

**LaneGuard**

Project Proposal



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# Abstract

Automation is the future and humans are trying to achieve it in every aspect of their lives to build a fast and secure environment that is less prone to errors and anomalies. Similarly, travelling is one of the major parts of our daily lives and we want to make it fast, safe, and easy. In order to achieve this in road travel we need several technologies embedded in our vehicles and one such technology is Lane Detection System. “LaneGuard” will solve this problem by providing safe and effective road navigation via its accurate and reliable lane detection technology. This system will use Computer Vision techniques to identify and track lanes on the road.

# Introduction

Lane Detection is a technology that is high in demand as significant number of vehicle manufacturers are looking forward towards using an extremely precise and accurate Lane Detection System in automobiles. These companies have been working very hard build and improve this technology over the past few years however there always remains a room for improvement as anomalies are constantly being reported in the existing systems. Moreover, this is an area that can't be ignored easily as this is related not only to ease and luxury but towards road and life safety as well. Therefore, to achieve an autonomous and safe environment efforts must be made unless we are able to build a reliable system.

LaneGuard will make use of advanced processing techniques like Region of Interest(ROI) Selection, Edge Detection, Line Detection, and Lane Tracking. Eventually a high-quality system will be manufactured that can be deployed in real world after going through rigorous testing and its integration with autonomous vehicles.

# Goals and Objectives

Goals and objectives of LaneGuard are:

* To Accurately Detect Lane Markings
* To be able to Track Lanes
* Achieve Robustness
* Achieve Real Time Performance
* Ensure Safety Protocols

# Scope of the Project

We will be implementing the AI Algorithms specifically Heuristic Algorithms that are essential for Lane Detection Systems and test our system rigorously to achieve substantial quality. Also, we will try our best to implement all possible aspects needed in this system that we will study throughout our Artificial Intelligence Course.

# Initial Study and Work Done so Far

We have Initially studied the problems associated with the Lane Detection Technology in detail to make sure that we fully understand the requirements of this project to best of our abilities. In addition, we have studied both Blind Search and Heuristic Search Algorithms and have developed the ability to differentiate among them and reach a conclusion that Heuristic Algorithms are essential for Lane Detection.

# References

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