FINAL YEAR PROJECT REPORT

DEVELOPMENT OF WIRELESS CONTROL OF SIGNALS AND CAMERA BASED CONGESTION AVOIDANCE SYSTEM

In fulfillment of the requirement
For degree of
BEE (Electronics)

By

FAZAL UR REHMAN FAISAL	30979	BEE (ELECTRONICS)
M.KASHIF MOBEEN AZHAR	35433	BEE (ELECTRONICS)
AWAIS HAMEED	35388	BEE (ELECTRONICS)
OMER FAROOQ	35435	BEE (ELECTRONICS)

SUPERVISED

BY

ENGR. M. UMAIR ARIF

BAHRIA UNIVERSITY (KARACHI CAMPUS)

Acknowledgements

First of all, we would like to thank **Allah Almighty** for Blessing us with His kind Blessings and Courage to complete this project work successfully.

We take enormous gratification in thanking all the members of **Project Committee of Electrical Engineering Department of Bahria University Karachi Campus** in permitting us to carry out this project.

We wish to express our deep sense of gratitude to our **Project Supervisor Asst Professor Engr. M. Umair Arif** for his able guidance, useful suggestions and valuable assistance, which helped us in a long way to carry out the required work successfully.

We would like to thank **Lecturer Engr. Zaki Masood** and **Junior Lecturer Engr. Yumnah Hassan** for their contribution and valuable technical support on this project.

Specially We would also like to express gratitude to **Dr. Mubarak Ali** HOD of Earth and Environmental Sciences Department for permitting us to work in their lab.

We would also prefer to acknowledge with abundant appreciation the crucial role of **Dr. Haroon Rasheed** HOD of Electrical Department for their positivism, enthusiasm and continuous support.

Finally, yet importantly we would like to express our heartfelt thanks to our beloved parents, our friends, colleagues and class fellows for their kind suggestions and wishes for the successful completion of this project.

Thank You all

Abstract

The transportation system project is based on controlling the traffic lights wirelessly. Currently traffic lights are being controlled manually by traffic police and there is no feedback system of faulty lights. If some light become faulty and is not timely detected, then there is a chance of traffic jam, can cause problems to ambulances or emergency vehicles, and creates panic among people. Secondly, we can now change the traffic signal lights wirelessly from base station depending upon the need of traffic flow.

We developed a wireless traffic controller through which we can check, monitor and control a traffic signal remotely. A Camera is placed on the signal to get live streaming video in the base station over the internet. Different detection algorithms like Haarcascade and blob analysis is applied on the collected datasets while different libraries of deep learning like Tensor Flow, Darknet, Caffe, are applied in respect of the classification of the vehicles in seven different categories like bus, van, rickshaw, hashback, sedan etc. This detection and classification information is fundamental for transportation Tasks.

Table of Contents