

# Automatic Motor Bike Stand Slider

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**Abstract** - In today's developing world, two wheelers i.e., motors and scooters are playing their utmost role in our life, it is very important to have these vehicles, they are mainly used for traveling from one place to another. Even though they can be very good helpers in many ways, but can also generate some sad incidents and we can never think when these events turn into accidents, every minor small incident can take a big form of accident like we Everyone knows that the root cause of accident is negligence. and may be prone to accidents. Many advance measures were taken to control this problem but they proved to be less helpful. The Automatic Bike Stand slider is to be designed based in the working principle of bikes. This system works on electronics components such as servo motor, motor drive, Arduino fir the retrieval of stand and to apply it. Using this automatic wheel stand slider method, the side stand automatically erects and returns to its original position when the vehicle is started. 20%- 25% of accidents in India are happening due to not closing the side stand back and due to forgetting to lift off the stand. By using this method, we can avoid accidents and prevent future accidents.

**Key Words:** Automatic Side Stand, Reduce Accident, Effective Price

## 1.INTRODUCTION

We know that side stand is used in all vehicles. If the side stand is not in the vehicles then that vehicle cannot remain stationary in one place. We all know that in today's world automobiles i.e. motorcycles scooters two wheelers are playing their important role. Although here motorcycle is very important for our life. Their main purpose is to transport from one place to another or they seem quite comfortable, but they can also generate some sad incidents and when this incident turns into an accident, we cannot even imagine. Every minor incident can turn into an accident. Like we all know that mainly due to accident the special reason is negligence. Due to this carelessness, a person forgets to remove the side stand of his two wheeler, due to which that person can become a victim of an accident or sometimes even death. Forgetting to lift the side stand puts the person in complete control and balance of the motorcycle. That person gets injured. To reduce this problem, some advance measures were taken, but those measures proved to be at least helpful. In this research paper it is presented here that an automatic side stand should be installed for the motor bike so that the accident increase can be reduced or the automatic side

stand lifts itself. If the motorcycle is in a stationary state, this side stand will remain upright. Whereas if when the motor bike is in running state then this side stand will automatically rise up and come to its initial position.

## 2. Components

**2.1 Servo Motor:-** In electrical, a motor is a device that easily converts electrical energy into mechanical energy. By the way, there are many types of electric motors in their functioning. One of them is also part of servo motor or is slightly different from ordinary motor, but its function is same as that of ordinary motor. Servo motor is not used everywhere. It is mainly used where high torque with slow speed is required, at the same time this servo motor is used. They are used as output actuators in feedback control systems and are not used for continuous energy conversion. The principle of servomotor is similar to other electromagnetic motor, but the construction and operation are different. Their power rating varies from a few watts to a few hundred watts. servo engine or servos are also knows as servo motor are electronic gadgets and turning or direct actuators that rotate and push machine parts with precision. Servos are essentially on an angular or linear position and are used for apparent motion, and speed increase.

The servo motor works on a closed loop control system or feedback system, when we give the command to the servo motor's controller to start the servo motor, the controller checks that command and connects the motor to the supply and the motor is started. It goes, a reduction gear box is installed along with the rotor of the motor, it is inside the motor itself, we do not see it from outside. The work of the gear box is to make the starting torque high of the motor, the encoder is also installed along with the shaft of the gear box, which gives the feedback of the RPM of the motor to the controller, due to which the motor runs at the same RPM as the controller is commanded. is given or rotates only at the angle whose command is given to the controller. Servo Motor is a special purpose motor which is made to do a particular work. For example, suppose an object has to be rotated through an angle of 60 degrees. For this, first the control circuit will be signaled to rotate 60 degrees from the micro controller or Arduino and according to this signal, the control circuit will connect the motor to the electrical supply to run, so that the motor will start rotating.



Fig -1: Servo Motor



Fig -3: Ignition Switch

2.2 Aurdino Microcontroller:- ARDUINO is an open source hardware and software company and community that manufactures development boards. Development board means an embedded system containing a microcontroller or microprocessor. As well as power supply regulators, memory, communication ports, etc. It happens. Due to this, many development boards like ARDUINO have come in the market nowadays. These boards are very easy and fun to use.

2.4 Side Stand- A side stand is a device that is used to hold our motorcycle in place which allows the bike to be held upright without leaning over it with the help of any other object or person. This stand is actually a piece of metal. This stand keeps the motorcycle in one place from contact with the ground by running from the bottom or usually located in the middle or rear of the bike. The side stand style kickstand is a single lay that only fits on one side. This stand is bolted on and some places are also belted. It is a kind of L shape. Side stand is very important. Without it in a motorcycle it is not possible to park the car at one place.



Fig -2: Aurdino Microcontroller



Fig -4: Side Stand

2.3 Ignition Switch:- A Starter, all in all it is otherwise called start switch. A switch in the control framework of an engine vehicle that enacts the really electrical frameworks for the vehicle, including adornments in vehicle fueled by gas powered motors, the switch gives capacity to starter start framework parts and is as often as possible joined with the starter switch which initiates the starter engine. Start switches were key switches that required the legitimate key to be embedded in request for the change capacities to be opened.

### 3.WORKING

The main advantage of using this microcontroller is low power controller with only one performance 8-bit and process based on ABR RISC architecture.

It has 32 pins and these 32 pins have separate inputs and outputs. As we know arduino motor takes input from bike key by receiving ignition and gives output as per input to motor driver.

All of us always install lithium ion batteries in our motor bikes. This automatic motor bike stand slider method consumes very little power. Therefore, batteries are mainly used extensively in two wheelers.

This method mainly works on 12V.

First of all we will turn on the ignition key and after turning on the ignition latch and watch the input to the arduino and then arduino will accept the input as the arduino will get the output.

As soon as the arduino is out, the arduino will output to the servo motor as an input. When the rider puts the key in the vehicle, turns the ignition off or on, the microcontroller sends a signal to the arduino by the ignition and receives the signal as an output to indicate whether the process is on or off as soon as the motorist gives the input. If so, microcontrollers receive the signal and send it to the single straight servo motor.

The servo motor is connected to the microcontroller and sends the signal. After receiving the signal from the motor driver, the servo motor is fully activated, then there are signals in the servo motor, it tells that the soft of the servo motor is to be rotated in any direction or in which degree the side stand is attached to the servo motor. Then the servo motor rotates according to the signal received from the driver.

You can see the position of Fig-5 and the position of Fig-6 in the figure below. When the ignition is on, the side stand automatically lifts while riding the bike and when the ignition is off, the side stand is positioned in its original position. These Are The Working Model.



Fig -6 Bike Stand in Ignition ON Position



Fig -5 Bike Stand in Ignition OFF Position

#### 4. CONCLUSIONS

Basically all the working items of this project are very cheap. This method does not require much modification or is readily available or the stand is fully automatic. Hence no humanized manual action is required. In this only the driver has to put his car key in the ignition switch and immediately the car stand is activated. Implementing this model would result in a very small amount of accident rates. However, it cannot be said that the accident will be completely eliminated. But this effort can prove to be in reducing the accident. The automatic side stand slider is a measure of safety for the driver and gives an aesthetic feel to a two wheeler.

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