turn signal light of a vehicle includes receiving a signal from a sensor, and automatically activating the turn signal light of the vehicle based at least in part on the received signal. In accordance with other embodiments, a computer program product for use with an automatic signaling system of a vehicle, the computer program product having a set of instruction, the execution of which causes a process to be performed, wherein the process includes automatically activating a turn signal light of the vehicle based at least in part on a signal received from a sensor. In accordance with other embodiments, a control for use with an automatic signaling system of a vehicle includes a lever for activating a turn signal light of a vehicle, the lever having a first end, a second end, and a body extending between the first and the second ends, and a switch located on the lever, the switch operable to activate or deactivate the automatic signaling system of the vehicle. In accordance with other embodiments, a control for use with an automatic signaling system of a vehicle includes a lever for activating a turn signal light of a vehicle, the lever having a first end, a second end, and a body extending between the first and the second ends, the first end being

movable in a first direction to activate the automatic signaling system of the vehicle

IV. CONCLUSION

A system, comprising: An automatic signaling system configured to be coupled to a turn signal light of a vehicle, the omatic signaling system configured to automatically activate the turn signal light of the vehicle before or when a portion of the vehicle reaches a boundary of a lane; a lever for tivating a turn signal light of a vehicle, the lever having a first end, a second end, and a Ady extending between the first and the second ends; and a first switch located on the lever, the first switch operable to activate, deactivate, or activate and deactivate, the automatic signaling system. 2. The control of claim 1, further comprising a second switch for adjusting a sensitivity of the automatic signal system. 3. A control, comprising: an automatic signaling system configured to be coupled to a turn signal light of a vehicle, the automatic signaling system configured to automatically activate the turn signal light of the wehicle before or when a portion of the vehicle reaches a boundary of a lane; a lever for arivating the turn signal light of a vehicle, the lever having a first end, a second end, and a body extending between the first and the second ends, the first end being movable in a first direction to activate the automatic signaling system 4. The control of claim 3, wherein the first end is movable in a second direction to de-activate the automatic signaling system. 5. The control of claim 4, wherein the first end is movable in a third direction to activate the turn signal light. 6. An automatic signaling system, comprising: a processor having an input for receiving signals from a sensor, and an output to be coupled to a signaling system of a vehicle, the signaling system having a turn signal light; wherein the processor is configured to determine a value associated with a spatial relationship between a vehicle and a lane boundary using the signals, and automatically activate the turn signal light based at least in part on the determined value; wherein the Processor is configured to compare a threshold value with the value that is associated with the al relationship, and wherein the threshold value is variable based on a speed of the Spatial vehicle

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