**SIMULINK MODEL OF ANTI-LOCK BRAKING SYSTEM WITH ROAD FRICTION COEFFICIENT ESTIMATION**



Prepared for



The Society of Automotive Engineers

Collegiate Club Number - SAEICCBIS022  
National Institute of Technology Karnataka

Prepared by

Kurma Eshwar Sai Srinivas – 181ME141 (Project Mentor)

Patrike Vedika Rajkumar – 191ME256

Diksha Negi – 191ME129

May 15, 2021

ABSTRACT

<Write in Less than 150 Words>

Table of Contents

[SECTION – I INTRODUCTION 2](#_Toc71494915)

[Timeline 2](#_Toc71494916)

[Tools and Technologies 2](#_Toc71494917)

[Brief Introduction 3](#_Toc71494918)

[Literature Review 3](#_Toc71494919)

[SECTION – II CONCEPT DEVELOPMENT AND EVALUATION 3](#_Toc71494920)

[Methodology 3](#_Toc71494921)

[Results and Discussion 3](#_Toc71494922)

[Conclusion 3](#_Toc71494923)

[Future Scope 3](#_Toc71494924)

[References: 3](#_Toc71494925)

# SECTION – I INTRODUCTION

## Timeline

|  |  |  |
| --- | --- | --- |
| Month | Week | Task Accomplished |
| Dec-20 | One | Introductory Meet – Project Start |
| Dec-20 | Two | Completed Matlab Fundamentals Course from mathworks |
| Dec-20 | Three | Learnt Simulink from SAE KEP |
| Jan-21 | Three | Started Learning Basic Vehicle Dynamics – (Brake Bias) |
| Feb-21 | One | Learnt Load Transfer Calculations for a Half Car Model |
| Feb-21 | Four | Project Review – 01 |
| Mar-21 | Two | Literature Review for ABS Simulink Model |
| Apr-21 | Four | Started Making Simulink Model of Braking System (Open Loop) |
| May-21 | One | Added PID Controller to the Open Loop Model and Tuned |
| May-21 | Two | Added Drag and Downforce to the Simulink Model |
| May-21 | Two | Project Review – 02 (Final Review) |
| May-21 | Three | Documentation and Submission of Final Report |

## Tools and Technologies

|  |  |  |
| --- | --- | --- |
| S. No | Tool / Technologies used | Remark |
| 1 | Matlab & Simulink | Coding |
| 2 | Microsoft Excel | Plotting Friction Coefficient Graph |

## 

## Brief Introduction

An Anti-Lock Braking System is an active safety feature in aircrafts and land vehicles used to prevent wheel lock up and skidding during braking. This allows the driver to maintain more control over the vehicle. It can decrease the breaking distance on dry and regular roads, however on slipper and icy road it significantly increases the braking distance (to avoid wheel lockup) but has an ability to maintain the traction over the surface.

## Literature Review

<START HERE>

# SECTION – II CONCEPT DEVELOPMENT AND EVALUATION

## Methodology

<START HERE>

## Results and Discussion

<START HERE>

## Conclusion

<START HERE>

## Future Scope

<START HERE>

References:

* -
* -