AUTOMATIC BIKE STAND SLIDER

A DESIGN PROJECT REPORT SUBMITTED

IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF TECHNOLOGY

Submitted By

P.AKSHAYKUMAR	**19071A0238**
S.ANUSHA	**20075A0206**
M.GANESH VAIBHAV	**19071A0396**
K.YASHWANTH	**20075A0311**
P.TEJAS	**19071A0437**

VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

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Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad TS 500 090 India

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CENTRE FOR PRESENCING AND DESIGN THINKING
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CERTIFICATE

This is to certify that the project titled **"AUTOMATIC BIKE STAND SLIDER"** is being submitted, by **P.AKSHAYKUMAR (19071A0238),S.ANUSHA(20075A0206) M.GANESHVAIBHAV(19071A0396),K.YASHWANTH(20075A0311) P.TEJAS(19071A0437)** in partial fulfilment of the requirement for the award of degree of **Bachelor of Technology in** to the Centre for Presencing and Design Thinking at the **Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology** is a record of bonafide work carried out by them under our pedagogy. The results embodied in this Project have not been submitted to any other University or Institute for the award of any degree.

Project Mentor
K.SRAVANI
MEMBER CPADT VNR HYD

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ABSTRACT

Two wheelers are most prone to accidents due to their fragile nature. One of the issues of motorbike accidents is that people forget to slide their side stands back in place on starting the bike. So here we propose an automated side stand slider system that will automatically slide the side stand back in position when user starts his/her bike. In this system e make a demonstration model with a demo starter for bike and a frame used to hold starter, demo bike and sidestand in position. The frame is used to mount bile upright using frame. The starter consists of a microcontroller circuit used to monitor the starter and then operate the stand sliding mechanism. The stand consists of a motorized system used to operate the stand. The circuit monitors the starter, on starting the bike the sidestand is operated by the motor using a shaft to slide from a vertical position to a horizontal position. On turning off the key in other direction to lock bike the system moves the motorized stand shaft in opposite direction so as to move the stand in a direction perpendicular to the bottom frame rod which rests the motor bike on side stand. Thus we have a fully automated sidestand system for motor bikes.

LITERATURE SURVEY

Bike Side Stand Unfolded Side Lock Link is the work of Sanjeev N K. In this system the side stand lock link makes the contact with the gearshift thereby indicating the person handling the vehicle about the unreleased side stand when the rider tries to use the gear in unreleased state of stand and stop him from being endanger or to possess unsafe ride of motorbike . The bike side stand unfolded side lock link for two- wheeler is one among the life saving mechanism which prevents the ride from riding the bike in unreleased position of the ride stand. This prevent rider also the vehicle to lose the centre of gravity by imbalance or surface hindrance thanks to retracted position of side stand and thereby saves life of the rider. The developed side stand lock link are often fitted to any motorcycle with slight dimensional changes within the link. We designed a side stand lifting mechanism supported by the key on position of the motor bike. If the key's turned on, the side stand is going to be lifted. But the scenario of retrieving the stand isn't discussed here. Also if a child accidentally activates the key, the side stand is going to be lifted and motor bike will fall down. So, accompanying of these problematic situations, this research work administered and resulted in an improved system.

CHAPTER 1

1.INTRODUCTION

1.1Objectives

- The main objective of our project is to supply a security measure in bikes to avoid unwanted accidents and damage caused by not lifting off the side stand by providing automated side stand lifting system.
- Here we propose a concept for automatic side stand which is totally mechanical and electronic circuit and without using any external power.
- To study the method of fabrication side stand removal system.
- To fabricate according to selected method.
- To study the future implementation on the system.

1.2Introduction

The early history of the automobile are often divided into variety of eras, supported the prevalent means of propulsion. Later they were defined by the trends in styling of the exterior, body size, and utility preferences. In 1768, the primary steam powered automobile capable of human transportation was built by Nicolas-Joseph Cugnot In 1807 François Isaac de Rivaz designed the primary car powered by an indoor combustion engine fuelled by hydrogen. In 1886, the primary petrol or gasoline powered automobile was invented by Karl Benz this is often also considered to be the primary "production" vehicle as Benz made several other identical copies. At the turn of the 20th century electrically powered automobiles appeared but only occupied a distinct segment market until the turn of the 21st century. In times the living status were developed and developing more equipped. The automobile takes an excellent part within the development, since it plays one among a serious key in lifestyle. An automobile (or automotive) may be a vehicle that's capable of propelling itself. Since seventeenth century, several attempts are made to style and construct a practically operative automobile. In order to scale back accidents due to carelessness in lifting the side-stand, many advance measures are introduced like ECU, the fashionable ECU contains a 32 bit and 40 MHz processor. It will be fast as PC’s microprocessor. The Electronic Control Unit (ECU) decides timing and functioning of engine and its parts. This play its role in dashboard, this means the gear shifting, side stand, to wear helmet in alphanumeric display E.g., Hero Honda’s Karizma ZMR. But the people ignore to concentrate those indicators and safety rules. So for safe guard many mechanical projects are found to retrieve the side stand automatically.

1.3Scope of the Work

We can construct a brief and articulate summary of a Two wheelers are most prone to accidents due to their fragile nature. One of the issues of motorbike accidents is that people forget to slide their side stands back in place on starting the bike. So here we propose an automated side stand slider system that will automatically slide the side stand back in position when user starts his/her bike.

CHAPTER2

DISCOVER AND DEFINE

2.1 Empathy Interview

A Survey has been conducted which included users.

Google Form:
https://docs.google.com/forms/d/e/1FAIpQLSe1Fcyv9hOaKZ0_6howwoJ8ddBQ2QylSCOAXUY0jOoMH4ZQyg/viewform

2.1 .1

Empathy Tool Used – USER

- We have interacted with the user to identify needs by observing them during the conversation .
- We conduct a survey through google form to gather the needs of people .

Questionnaire:

1. Do you ride a 2 wheeler ?
2. Have you ever forgotten to lift stand of your vehicle ?
3. Have you faced any injury due to not lifting stand ?
4. Have you heard of or met any accident due to not lifting of stand ?
5. Has not lifting the stand affected your vehicle ?
6. Have you ever forgotten to put your vehicle on stand after turning it off ?

User Needs

1.Primary needs:

- Costumer safety.
- While the two-wheelers are concerned, accidents occur 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.
- It prevents most of the accidents

2.Secondary needs:

- Increase Customer comfort
- Reduces the damage vehicles

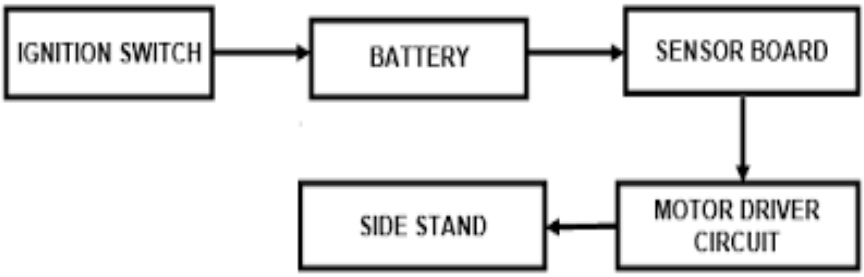
3.Latent needs:

- Improve sales.

CHAPTER 3

CUSTOMER SERVICE EXPERINCE

Task Flow:



Pain points :

- Major accidents occur due to forgetting of lifting side stand.
- As we all know that today's generation is quicker. The bikers are always in hurry this will cause bikers will forget to lift the side stand and may cause the accident.

CHAPTER 4

IDEATION

Ideation – 3 Boxing Method

Past :

- Manual stand : manually operated

Present:

- Stand with indicators: indicate position of side stand

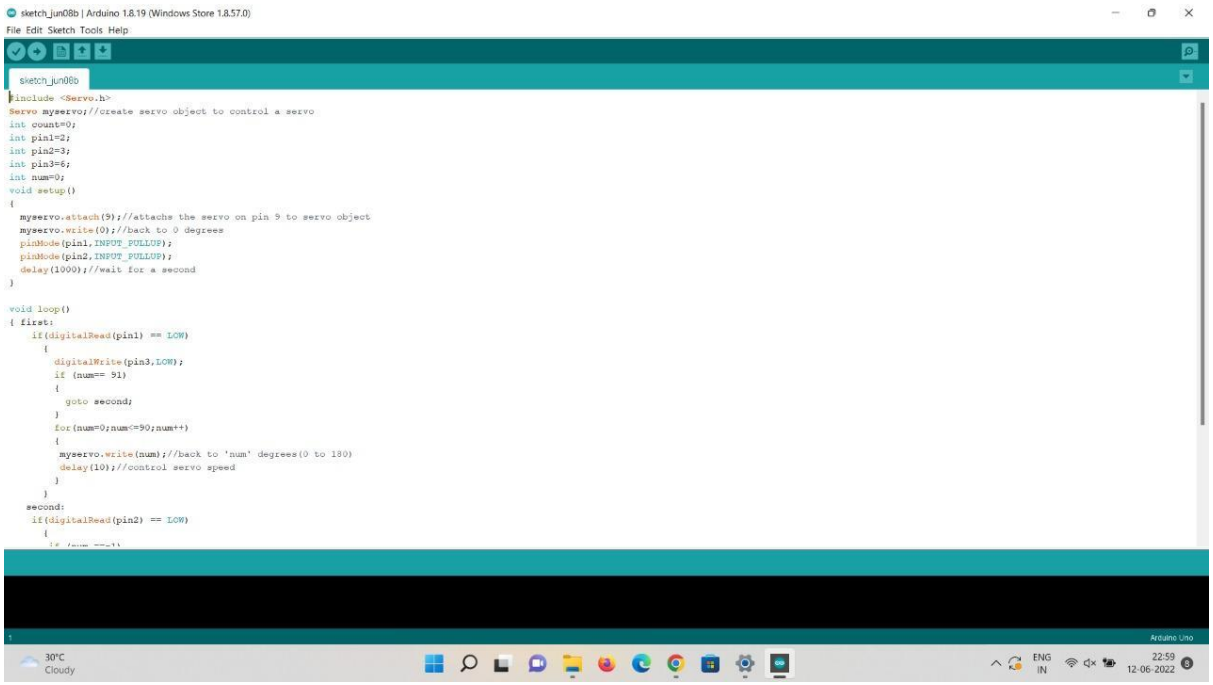
Future:

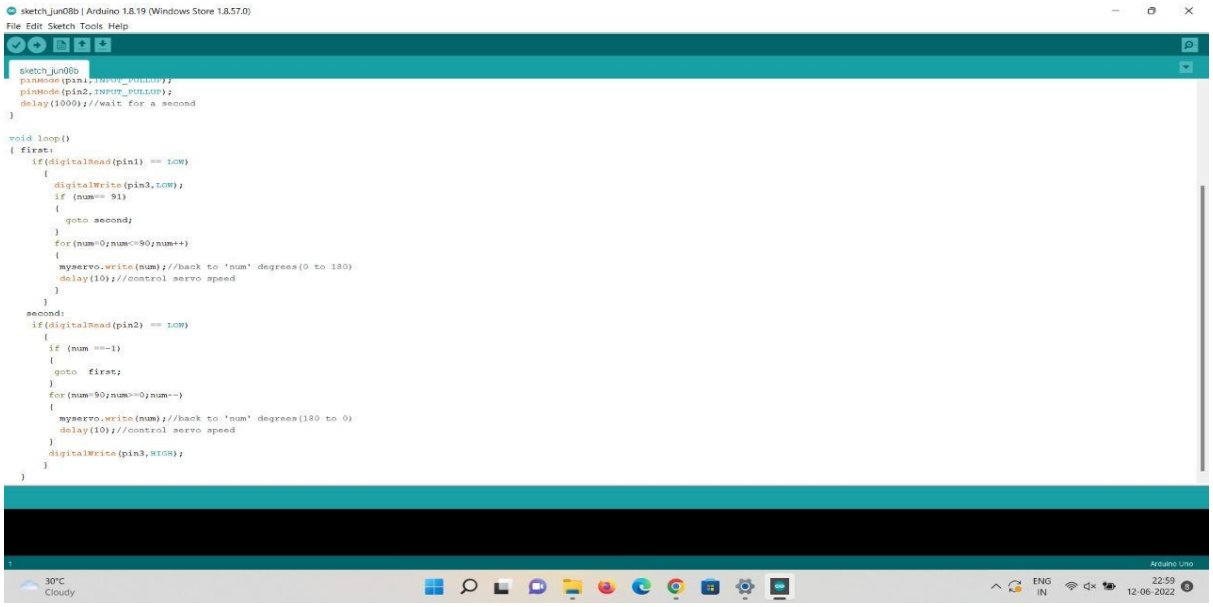
- Automatic bike stand slider

CHAPTER5

PROTOTYPE MODEL

Solution Prototype





5.2Evaluation of Prototype Based On Desirabilty, Feasibility & Viabiliy

Desirability:

- It makes riding a 2 wheeler better experience.
- It makes the process of riding the vehicle a much more comforting and easier one.
- It also improves the safety of rider.

Viability And Feasibility:

- The project is built using Arduino.
- Technically it is feasible and simple to implement.
- This solution is economically feasible as well.
- Time taken to build the design is not long and simple as well.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

- Not only lifting up of side stand while start riding the motor bike, but also retrieving it to the normal position once it stopped is designed here.
- Along with the turn on/off of the motor bike key, another condition is introduced to ensure that motor bike is moving only when the rider is on the seat.
- Usage of speed sensor is uninvolved. The speed drops to zero when traffic light is red and there is no requirement to retrieve the side stand at that moment.
- It can be installed to any kind of motor bikes irrespective of the gear system, since it works on sensor and not connected to the gear system or sprocket.

6.2 Future Scope

The present project can be alternated by using speed sensor. The KMI 15/X and KMI 16/X is magneto resistive sensor modules with an integrated signal conditioning electronics to provide a simple and cost effective solution for rotational speed measurement .Due to their compact design-in and therefore time to market dis-significantly reduced. The KMI sensor modules consist of the magneto resistive sensor element, a permanent magnet fixed to his sensor and the integrated signal conditioning circuit designed in bipolar technology.

6.3 References

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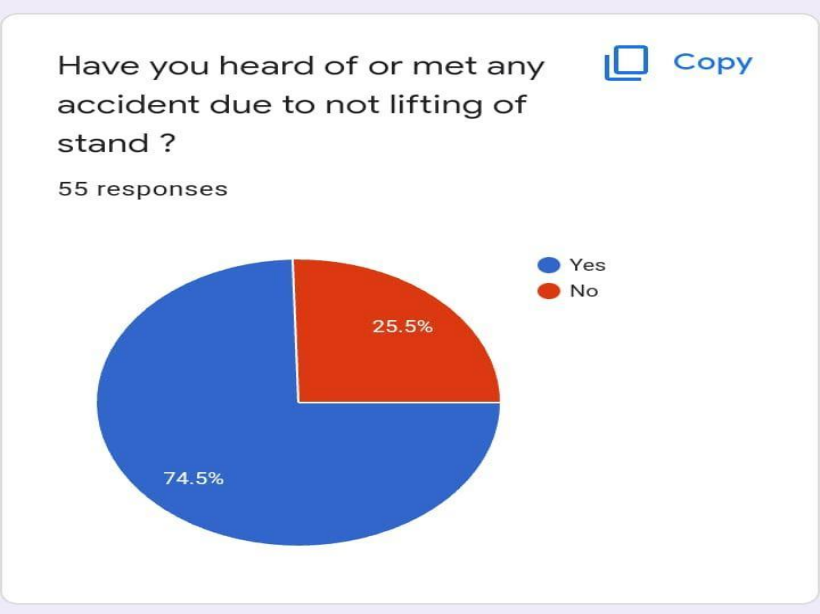
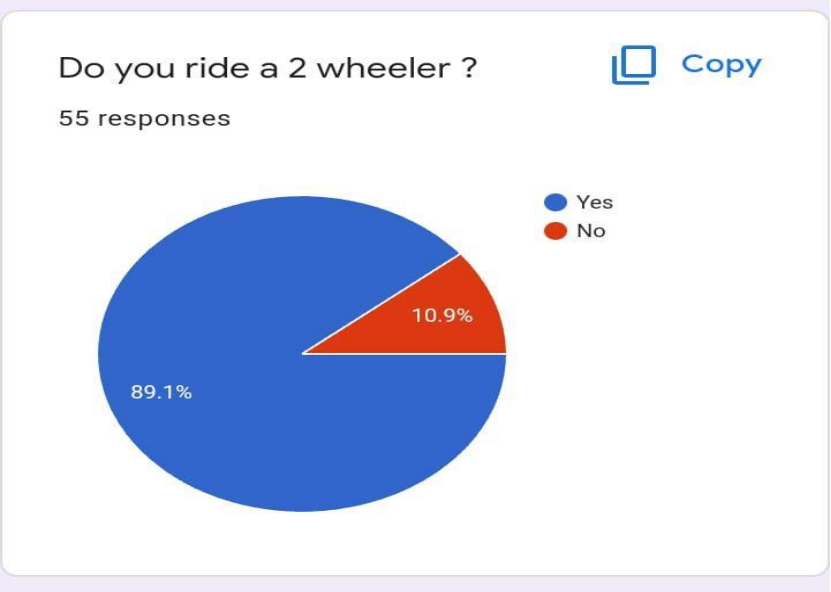
- Sumit Pandit, Gunjan Panchal, Akshay Mahajan, Darshan Panchal, and Nikhil Rana ‘‘Review: Improving Safety aspects in two wheeler bike’’, International Journal of Advance Research in Engineering, Science & Technology e-ISSN: 2393-9877, p-ISSN: 2394-2444 Volume 4, Issue 3, March-2017, pp 95 – 101.

Appendix A: User surveys

1. Do you ride a 2 wheeler ?
2. Have you ever forgotten to lift stand of your vehicle ?
3. Have you faced any injury due to not lifting stand ?
4. Have you heard of or met any accident due to not lifting of stand ?
5. Has not lifting the stand affected your vehicle ?
6. Have you ever forgotten to put your vehicle on stand after turning it off ?

A.2 Text Transcript of User Responses

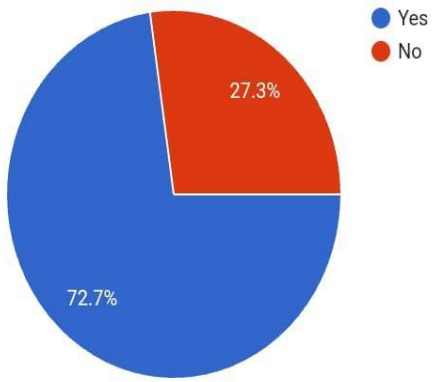




Have you ever forgotten to lift stand of your vehicle ?

Copy

55 responses



Have you faced any injury due to not lifting stand ?

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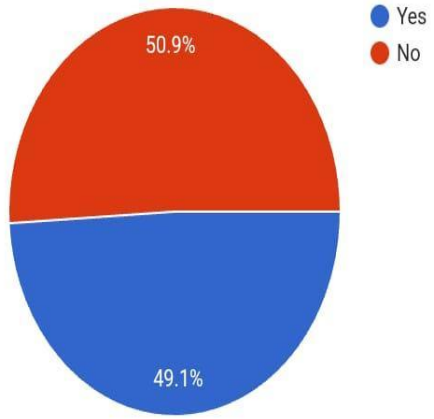
55 responses



Has not lifting the stand affected your vehicle ?

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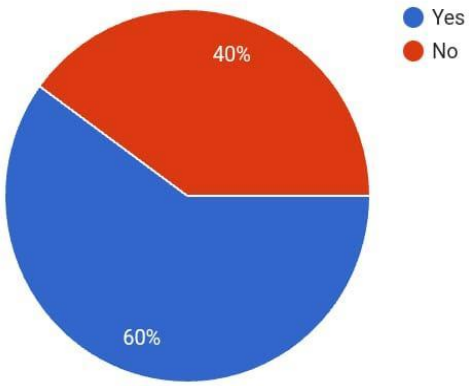
55 responses



Have you ever forgotten to put your vehicle on stand after turning it off ?

Copy

55 responses