

AUTOMATIC SIDE STAND RETRIEVING SYSTEM

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Abstract: In present world two wheeler plays important role, by two wheeler we can reach our targeted location, but due to careless of driver accidents occurs, most of the accidents due to speed, unconsciousness of driver, and forget to lift the side stand. The side stand is used to support the parking two wheeler so we are designing an “Automatic retrieving side stand system”. It works based on Arduino program, where it takes the input signals from the speed sensor near rotating wheel and it passes the signal to the Arduino board to start the motor to rotate, to retrieve the side stand mechanism. It requires minimum power. It is not affect efficiency of the vehicle power. It suitable for all kind of two wheelers

Key words: Two wheeler, Arduino program, Automatic retrieving. Side Stand

I INTRODUCTION

In present scenario the living status were developed. Two wheeler roles are main part of the world. Auto mobile stand designed for just supporting of bikes while parking it consisting of spring. It helps to retrieves the system. If we see the ratio of accident is continuously increases in that the main causes of accident are speed and unconsciousness driving. In that mostly accident occurred due to forget lifting the stand. So we have made the project of automatic side stand lifting mechanism system. It requires minimum power and operated totally manual power so no need to any external power such as battery or chain drive power. Hence it is not affect the efficiency of the vehicle power. It is suitable for all kind of two wheelers. So no needed for special design of automobile stand. In day today life technology is updated. In addition, this is easily fixed to all the two wheelers, but the limitation is that it is possible only for those bikes having foot gear arrangement. This is new advancement in two wheelers with the facility to lift the side stand automatically. This may avoid unnecessary accidents. This is a simple mechanism that does not affect the original position of the two wheelers. This is very cheap in the cost to apply on two wheelers.

II EXPERIMENTAL EQUIPMENT AND INSTRUMENTATION

Wiper Motor:-



Fig: Wiper Motor

A wiper is one of the most familiar of automotive accessories. Wipers are used to clean vehicle windshields to give drivers a clear, unobstructed view of the road ahead no matter what the weather, in our project we are using wiper motor for retrieve sides stand.

Side Stand:-



Fig: side stand

Side stand is a mechanical instrument which is used to support the vehicle when it is parked to stand still. It works on the spring mechanism which makes it more flexible when the side stand has to be retrieved back to ride the vehicle.

Speed Sensor:-

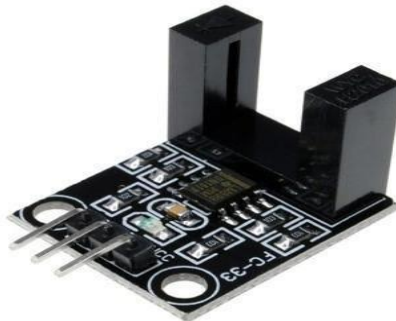


Fig: speed sensor

A speed sensor is an electrical sensing device which is used to sense the speed of a wheel which rotates at a certain rpm and gives an electrical impulse which can be read on Arduino board.

Arduino Board:-



Fig: Arduino Board

It is a microcontroller board based on the datasheet. It has 14 digital input/output pins, 6 analog inputs, a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It works on receiving electrical impulse input from the sensor which is mentioned in fig.3.3, it has a stored program which controls its mechanism.

Board	Arduino
Operating Voltage	5V
Input voltage	7-12V
Output voltage	6-20V
Digital I/O Pins	14
Analog input Pins	6

Relay:-



Fig: Relay

A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid state relays. Relays are used where it is necessary to control a circuit by a separate low-power signal or where several circuits must be controlled by one signal.

Power Supply:-



Fig : Battery

Battery is a stored power supplying device which gives the power to all the devices to function. The battery used in this project is a portable one, which is very light to carry and easily accessed.

III DESIGN

Wiper motor:-

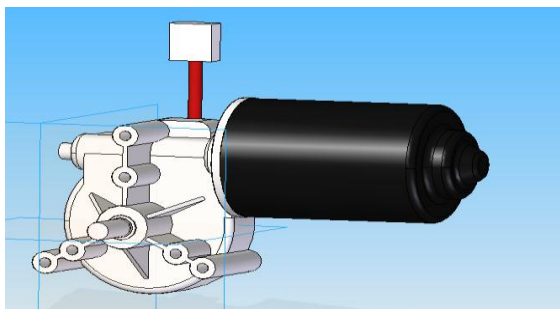


Fig: wiper motor

Side stand:-

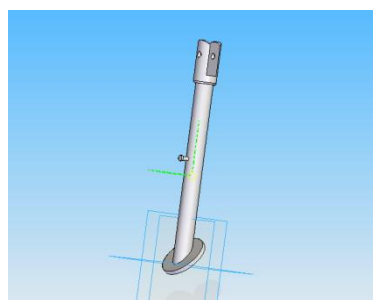


Fig: Side stand

Extension part of side stand:-

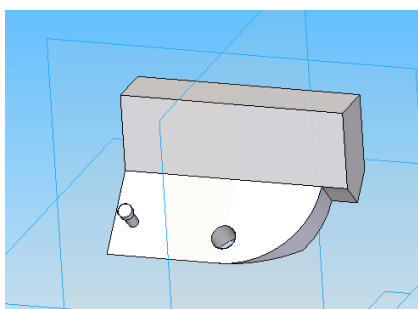


Fig: Extension part of side stand

Frame:-

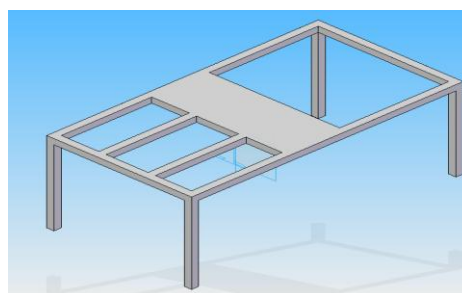


Fig: Frame

Working Model:-

Top view: -



Fig: Top view

Front view:-



Fig :Front view

IV EXPERIMENTAL METHODS

ARDUINO PROGRAM

Our experiment works on an Arduino program, where it takes the input signals from the speed sensor near rotating wheel and it passes the signal to the Arduino board to start the motor to rotate, to retrieve the side stand mechanism.

```
int encoder = 2, relay = 3;
unsignedint rpm;
volatile byte pulses;
unsigned long tOld;
unsignedintpulseturn = 12;
void counter(){
pulses++;
}
voidmotorOn(){
digitalWrite(relay, HIGH);
delay(500);
}
voidmotorOff(){
digitalWrite(relay, LOW);
delay(500);
}
void setup() {
Serial.begin(9600);
pinMode(encoder, INPUT);
pinMode(relay, OUTPUT);
attachInterrupt(0, counter, FALLING);
pulses = 0;
rpm = 0;
tOld = 0;
}
```

```
void loop() {  
if(millis() - tOld >= 1000){  
detachInterrupt(0);  
rpm = (60 * 1000/pulseturn)/(millis() - tOld)*pulses;  
tOld = millis();  
pulses = 0;  
Serial.print("RPM: ");  
Serial.println(rpm);  
if(rpm > 50){  
motorOn();  
}else{  
motorOff();  
}  
attachInterrupt(0, counter, FALLING);  
}  
}
```

V EXPERIMENTAL RESULTS AND DISCUSSION

The system is found to be applicable for two wheelers vehicle. As this system works on the movement of the vehicle, and by use of different materials such as wiper motor, side stand, speed sensor, Arduino board, relay, battery. This system will work by the speed of the two wheeler vehicles with the help of speed sensor. If a two wheelers moves in at 50 rpm range then the sensor will sciences the speed of the vehicle, sensor transfers the data signals to the Arduino board, this board has a stored program with respective of the program it will retrieve the side stand with the help of a motor. This system is easy to set to a two wheelers, it requires less space to arrange. The shape or weight of the two wheelers remains same after fixing of this system.

- Advantage of this project to increase customer safety.
- Can form as a 'standard future'
- Low maintenance: can be repaired locally

VI SUMMARY AND CONCLUSIONS

- 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 any standard design of two wheelers. Moreover it should be economical for every class of society.
- From above review, it fulfils consumer needs and provides versatility moreover, as it is new product it will promote employment and vast field development for new engineer in day period.

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