



“Automatic Silde Stand Retrieve System Using Sprocket”

Authors: Abhishek Upadhay¹, Dheeraj², Ankit Verma³, Sahab Singh⁴

Guide: Mr. BANTY KUMAR

College: IIMT College of Polytechnic, Greater Noida

Abstract: Side stand in two wheelers working the whole weight of the vehicle when its parked. They are perfect on rapidly stops when one required to leave the vehicle for a short while. They are provided with a spring that pulled it's back into position to ensure more safety. frequently the person who drives the two wheelers may be forget to release the side stand. This will tend to unwanted danger and lack of concentration while driving. Now a day's sensors are used for ensure that the stand is in released condition or not by indicating it using small lights in stash board. There is also a possibility to forget to see the light. This project focuses on to completely reduce the possibility of driving two wheelers without releasing the side stand. This may appropriate for all types of two wheelers which are driven in gear system with low cost. In the case of the traditional bikes, the side stand should be folded manually. Unfortunately, it will not work at the urgent times. We are just human beings. We often use to slip up to fold the kick stand at the more times. While taking a lightly curve or any obstruction coming on the way, sure there is more possibility to meet with an accident. So that avoid this accident, we find a new way to fold the side stand directly.

Key word: Mopeds, geared, sprocket pinion, bearing, chain, spring.

INTRODUCTION

INTRODUCTION TO THE AUTO MOBILE

Today, Motor cycles are used everywhere in all over the world. Designer should design each and every component in the two wheelers with very at most safe and the product should be economical. In motor cycles, the side stand plays major roll while the vehicle is in rest condition. While the driver starting the motor cycle, there may be a possibility of forget to release the side stand. This will tend to unwanted troubles. To avoid the driver has to ensure that the side stand is released.

Side stand in two wheelers function the entire weight of the vehicle when it is parked. They are perfect on quick stops when one needs to leave the vehicle for a short while. They are provided with a spring that pulls it back into position to ensure extra safety. A side stand style is a single leg that simply flips out to one side, usually the non-drive 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.

A centre stand is a pair of legs or a bracket that flips straight down and lifts the rear wheel off the ground when in use. Centre stands can be mounted to the chain stays right behind the bottom bracket or to the rear dropouts. Many motorcycles feature centre stands in addition to side stands. The centre stand is advantageous because it takes most of the motorcycle's weight off its tires for long-term parking, and it allows the user to perform maintenance such as chain adjustments without the need for an external stand. Centre stands are found on most "standard" and "touring" motorcycles, but are omitted on most high-performance sport bikes to save weight and increase ground clearance.

SOURCE FOR ACCIDENTS

While the two-wheelers is concerned accidents occurs due to riding the vehicle in high speed, ignores to use helmets, does not maintains the speed limit and forgets to lift the side stand while riding the vehicles. These are the major source for accidents. Forgetting to lift the side stand causes huge accidents in rural areas partly in urban areas too, because all the other source of accident has preventive measure, but accident due to side stand do not have proper preventive measure. If you see the accident status 36% of the accidents occur due to this problem.

Table

S.NO	DURING THE YEAR	REASON FOR THE ACCIDENT	%OF ACCIDENTS
1.	2002-2008	Forgetting to lift side-stand	36%
2.	2002-2008	Does not maintain speed limit	38%
3.	2002-2008	Does not obey traffic rules	22%
4.	2002-2008	Other problems	04%

THE WORKING OF THE PROJECT:

Automatic Side Stand Retrieve System Using Sprocket retrieves the side stand automatically if the rider forgets to lift the side stand while moving the bike. It works based on the working principle of the two-wheelers. Every bike transmits power from engine's pinion to the rear wheel i.e. rotary motion of the pinion makes the linear motion of the chain. that linear motion of the chain is absorbed by rear wheel's

sprocket and converted into rotary motion. That rotary motion of the rear wheel makes the bikes to move. Based on this Automatic Side Stand Retrieve System Using Sprocket is designed.

If Sprocket is kept between the chain drive, it make the sprocket to rotate so, using the sprocket as the major component this system works. It gains the power from the chain and make specially designed component (lifting lever) to rotate. This rotation incites engaged pushing lever to push the side stand to retrieve.

When chain rotates anti-clockwise direction the inciter assemblies sprocket absorbs the power and rotates in clockwise direction

The working of “Sprocket-Side Stand Retrieve System is explained below in both (resting & riding condition of two-wheeler).

Chain Sprocket calculation

Centre Distance, $C = 603\text{mm}$

Length of chain = $1206 + 3926990 + 3.3582$

Length of chain = 1602.05mm

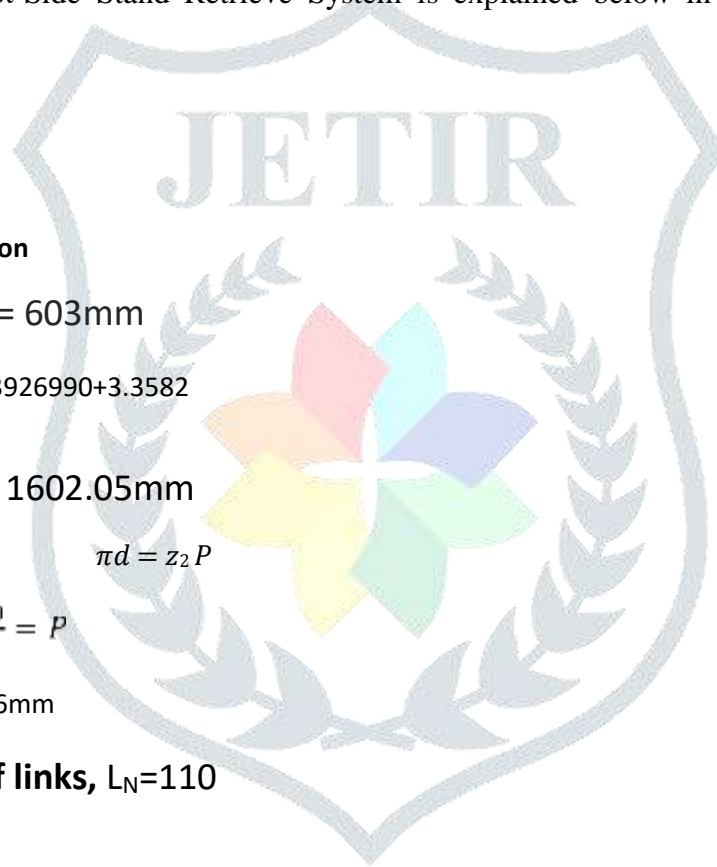
Now,

$$\pi d = z_2 P$$

$$\frac{\pi \times 80}{18} = P$$

Pitch = 13.9626mm

Number of links, $L_N = 110$



Shaft Design:

Shaft diameter, $d_s = 12\text{ mm}$

Spring Design:

Number of coils = 32

Diameter of wire, $d = 2\text{mm}$

Diameter of spring, $D = 15\text{mm}$

$$\text{Spring Index, } C = \frac{D}{d} = \frac{15}{2} = 7.5$$

$$\text{Stress Correction Factor (K)} = \frac{4C+2}{4C-3}$$

$$K = \frac{(4 \times 7.5) + 2}{(4 \times 7.5) - 3}$$

Stress Correction Factor, K = 1.1851

PICTURES OF PROJECT



CONCLUSION: “Sprocket- side stand retrieve system” is one of best retrieve system since the setup is substantial it does not possess the performance of the vehicle since of the power is extractive from chain drive. Definite its system could be used in over all type of two wheelers (TVS, all front, back, hand gear, chain) for retrieving the side stand, its will be the system to control accidents due side stand case and

protect the heedless rider. it is system can be applying in all types of bikes ,two wheelers by changing small variation in sizes and cost of this system also very low and so it will not affect the economic level also while difference to other system this “AUTOMATIC SIDE STAND RETRIEVE SYSTEM USING SPROCKET” will be the life saved.

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