Mechanical Side Stand Remover While Applying Clutch

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Abstract

- Side Stand Remover using clutch Model of automatic side stand remover using clutch system in two wheelers, auto safety start system consists of Side stand life system.
- When the starter button is push on, and operator operating clutch then the side stand gets lifted by means of electric lifter.
- This system is very useful for two wheeler users.
- In today's scenario forgetting to raise the side stand in two wheelers is the main cause for most of the road accidents which occur in our country.
- In order to avoid such accidents, we made the operation of the side stand much simpler by using a wiper motor mechanism.
- People tend to forget to raise the stand and when they make a turn in their vehicle during motion, the side stand hits the road surface and the rider along with the vehicle falls on the road thereby creating a personal tragedy which ends up in terrific mishaps.
- Now, We will make the Automatic Side stand remover whose operating very easily and safely bye the operating of clutch so we reduces the accidents due to side stand.
- We will also making system when two-wheeler switch on after that side stand remove otherwise it is not remove.

Keywords: Clutch, Electric Lifter, Wiper Motor, Result Analysis, Performance Characteristics

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 dc motor, side stand, clutch, power supply (But dc battery is used in Two wheeler) is used. The clutch is used to retract the side stand. When Clutch is operated then Side Stand is retract automatically as per mechanism. 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. Side stand mounted behind bottom bracket and can be bolted on either clamping the chain stays, or welded in to place as an integral part of the frame.

A. Necessity of Work

This system is very useful for automation and safety for the two wheeler users. This side stand is manually operated. It side stand is revolutionary product. The necessity of side stand for customer safety. This system is ergonomic friendly.

B. Objective of Study

To find the method of fabricating side stand remover system. To study of future implementation on the system. To make some experiments on the fabricating in different conditions

C. *Scope of Work*

Optimization of side stand is improved sales to face competition. Performance of side stand operating very easy for users comfortable. Utilization of side stand parts are available in all over market.

II. COMPONENTS

A. *Side Stand*

A side stand style kickstand is a single leg that simply flips out to one side, usually the left side, and the bike then leans against it. Side stands can be mounted to the chain stays right behind the bottom bracket or to a chain and seat stay near the rear hub. Side stands mounted right behind the bottom bracket can be bolted on, either clamping the chain stays or to the bracket between them, or welded into place as an integral part of the frame.

Fig. 1: Side Stand

B. *Clutch Pedal*

A clutch is a mechanical device that engages and disengages the power transmission, especially from driving shaft to drive shaft. We also use clutch levers as a side stand remover.

Fig. 2: Clutch Pedal

A clutch is a mechanical device that engages and disengages the power transmission, especially from driving shaft to driven shaft. Clutches are used whenever the transmission of power or motion must be controlled either in amount or over time (e.g., electric screwdrivers limit how much torque is transmitted through use of a clutch; clutches control whether automobiles transmit engine power to the wheels).

C. *Micro controller*

Microcontroller may be called computer on chip since it has basic future of microprocessor of microprocessor internal ROM, RAM, parallel and serial ports within single chip. Or we can say microprocessor with memory and ports is called as microcontroller. This is widely used in washing machines, VCD player, microwave oven, and robotics or in industries

Fig. 3: Microcontroller

D. DC Working Motor

As we have discussed, DC motor work on Lorentz force concept. When we pass the input DC current to the coil through the brushes, it directly goes to the coil inside the motor body. This makes coil to work as an electromagnet. Magnetic fields of both magnets interact with each other that results in a force which in turn produces the necessary torque required to move the coil. This torque drives the coil to move round and a shaft attached with the coil moves too.

Fig. 4: Working Motor

E. Slow Speed DC Motor

DC Motors convert electrical energy (voltage or power source) to mechanical energy (produce rotational motion). They run on direct current. The Dc motor works on the principle of Lorentz force which states that when a wire carrying current is placed in a region having magnetic field, than the wire experiences a force. This Lorentz force provides a torque to the coil to rotate.

Fig. 5: Slow Speed DC Motor

F. Power Supply

To active any device voltage source is required. For different device different voltage source is required. In our project we use +5V and +3.3V DC power supplies. The +12V is required for DC Motor unit. The +5V is required for control unit. For limit switch unit +5V and +3.3V is also required.

Fig. 6: Power Supply

III. BLOCK DIAGRAM & WORKING

A. Assembly Diagram

Fig. 7: Assembly Diagram

B. Working Principal

When the starter button was pressed electric circuit working start and electric gets power when the clutch is pressed. Then the electric motor rotates and gives pushing force to the stand, which lifts the stand. When it is touch or press the limit of the stand retracts the power supply for the forward direction of the motor is cut. At the same time power will supply directly to the spark plug and two-wheeler will start.

IV. CONCLUSION

Now, We will make the Automatic Side stand remover whose operating very easily and safely bye the operating of clutch so we reduces the accidents due to side stand. We will also making system when two-wheeler switch on after that side stand remove otherwise it is not remove. Running a bike with side stand in its uplift may create problems but with the help of our accessories we solve this problems. The objective of this project is to provide the rigid and safety mechanism without changing in any standard design of bike. Moreover it should be economical for every class of society. From above report, it fulfils consumer needs and provides versatility furthermore, as it is new product it will promote employment and huge field development for new engineer in day period.

REFERENCES

[1] Vishal Srivastava, Tejasvi, Sourabh Kumar, Vinay Kumar, Javed Rafiq, Satish Kumar Dwivedi, "Automatic Side Stand", International Journal of Engineering and Advanced Technology (IJEAT), ISSN:2249-8958, Volume-3, Issue-4, April 2014.
[2] Pintoo Prjapati, vipul kr. Srivastav, Rahul kr. Yadav, Ramapukar Gon, Pintu Singh, Mr. Sandeep, "Sprocket Side Stand Retrieve System", ISSN: 2320-8163, Volume- 3, Issue-3,May-June-2015.
[3] Reeder, A.I., Chalmers, D.J. and Langeley, J.D. The risky and protective motorcycling opinions and behaviours of young on road motorcyclist in New Zealand.
[4] Yin, R.K., case study research, Applied Social research Methods vol. 5. London Sage Publication.
[5] A journal paper 'motorcycle accidents- case study and what do learn from them' by Ecker, H. Viema University of Technology.
[6] Malaterre, G. Error analysis and in-depth accident analysis.