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Automatic Side Stand

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Abstract: As we all know that today's life is very fast and the rider kick the and move forward without removing the side stand because of hurry and this may cause accidents. When accidents happen, it causes severe injuries and sometimes deaths as well. There are many reasons for these accidents, internally and externally. Forgetting to lift up the side stand is one of the reasons and it could be avoided by certain technical aspects. This paper presents an automatic side stand for motor bikes, which could be lifted up while the bike starts moving.
The design consists of sensors, motor which are controlled by Arduino UNO program. There is no need of additional energy source or any other complexity since the designed system uses the necessary power from the motor bike battery.

Keywords: Human carelessness, solution,sensor,automation

1. INTRODUCTION

Nowadays percentage of accidents also increase, therefore ever company try to find cause of accidents and eliminate this cause, however there is one problem, which is unsolved up to the present day. One of the major issue of motorbike accidents is that people forget to slide their side stand back in place on starting the bike. In order to overcome this issue we propose an automated side stand slider system that will automatically slide the stand back in position when the bike start moving.

II. LITERATURE REVIEW

1. SIDE STAND WITH INDICATOR

When the bike stand is not lifted, a small indicator will blink in the monitor of the bike hence warning the driver.

2. MECHANICAL PRODUCT

One small flat rod is kept attached and pivoted between the gear actuator lever and the side stand of the bike. when the gear is actuated the side stand get lifted automatically.
Small stepper motor is connected between the side stand and the engine, when engine is started the stepper motor gains the source of power and retrieve side stand automatically.

3. Hardware Implementation of automatic side stand for motor bike

Uses power transmission from engine to rear wheel through sprocket as a mechanism to lift the side stand up. It gains the power from the chain and make specially designed lifting lever to rotate.

4. SIDE STAND IGNITION MONITORING AND ALARM SYSTEM

The S.I. Sensor is placed on the side stand holder using the synthetic resin. It is fixed such that the nib portion of the sensor is pressed when the side stand is set right. The other side of the side stand is then made to flow through the inner linings of the bike and made in contact with the ignition circuit. The main advantage of this sensor is that when the side stand is not set right, the nib is not pressed and hence the normal circuits activated and the current flows through the closed circuit and hence the ignition occurs.

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III. EXISTING SYSTEM

Side stands with indicator are provided in motorcycles now a days and though they have reduced the extent of bike accidents, it has not been completely solved. Many people fail to notice the indicator since they are in a hurry with their work. And this system are available in latest model bike and every people cant afford to buy a new one.

IV. PROPOSED SYSTEM

The proposed system consist of following sections

- Sensor
- Power Supply
- Controlling unit

Sensor- The sensor consist of RPM sensor which detects the RPM of the motorcycle and automatically slides up the side stand.
Power supply- No additional power supply is required since it utilizes the battery present in the motorcycle.
Controlling system- Arduino Uno is used in this system as they are inexpensive and can run various operations.

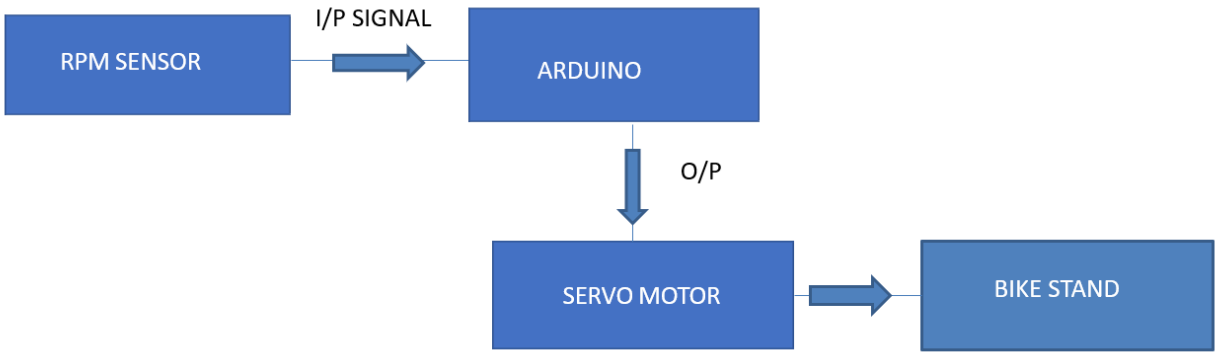

Fig: Block diagram

A rpm sensor is placed at the the front wheel of the bike which measures the RPM of the bike which is connected to a Arduino. the Arduino is programed in such a way that it is connected to a servomotor attached to the metal stand. when the rpm reaches between 994rpm to 1000 rpm ie,15 km/h the Arduino is activated and the side stand is lifted automatically.

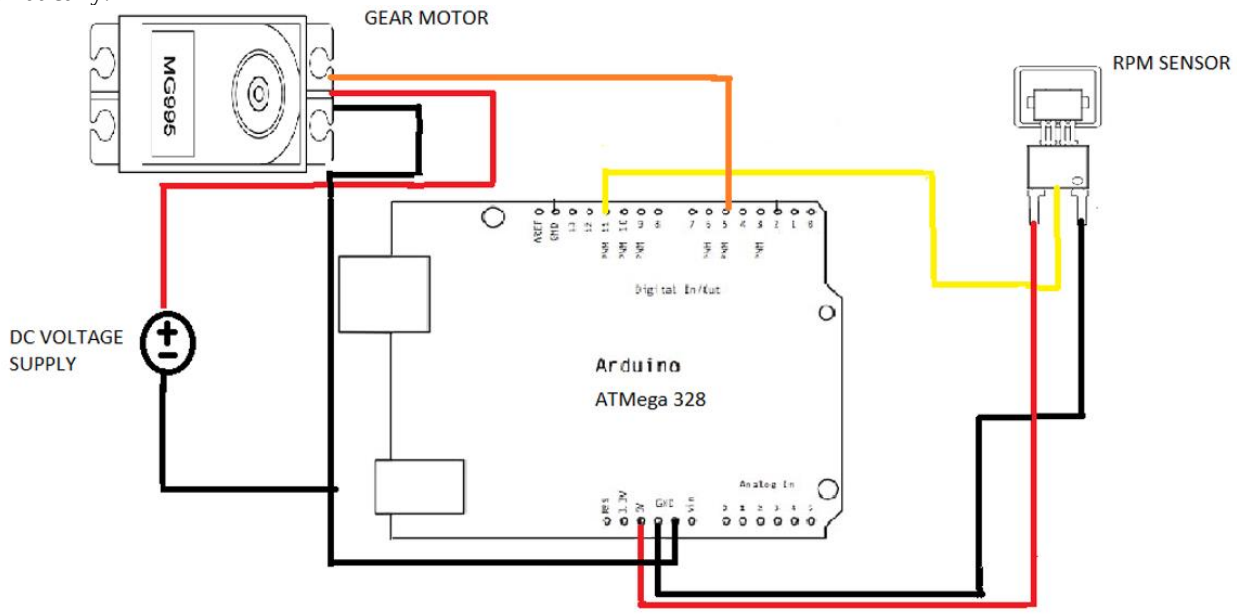

Fig: Circuit diagram

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V. ADVANTAGES

1. The system is user friendly
2. The stand automatically slides when rpm reaches 994
3. It highly reduces the risk of accidents.

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