**Department of Electrical and Computer Engineering**
**North South University**


## Senior Design Project

# Automatic Vehicle Detection and Counting System for Traffic Analysis

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**Faculty Advisor:**

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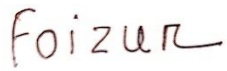
**Lecturer**

**ECE Department**

**Spring, 2020**

# DECLARATION

This is to certify that this project is our original work. No part of this work has been submitted elsewhere partially or fully for the award of any other degree or diploma. Any material reproduced in this project has been properly acknowledged in the bibliography section of this report.



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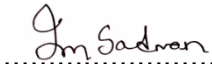

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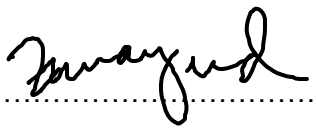
# APPROVAL

Foizur Rahaman ( ID #1620551042 ), Shadat Irtisamul Haque ( ID # 1610835042 ), Muntasir Karim Chowdhury ( ID # 1620633042 ) and Imran Mahmud Sadman ( ID # 1610940042 ) from Electrical and Computer Engineering Department of North South University, have worked on the Senior Design Project titled “Automatic Vehicle Detection and Counting System for Traffic Analysis” under the supervision of Zunayeed Bin Zahir for partial fulfillment of the requirement for the degree of Bachelors of Science in Engineering and has been accepted as satisfactory.

**Supervisor’s Signature**



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**Chairman’s Signature**

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# ACKNOWLEDGEMENT

By kindness of the Almighty we have successfully completed our senior design project entitled “Automatic Vehicle Detection and Counting System for Traffic Analysis”. Our deep gratitude goes first to my faculty advisor Mr. Zunayeed Bin Zahir, who expertly guided us in our senior design project throughout the whole EEE499A and EEE499B. His guidance helped us in all types of research, writings and completing the project. Our sincere thanks also goes to ECE department of North South University for giving us such a platform where we can have an industrial level experience as a part of our academics. Last but not the least, we would like to thank our family as their inspiration and guidance kept us focused and motivated.

## Abstract

Traffic Analysis has been a serious problem that urban planners and engineers are doing research to deal with. They are developing smarter ways to reduce or solve this serious issue. Traffic problems aren't a new issue but it is increasing day by day in many parts of the world due to the increase in vehicles. It is especially very evident in developing countries. Analysis of traffic is very significant and may be used to count the number of vehicles in an area or a lane. Over the time these systems have matured big time and some of them are highly effective, but all of them are not very budget friendly. The Government has to pay a hefty amount of money to maintain these services time and again. Sometimes in a manually traffic controlled area where three or more roads are connected, we see traffic police releasing one of the roads or direction frequently. But, the other direction or lanes are full of vehicles that he does not know. If some device or system could tell him the number of vehicles on the road, that would reduce traffic in that area. This device or system will also help them to take precaution in that particular time to increase traffic police or to take other necessary steps as they will be able to know the rush hours on a daily basis. Therefore, this study has proposed a vision based vehicle counting. We propose a solution which will aim to detect and count vehicles from Surveillance Footage (TSF) or video.