FINAL YEAR PROJECT REPORT

MERGING REALITY AND DIGITAL CONTENT TO IMPROVE DRIVING EXPERIENCE

In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)

By

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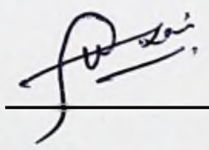
DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Signature : 

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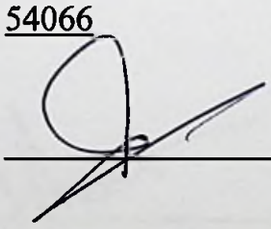
Signature : 

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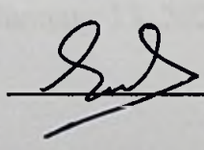
Signature : 

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MERGING REALITY AND DIGITAL CONTENT TO IMPROVE DRIVING EXPERIENCE

ABSTRACT

The objective of this project is to develop dehazing, object recognition and lane recognition algorithms. This report explores different techniques used for the dehazing, recognition of traffic signals/traffic signs and lane recognition to improve driving experience in hazy or hazy weather. Different stages involving image processing occurred in the project many methods and architectures are tested to drive good results. Module by module implementation occurred in the project the first priority and need is to dehaze the image so that the dehazed/cleared image for its further processing to the traffic signals/sign and lane recognition. Haze is the leading cause of car accidents all around the world. Haze is defined as a moisture droplet in the air that hinders visibility. Light scatters between droplets when it hits haze, creating a thick white backdrop. As the number of droplets grows, the haze thickens, making it impossible for a driver to see his surroundings. Because dense haze distorts the light, drivers misunderstand the distance between other cars, traffic signs visibility and traffic signal statuses believing one thing to be far away while it is actually near to them. Driving a car in this situation is exceedingly unsafe. This study tackles the problem and offers a remedy by dehazing the haze in real time with Traffic Signals/Signs Recognition and Lane Assist. Dehazed real-time video can improve the experience of driving by aiding with lane changes and detecting traffic signs and signals. This project uses the Computer visions, deep learning and DCP (Dark Channel Prior) algorithm to develop the program. The main advantage of using this program is that it enhances the driving experience by assisting the driver in hazy weather condition. The program works in step by step prioritized way from dehazing the real-time input to recognition of traffic signals/signs and then lane assist.

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