Automated Side-Stand Systems

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Abstract: *In today's modern world, automobiles, particularly two-wheelers such as motorcycles and bikes, play a significant role in transportation. However, accidents often occur due to the carelessness of riders, with one of the major causes being forgetting to lift the side stand. Although several advanced measures have been implemented to address this issue, they have proven to be of limited assistance. In order to develop a practical solution that can be applied to any type of two-wheeler, this project proposes the design of a new system called the "Automatic Side-Stand Slider System."The Automatic Side-Stand Slider System is based on the working principle of bikes and operates through electronic circuits integrated into the bike, utilizing electronic components such as a servo motor, motor driver, and Arduino for stand retrieval and application. A demonstration model has been constructed to showcase the functionality of the system. This model includes a demo starter for the bike and a frame that holds the starter, demo bike, and side stand in position. The frame is designed to securely mount the bike in an upright position.The starter comprises a circuit that monitors the bike's ignition and controls the operation of the stand sliding mechanism. The stand itself is equipped with a motorized system that is controlled by a microcontroller. When the bike is started, the circuit detects the ignition and activates the motor, causing the stand to slide from a vertical position to a horizontal position. Conversely, when the bike is turned off and the key is locked in another direction, the system moves the motorized stand shaft in the opposite direction, returning the stand to its vertical position perpendicular to the bottom frame rod, which supports the bike on the side stand.The proposed system provides a fully automated side-stand solution for motorbikes, aiming to reduce accidents caused by the neglect of lifting the stand. By integrating electronic components and innovative design, this system offers a practical application that can enhance the safety and convenience of two-wheelers, contributing to a safer riding experience for riders and minimizing the risk of mishaps.*

Keywords: Side Stand

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