**A LANE DETECTION, TRACKING AND RECOGNITION SYSTEM FOR SMART VEHICLES (LTRSV)**

**Project Report**

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

**degree of**

**Bachelor of Technology**

In

**COMPUTER SCIENCE AND ENGINEERING**

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**SASI INSTITUTE OF TECHNOLOGY&ENGINEERING** (Approved by AICTE, New Delhi, Permanently Affiliated to JNTUK, Kakinada and SBTET-Hyderabad, Accredited by NAAC with ‘A’ Grade and NBA, Ranked as "A" Grade by Govt. of A.P., Recognised by UGC 2(f) & 12(B))

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***CERTIFICATE***

*This is to certify that the project work entitled “****A LANE DETECTION, TRACKING AND RECOGNITION SYSTEM FOR SMART VEHICLES (LTRSV)****” is being submitted by* ***A.Bharathi Devi (16K61A0501), G.Siva Jyothi (16K61A0541), Keerthi.Ethish Kumar (17K65A0501). Ch.Manoj Sai (16K61A0517),*** *in partial fulfilment for the award of the degree of* ***BACHELOR OF TECHNOLOGY****, in* ***Computer Science and Engineering*** *to Jawaharlal Nehru Technological University, Kakinada during the academic year 2019 to 2020 is a record of bonafide work carried out by them under my/our guidance and supervision. The results presented in this thesis have been verified and are found to be satisfactory. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any other degree or diploma.*

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**Note: minimum document pages: 60 (chap-1 to references)VISION AND MISSION OF INSTITUTE**

**VISION**

Confect as a premier institute for professional education by creating technocrats who can address the society’s needs through inventions and innovations.

**MISSION**

1. Partake in the national growth of technological, industrial, industrial area with

societal responsibilities.

1. Provide an environment that promotes productive research.
2. Meet stakeholder’s expectations through continued and sustained quality improvements.

**VISION AND MISSION OF DEPARTMENT**

**VISION**

Build a learning environment that enhances creativity, social awareness and leadership skills for total personality development.

**MISSION**

The Computer Science and Engineering department’s consistent effort is to provide the learner with an exposure to emerging technology by providing hands-on experience making them creative and research oriented professionals with values, Leadership qualities and zeal to serve the society.



**PROGRAM OUTCOMES (POs)**

Students in the Computer Science and Engineering program should, at the time of their graduation be in possession of:

**PO1.Engineering Knowledge:** Apply knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

**PO2.Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

**PO3.Design/ Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

**PO4. Conduct investigations of complex problems** using research based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

**PO5.Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an under- standing of the limitations.

**PO6.The Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.

**PO7.Environment and Sustainability:** Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.

**PO8.Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.

**PO9. Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.

**PO10.Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

**PO11.Life-long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life- long learning in the broadest context of technological change.

**PO12.Project Management and Finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

**PROGRAM SPECIFIC OUTCOMES (PSOs)**

**PSO1.Mobile & Web Application Development:** Ability to develop mobile & web applications using J2EE, Android and J2ME.

**PSO2.Cloud Services:** To deploy virtualized and cloud based services in the organization.

**PROGRAM EDUCATIONAL OBJECTIVES (PEOs)**

**PEO1:** Graduates will be able to analyze, design and develop advanced computer application to provide solution to the complex problems.

**PEO2**: Graduates are well trained, confident, research oriented and industry ready professionals who are intellectual, ethical and socially committed.

**PEO3:** Graduates will have the technical, communication skills and character that will prepare them for technical and leadership roles.

**COURSE OUTCOMES (COs)**

**CO1.** Develop problem formation and design skills for engineering and real world problems.

**CO2.** Collect and Generate ideas through literature survey on current research areas which help to analyze and present to impart knowledge in different fields.

**CO3.** Impart knowledge on software & hardware to meet industry perspective needs and standards.

**CO4.** Create interest to carry out research on innovative ideas as a lifelong learning. **CO5.** Ability to work with team, and enrich presentation and communication skills.

**CO6.** Create a platform that makes students employable.

**EXPECTED OUTCOMES**

**PROGRAM OUTCOMES (POs)**

PO1: Engineering Knowledge

PO2: Problem Analysis

PO3: Design/Development of Solutions

PO4: Conduct investigation of complex problems

PO5: Modern Tool Usage

PO6: The Engineer and Society

PO7: Environment and Sustainability

PO8: Ethics

PO9: Individual Team Work

PO10: Communication

PO 11: Life-long Learning

PO12: Project Management and Finance

Note: out of PO12, how many PO matched with your project, select from above and list them

**PROGRAM SPECIFIC OUTCOME (PSOs)**

PSO1: **Mobile & Web Application Development**

PSO2: **Cloud Services**

Note: out of PSO2, how many PSO matched with your project, select from above and list them

**ABSTRACT**

Many people die each year in roadway departure crashes caused by driver inattention. Lane detection systems are useful in avoiding these accidents as safety is the main purpose of these systems. Such systems have the goal to detect the lane marks and to warn the driver in case the vehicle has a tendency to depart from the lane. A lane detection system is an important element of many intelligent transport systems. Lane detection is a challenging task because of the varying road conditions that one can come across while driving. In the past few years, numerous approaches for lane detection were proposed and successfully demonstrated. Traffic problems are becoming more and more serious in most countries. To reduce traffic accidents and improve the vehicle ride comfort side impact collision is one of the common types of car accident. This mostly happens when vehicles change their lanes, or merge into the highway. These accidents take place when the approaching vehicle drives into the blind spot of the rear view mirrors or the driver gets distracted. Lateral vehicle detection and distance measurement will help the driver to increase the driving safety.

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**NOMENCLATURE**

**Note: expansion of the symbol, range and abbreviation one by one**

**LIST OF SYMBOL:**

**(mention symbol name and write meaning or write any range)**

**ABBREVIATION: (arrange in alphabetical order) example**

**IoT - Internet of Things**