**A PROJECT REPORT ON**

# TRAFFIC SIGNAL VIOLATION DETECTION IN MACHINE LEARNING

Submitted in partial fulfillment of the requirements for the award of the degree Of

**BACHELOR OF TECHNOLOGY**

By

# P. REDDY SEKHAR REDDY 20751A05E0

# S. BALASUBRAMANYAM 20751A05G8

**T. SURESH KUMAR REDDY 20751A05I0**

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Under The Guidance of

**Mr. N VIJAY KUMAR M. TECH,** **MBA**

**ASSISTANT PROFESSOR, DEPT OF CSE**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**SREENIVASA INSTITUTE OF TECHNOLOGY AND**

**MANAGEMENT STUDIES, CHITTOOR-517127, A.P**

(Autonomous)

(**Approved by AICTE & Affiliated to JNTUA, Ananthapuramu)**

**2020-2024**

**SREENIVASA INSTITUTE OF TECHNOLOGY AND**

**MANAGEMENT STUDIES, CHITTOOR-517127, A.P**

(**Autonomous-NAAC Accredited**)

(**Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu)**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**BONAFIDE CERTIFICATE**

This is to certify that the mini-project report on “**TRAFFIC SIGNAL VIOLATION**

**DETECTION IN MACHINE LERNING”** is a genuine work of

**P REDDY SEKHAR REDDY 20751A05E0**

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Submitted to the department of computer science and engineering, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Computer Science and engineering, during the academic year 2020-2024.

**Mr.N.VIJAY KUMAR M. Tech,MBA Dr.P. SUDHEER, M. Tech, Ph. D Assistant Professor, Head of the CSE Department, Project Guide. SITAMS**

Submitted for University Examination held on\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Internal examiner External examiner

**DECLARATION**

We affirm that the project work titled “**TRAFFIC SIGNAL VIOLATION DETECTION IN MACHINE LEARNING**” being submitted in partial fulfillment for the award of Bachelor of technology in computer science and engineering, is the original work carried out by us. It has not formed the part of any other project work submitted for award of any degree, either in this or any other university.

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| --- | --- | --- |
| **NAME** | **ROLL NUMBER** | **SIGNATURE OF CANDIDATES** |
| P REDDY SEKHAR REDDY | 20751A05E0 |  |
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I certify that the declaration made above by the candidate is true.

**(Signature of the Guide)** **Mr.N.VIJAY KUMAR,M.TECH, MBA ,** Assistant Professor,

Project Guide

**ACKNOWLEDGEMENT**

Predominantly our thanks goes to Late **Sri D. K. AUDIKESAVULU Garu** Founder, Late **Mrs. D.A. SATHYAPRABHA Garu** and **Sri K. RANGANATHAM Garu Chairman**, SITAMS for the extensive lab facilities provided in the college.

We would like to express our profound gratitude to our principal **Dr N. VENKATACHALAPATHI, M.E., Ph.D**., and **Dr.P. SUDHEER, M. Tech, Ph.D** HOD, CSE Dept. for offering us/me a chance to serve in our reputed institution and providing all possible facilities throughout the completion of my project work.

We express our sincere thanks to our Project Coordinators **Mr. N. VIJAYA KUMAR**, Assistant Professor in CSE and, **Mr. A. VENKATESAN**, **Assistant Professor** in CSE, and our guide **Mr. N. VIJAY KUMAR M. TECH, MBA, Assistant professor** of CSE for offering us/me the opportunity to do this work, for their benevolent advice and guidance at each step of my project.

Our sincere thanks to all teaching and non-teaching staff members of CSE Dept., for their cooperation and guidance. We are deprived of words to account the cooperation, motivation and support extended by my/our parents and friends at all the moments and hours of this academic venture.

Finally, we extend our thanks to one and all, whoever helped me/us directly or indirectly for this presentation in most appropriate and attractive from.

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# DECLARATION

The mini project about “TRAFFIC SIGNAL VIOLATION DETECTION IN MACHINE

LEARNING” done by S. BALASUBRAMANYAM, P. REDDY SEKHAR REDDY, T. SURESH KUMAR REDDY, T. KIRAN KUMAR REDDY of department of computer science and engineering in sitams college.

The objective of this mini project is to develop a system that can detect and monitor traffic signal violations using computer vision techniques and machine learning algorithms. The system will analyze real-time video streams from traffic cameras to identify vehicles that violate traffic signal rules, such as red light running or illegal turns.

The project will involve the following steps:

**Data Collection**: Gather a dataset of traffic videos with labeled traffic signal violations.

**Deep Learning Model**: Train a deep learning model to detect and classify different types of traffic violations.

**Real-time Video Processing**: Develop a video processing pipeline to analyze live traffic streams.

**Vehicle Detection and Tracking**: Implement algorithms to detect and track vehicles in video frames.

**Violation Classification**: Design algorithms to classify traffic signal violations, such as red light running and illegal turns.

**User Interface**: Develop a user-friendly interface to display violation alerts and generate reports.

**Evaluation**: Assess the system's performance using metrics such as accuracy, precision, recall, and F1 score.

**Optimization**: Fine-tune and optimize the system based on evaluation results.

So, the conclusion of this project is to help the people to avoid accidents. The project is applied on cameras like cvv cameras and modern traffic cameras with new versions and features.

(SIGNATURE AND DATE)

# ACKNOWLEDGEMENT

I would like to extend my sincere appreciation to **Mr.N. VIJAY KUMAR M. TECH, MBA**, for his invaluable guidance and unwavering support throughout the duration of our mini project on

"**TRAFFIC SIGNAL VIOLATION DETECTION USING MACHINE LEARNING**" His extensive knowledge, insightful feedback, and constant encouragement have been instrumental in the successful completion of this mini project. I am truly grateful for the opportunity to work under his mentorship.

I would also like to express my deepest gratitude to **Dr.P. SUDHEER KUMAR M. TECH, PH. D,** the Head of the Department of Computer Science and Engineering, and also like to express my gratitude to **Dr.N. VENKATACHALAPATHI M. TECH, PH. D** the principal of Sreenivasa institute of technology and management studies in Chittoor APfor his continuous support and valuable inputs. His vast expertise and profound understanding of the subject matter have greatly influenced the project's development. I am thankful for his guidance and encouragement throughout the process.

I would like to acknowledge the contribution of all the faculty members of the Computer Science and Engineering department who have played a significant role in shaping my understanding of the subject. Their valuable suggestions, insightful discussions, and constructive criticism have immensely helped in refining the project.

I would also like to extend my heartfelt thanks to my fellow classmates and friends who supported me during the mini project. Their collaboration, brainstorming sessions, and constructive feedback were instrumental in improving the project's outcomes.

In conclusion, I am sincerely grateful to everyone mentioned above for their invaluable contributions, guidance, and support, without which the successful completion of this mini project on "TRAFFIC SIGNAL VIOLATION DETECTION USING MACHINE LEARNING " would not have been possible.

**SIGNATURE**

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