ROAD LANE LINE DETECTION

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INTRODUCTION

Lane Line detection is a critical component for self-driving cars and also for computer vision in general. This concept is used to describe the path for self-driving cars and to avoid the risk of getting in another lane.

In this project , we will build a machine learning project to detect lane lines in real-time. We will do this using the concepts of computer vision using the OpenCV library. To detect the lane we have to detect the white markings on both sides on the lane.

EXISTING SYSTEM

In the current existing system is permitted only to use in ideal road conditions such as runway. This could not be used in general roads because the edge detection used till now was Simulink Edge Detection which is implemented in MATLAB. The secondary thing is in current system Hough transform Space is only used for angle rotation and has very limited road dataset to detect the objects in single dimension of an image.

PROPOSED SYSTEM

In the proposed system we implementing the technique is used in many self-driving autonomous vehicles as well as line following robots. They can use computer vision technique such as color thresholding to detect the lanes and AI to teach and vehicle to go in a particular lane. Once it sees a lines it will detect which lines it is they can get camera notifications through voice notes. For their we using camera, sensor etc.

The system detecting the obstacles in front of the vehicle.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

- Processor : Intel Pentium and above
- RAM : 4GB or more
- Storage : 40GB hard disk and above

SOFTWARE REQUIREMENTS

- Operating System : Windows 8 or above
- IDE : Pycharm community
- Web Browser : Chrome, Explorer, etc

USER STORY

UserStory_ID	As a <type of user>	I want to	So that I can
1	System User	Frame Capture	Region of interest selection
2	System User	Frame Capture	Grayscaling
3	System User	Frame Capture	Image Enhancement

UserStory_ID	As a <type of user>	I want to	So that I can
4	System User	Frame Capture	Object of Interest Detection
5	System User	Line Detection	Candidate lane location detection
6	System User	Frame Capture	Tracking
7	System User	Obstacle Detection	In front of the obstacle detected
8	System User	Lines Detection	Types of lines detected

UserStory_ID	As a <type of user>	I want to	So that I can
9	System User	Notification	Notification through voice notes in obstacle
10	System User	Notification	Notification through voice notes in lines
11	System User	Deviation	Lines Deviation

PRODUCT BACKLOG

UserStory_ID	Name	Priority
1	Selecting the appropriate testing image	High
2	Preprocessing the selected image	Medium
3	Edge Detection implementation	Medium
4	Hough Transformation	High
5	Evaluating the output	High

PRODUCT BACKLOG

UserStory_ID	Name	Priority
6	Obstacle Detected	Medium
7	Types of Lines detected	High
8	Lines Deviation detected	Medium

PROJECT PLAN

UserStory_ID	Sprint	StartDate	EndDate	Day	Status
1 2 3	Sprint 1	01/02/2023	21/02/2023	21	Completed
4 5 6	Sprint 2	27/02/2023	20/03/2023	21	Completed

PROJECT PLAN

UserStory_ID	Sprint	StartDate	EndDate	Day	Status
7 8 9	Sprint 3	22/03/2023	11/04/2023	21	Planned
10 11	Sprint 4	15/04/2023	05/05/2023	21	Planned

THANK YOU