Automated Lane Simulation

A Major Project Report Submitted to

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal
Towards Partial Fulfillment for the Award of

Bachelor of Engineering

(Information Technology)

Under the Supervision of

Prof. Pawan K Gupta

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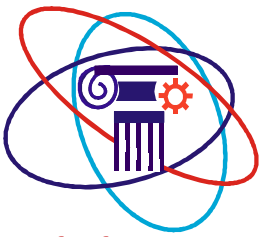

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EXAMINER APPROVAL

The Project entitled "Automated Lane Simulation" **submitted by Raksha Sankhala**(0827IT161086)**, Saiel Wadwekar** (0827IT161094)**, Saquib Qureshi** (0827IT161098), **Yashasvi Sharma** (0827IT161121), **Yashraj Sharma** (0827IT161122), **Yuvraj Singh Panwar** (0827IT161123) has been examined and is hereby approved towards partial fulfillment for the award of ***Bachelor of Engineering degree in Information Technology*** discipline, for which it has been submitted. It understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein, but approve the project only for the purpose for which it has been submitted.

(Internal Examiner) **(External Examiner)**

Date: **Date:**

GUIDE RECOMMENDATION

This is to certify that the work embodied in this project entitled **"Automated Lane Simulation"** Submitted by**Raksha Sankhala**(0827IT161086), **Saquib Qureshi**(0827IT161098), **Saiel Wadwekar** (0827IT16094),**Yashasvi Sharma**(0827IT161121), **Yashraj Sharma** (0827IT161122), **Yuvraj Singh Panwar** (0827It161123) is a satisfactory account of the bonafide work, done under the supervision of **Prof. Pawan Gupta**, is recommended towards partial fulfillment for the award of the **Bachelor of Engineering (Information Technology)** degree by **Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal.**

(Project Guide) **(Project Coordinator)**

STUDENTS UNDERTAKING

This is to certify that project entitled "**Automated Lane Simulation**" has developed by us in the supervision of **Prof. Pawan K Gupta**. The whole responsibility of work done in this project is ours. The sole intension of this work is only for practical learning and research. However, we put proper citation remarks in our work. If the same work found then we are liable for explanation to this.

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SUMMARY

Automated Lane Simulation

This project is submitted to Rajiv Gandhi Proudyogiki Vishwavidhyalaya, Bhopal(MP), India for partial fulfilment of Bachelor of Engineering in Information Technology branch under the sagacious guidance and vigilant supervision of **Prof. Pawan Kumar Gupta**.

In this paper, we propose a lane detection method that is suitable for all kinds of complex traffic situations, especially as driving speed in roads is too fast. First, we pre-processed each frame image and then selected the area of interest (ROI) of the processed images. Finally, we only needed edge detection vehicle and line detection for the ROI area. In this study, we introduced a new pre-processing method and ROI selection method. First, in the pre-processing stage, we converted the RGB colour model to the HSV colour space model and extracted white features on the HSV model. At the same time, the preliminary edge feature detection is added in the pre-processing stage, and then the part below the image is selected as the ROI area based on the proposed pre-processing. Compared with the existing methods, the existing pre-processing methods only perform operations such as graying, blurring, X-gradient, Y-gradient, global gradient, thresh, and morphological closure. And the ways to select the ROI area are also very different. Some of them are based on the edge feature of the lane to select the ROI area, and some are based on the colour feature of the lane to select the ROI area. These existing methods do not provide accurate and fast lane information, which increases the difficulty of lane detection. In this paper, experiments show that the proposed method is significantly better than the existing pre-processing method and ROI selection method in lane detection.

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