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Automatic Motor Bike Side Stand Slider

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ABSTRACT: In this modern developing world, automobiles plays a very important role especially bikes. These are mainly used for travelling from one place to another. while riding the bike the rider may get accident by number of reasons. In that one of the main and important reason is due to not lift the side stand in properly. To overcome this we have designed a “AUTOMATIC MOTOR BIKE SIDE STAND SLIDER”. The side stand will get in the position of horizontal at the time of ignition functionality. In this regard, the operation work will be followed in between ignition side stand. This automation will be followed by electronic devices with Side stand, Motor, Electronic circuit board.

KEYWORDS: Automation motor, Microcontroller, Sidestand, Circuit.

I. INTRODUCTION

In all over world everywhere motorcycle are used. The side stand plays major roll while the vehicle is in rest position. But it has some disadvantages takes place as while the driver starting the motorcycle, there may be possibility of forget to release the side stand this will caused to unwanted troubles. This is a new type of side stand which is automatically retracting the side stand through some mechanical and electronic arrangement. A motorcycle side stand is nearly universal method of allowing a motorcycle rider to park his vehicle easily. If this stand is in the park position while the motorcycle is ridden through left turn a serious hazard exists. A new type stand side stand which is automatically retracting side stand is invented to prevent such type of accidents.

II. LITERATURE SURVEY

1.P. Pavan et al produced “AUTOMATIC TWO-WHEELER SELF-SIDE STAND SYSTEM”. In this system they used the sprocket system with helical spring mechanism. When the rider makes the first gear the force exerted on the spring and the side stand is lifted.

2.Anlin J P et al proposed “DESIGN AND FABRICATION OF AUTOMATIC SIDE STAND LIFTER FOR TOWHEELER”. In this system they designed the different views of side stand. This is also a sprocket helical spring mechanism. But, in this system they used the single lever gear to lift the side stand.

3.K. Balasubramanian introduced “AUTOMOTIVE SIDE STAND RETRIVAL MECHANISM”. In this he designed the system using the CATIA software. This system works on the spring mechanism.

4.Tahir Shaik developed an “AUTOMATIC BIKE SIDE STAND BY USING arduino” to lift the side stand. In this system he developed a program by using the C language to lift the side stand.

III. EXISTING METHOD

The main working of Automatic side stand lifter for two- wheeler is based on the working of spring. An iron rod is welded with the side stand of the bike. The spring already used in the side stand has been shortened in terms of its dimension. Since the dimension of the spring is reduced, the force exerted by the spring is extremely high. Since the rod is being welded with the side stand and when the first gear is being put, high force is exerted by the spring. Since



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the force is high, the side stand will be automatically lifted when the first gear is being put. This is the working of Automatic side stand lifter for two-wheeler.



Figure 1: Gear Type Automatic Side Stand

Automatic bike side stand retrieve system is to be manufactured based on the working principle of motorcycle. The design setup is to be kept in between chain drive, then sprocket rotates and side stand get retrieves automatically. The suitable components take the power obtained from the chain drive without any power loss.

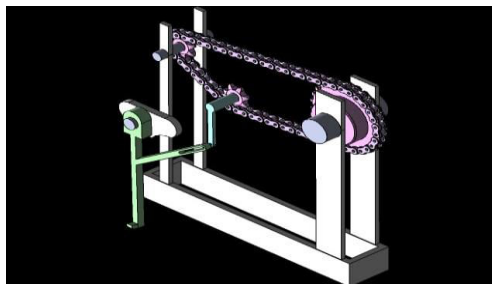
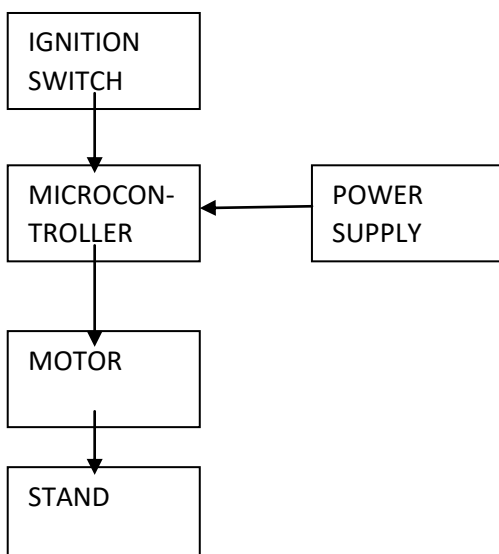


FIGURE 2: CHAIN DRIVE SIDE STAND TYPE

IV. PROPOSED METHOD

In order to overcome from the previous disadvantages we have designed “automatic motor bike side stand slide”

BLOCK DIAGRAM





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IV. COMPONENTS

IGNITION SWITCH

An ignition switch, starter switch or start switch is a switch in the control system of a motor vehicle that activates the main electrical systems for the vehicle, including "accessories". The ignition switch performs a primary function in that it connects the circuit that provides voltage to your starter motor, allowing the engine to crank over and the engine to eventually start.

FRAME

1. It is a basic component of the project
2. It holds the component like servo motor and stand to lift.
3. It is made of metal and the edges are welded together

MOTOR DRIVER

L293D is a dual H-bridge motor driver integrated circuit (IC). Motor drivers act as current amplifiers since they take a low-current control signal and provide a higher-current signal. This higher current signal is used to drive the motors.

ATMEGA 328

1. ATmega328 is an 8-bit, 28-Pin AVR Microcontroller, manufactured by Microchip, follows RISC Architecture and has a flash-type program memory of 32KB.
2. ATmega-328 is an AVR Microcontroller having twenty-eight (28) pins in total.

SERVO MOTOR

MG995 Metal Gear Servo Motor is a high-speed standard servo can rotate approximately 180 degrees (60 in each direction) used for airplane, helicopter, RC-cars and many RC model.

It is a Digital Servo Motor which receives and processes PWM signal faster and better. It equips sophisticated internal circuitry that provides good torque, holding power, and faster updates in response to external forces.

WIRE DESCRIPTION:

1. RED – Positive
2. Brown – Negative
3. Orange – Signal

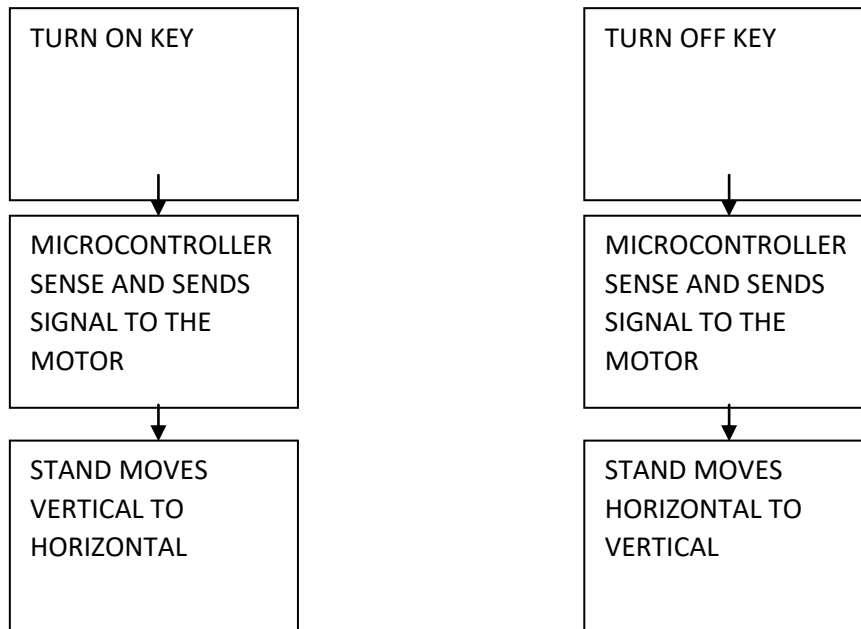
V. WORKING

The stand consists of a motorized system used to operate the stand. The circuit monitors the starter, on starting the bike the side stand is operated by the motor using a shaft to slide from a vertical position to a horizontal position. On turning off the key in other direction to lock bike the system moves the motorized stand shaft in opposite direction so as to move the stand in a direction perpendicular to the bottom frame rod which rests the motor bike on side stand. Thus we have a fully automated side stand system for motor bikes.



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VI. MODEL



Figure 3: Automatic Side Stand Slider

VII. ADVANTAGES AND DISADVANTAGES

ADVANTAGES

1. easy to install
2. It is rigid versatile.
3. It is low cost application.
4. Near about less maintenance.
5. It is light in weight.



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DISADVANTAGES

1. Maximum Fatigue.

VIII. CONCLUSION

Automatic Side Stand Lifting System will definitely good system since the setup is compact it does not affect the performance of the vehicle because of the power is obtained from battery. Definitely this system could be used in only for bikes the side stand, it will be the major system to control accidents due side stand problem and protect the careless rider. This system can be implemented in all types of bikes by changing small variation in size and cost of this system also very low and so it will not affect the economic level also while compare to other system this “AUTOMATIC SIDE STAND LIFTING SYSTEM USING L293D DRIVER” will be the life saver.

IX. FUTURE SCOPE

It is applicable to all type of two-wheeler whether it is costly or cheaper motorbike. In future there is a possibility for some advanced modifications basis of the sensors and more. In this project, we deal with the mechanism of lifting off the stand in the very smooth way. Possibly within the future, to stop deaths and injuries caused by motor bike accidents, advanced sensor system system could be installed as like in other vehicles.

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