"Novel Method for Optimizing the Vehicle Edge Detection in Night Captured Noisy Images of Traffic Signal Cameras"

A project report submitted in partial fulfillment
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BY

SANTHOSH B.M (4AI11IS026)
VIBHA S.D (4AI11IS039)
KHUSHNUMA (4AI10IS018)
RAKSHITHA C.R (4AI10IS041)

Under the guidance of
Mr.Nanjesh B.R.B.E.,M.Tech
Assistant professor
Dept. Of IS&E

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING
ADICHUNCHANAGIRI INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belagavi)
Chikkamagaluru, India – 577102

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(Affiliated to Visvesvaraya Technological University, Belagavi)

CHIKKAMAGALURU, INDIA – 577102

DEPARTMENT OF INFORMATION SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project work entitled **"Novel Method for Optimizing the Vehicle Edge Detection in Night Captured Noisy Images of Traffic Signal Cameras"** carried out by **VIBHA S.D (4AI11IS039), SANTHOSH B.M (4AI11IS026), KHUSHNUMA (4AI10IS018), RAKSHITHA C.R (4AI10IS041)** is a Bonafide work of students of 8th semester, in partial fulfillment for **the KSCST student project sanction-38th series, 2014-2015.**

Signature of Guide

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Mr.Nanjesh B.R. B.E,M.Tech

Asst. Professor

Dept. of ISE

Signature of HOD

Mr. Sampath S B.E, M.Tech, (Ph.D)

Assoc. Professor, Dept. of ISE

Signature of Principal

Dr. C. K. Subbaraya M.Sc, PGDCA, Ph.D

Principal

ABSTRACT

Edge detection aims to mark sharp intensity changes in an image and is a basis for a large number of image analysis and machine vision applications. The existing realtime traffic light control system which are based on morphological edge detection is cable of analysing the traffic density properly only during day time. Because the night captured images suffers from various types of noises such as salt and pepper noises, illumination effect due to the street lights, vehicle lights etc. and also there will be insufficient light to capture. It will be not be possible to detect the edges as much as at the day time.

Our project proposes an approach for optimizing the vehicle edge detection in night captured images of traffic signal camera. This is done by applying using suitable filtering techniques. Median filtering is used to remove the noises over the image and it also results in blurring effect. Homomorphic filtering is used to remove illumination effect over the image and also to enhance the edge information. The work is mainly focused for the traffic of towns such as, Chikmagalur, Hassan etc.. since the traffic density is less compared to metropolitan cities, we minimize the edge information by considering only the edges of head lights of the vehicles which are standing at front and outline of the vehicle body especially top view for the vehicles which are standing at front as well for the vehicles standing behind within the camera range. The analysis is made for the single car images for the testing of edge detection as required and then applied for the traffic photos taken at the traffic signal of the Chikmagalur.

Keywords: Fuzzification, Membership Function, Fuzzy Logic, Filtering.