# 

### Technical Seminar Report

### 18MCA62

### on

### “Advanced Driver Assistance System”

Submitted by

### Nithin

### 1RV21MC067

### Under the Guidance

### of

# Dr. S Anupama Kumar

# Associate Professor

### Department of MCA

### RV College of Engineering®

### Bengaluru-59

### *Submitted in partial fulfillment of the requirements for the award of degree*

### *of*

### MASTER OF COMPUTER APPLICATIONS

**2022-2023**

i

**RV College of Engineering®**

**(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi)**

# Department of

# MASTER OF COMPUTER APPLICATIONS

[**Bengaluru**](http://www.bengaluruairport.com/#_blank)**– 560059**

****

**CERTIFICATE**

Certified that the seminar titled “Advanced Driver Assistance System” carried out by Nithin , USN: 1RV21MC067, a bonafide student of RV College of Engineering®, Bengaluru submitted in partial fulfilment for the award of Master of Computer Applications of RV College of Engineering®, Bengaluru affiliated to Visvesvaraya Technological University, Belagavi during the year 2022-23. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The report has been approved as it satisfies the academic requirement in respect of technical seminar prescribed for the said degree.

|  |  |  |
| --- | --- | --- |
| **Dr. S Anupama Kumar**  Associate Professor  Department of MCA  RVCE, Bengaluru –59 |  | **Dr. Andhe Dharani**  Professor and Director  Department of MCA  RVCE, Bengaluru–59 |

ii

**RV College of Engineering®**

**(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belagavi)**

# Department of

# MASTER OF COMPUTER APPLICATIONS

[**Bengaluru**](http://www.bengaluruairport.com/#_blank)**– 560059**

**DECLARATION**

I, **Nithin**, student of sixth semester MCA in **Department of Master of Computer Applications,** RV College of Engineering®, Bengaluru declare that the seminar titled **“Advanced Driver Assistance System”** has been carried out by me. It has been submitted in partial fulfilment of the course requirements for the award of degree in **Master of Computer Applications** of RV College of Engineering®, Bengaluru affiliated to Visvesvaraya Technological University, Belagavi during the academic year **2022-23**. The matter embodied in this report has not been submitted to any other university or institution for the award of any other degree or diploma.m

**Date of Submission: Signature of the Student**

Student Name: Nithin

USN: 1RV21MC067

Department of Master of Computer Applications

RV College of Engineering®

Bengaluru-560059

iii

**ACKNOWLEDGEMENT**

The satisfaction and euphoria that accompany the success of any work would be incomplete unless I mention the name of the people, who made it possible, whose constant guidance and encouragement served a beacon light and served our effort with success.

I express my wholehearted gratitude to **Dr. Subramanya K N**, Principal, RV College of Engineering® for providing me an opportunity.

I express my special thanks to **Dr. Andhe Dharani**, Professor, and Director, Department of MCA, RV College of Engineering®, Bengaluru for her constant support and guidance.

I express my sincere thanks and wholehearted credit to my Internal guide **Dr. S Anupama Kumar**, Associate Professor, Department of MCA, RV College of Engineering®, Bengaluru for her constant encouragement, support, and guidance during the project work.

I am also thankful to lab in-charge staff and all faculty of the department for their help and support during the seminar. On a moral personal note, my deepest appreciation and gratitude to my beloved family, who have been a fountain of inspiration and have provided unrelenting encouragement and support.

On a moral personal note, my deepest appreciation and gratitude to my beloved family, who have been a fountain of inspiration and have provided unrelenting encouragement and support.

Nithin

Department of MCA

RV College of Engineering®

Bengaluru-59

**iv**

**ABSTRACT**

Advanced Driver Assistance Systems (ADAS) have revolutionized the automotive industry by integrating cutting-edge technologies to enhance vehicle safety, improve driving experience, and pave the way for autonomous driving. ADAS utilizes a network of sensors, cameras, radars, and software algorithms to monitor the surrounding environment, analyse data in real-time, and assist the driver in various driving tasks. An overview of the main ADAS features and components is given in this abstract. We start by exploring the sensor technologies used by ADAS, including LiDAR (Light Detection and Ranging), radar, ultrasonic sensors, and cameras, which allow the system to receive detailed information about the surroundings of the vehicle. Features like adaptive cruise control, lane departure warning, blind-spot recognition, and pedestrian detection are made possible by these sensors.

The software algorithms that drive ADAS systems, such as those utilising computer vision, machine learning, and artificial intelligence methods, are then examined. To help the driver, these algorithms analyse the sensor data to recognise objects, forecast their behaviour, and make defensible judgements. They are essential in making features like forward collision warning, automated emergency braking, and traffic sign recognition possible. We also cover the integration of ADAS with communication systems for vehicles to vehicles (V2V) and vehicles to infrastructure (V2I). This connection enables features like cooperative adaptive cruise control and intersection collision warning by facilitating the transmission of vital information between infrastructure and automobiles.

Finally, we discuss the limitations and potential applications of ADAS technology. These include assuring reliable cybersecurity, tackling moral conundrums in algorithmic decision-making, and moving closer to completely autonomous vehicles. Overall, this offers a thorough review of ADAS, emphasising the role it plays in enhancing both driving comfort and traffic safety. The development of ADAS has opened the door to a safer and more effective future of transportation through the combination of sensors, software algorithms, and connection technologies.

**v**

**Table of Contents**

|  |  |
| --- | --- |
| **PARTICULARS** | **PAGE NO.** |
| Title page | i |
| College Certificate | ii |
| Declaration by student | iii |
| Acknowledgement | iii |
| Abstract | iv |
| Table of Contents | vi |
| List of Tables | vii |
| List of Figures | vii |
| **Chapter 1: Introduction**  1.1 Introduction to the Seminar Title 1  1.2 Description of the Seminar Concept  1.3 Applications of Concept  1.4 Architecture Diagram | **1-7**  1  2  4  6 |
| **Chapter 2: Literature Review**  2.1 Literature Survey  2.2 Summary of the literature Survey | **8-11**  8  11 |
| **Chapter 3: Technical Significance**  3.1 Technological Developments  3.2 Tools and Technologies  3.3 Sustainability and Societal Concern  3.3 Conclusion | **12-19**  12  16  17  19 |
| **Bibliography** | **20-22** |

**vi**

**List of Tables**

|  |  |  |
| --- | --- | --- |
| **TABLE NO.** | **PARTICULARS** | **PAGE NO.** |
| 3.1 | Comparison of ADAS in Indian roads and USA roads | 15 |

**List of Figures**

|  |  |  |
| --- | --- | --- |
| **FIGURE NO.** | **PARTICULARS** | **PAGE NO.** |
| 3.1 | Advanced Driver Assistance System Features | 14 |

**vii**