A Deep Learning approach using Action Recognition for Pedestrians & Vehicle Overtaking of Bangladesh Highway Road Dataset & it's Implementation

A thesis submitted to The Department of Electrical and Computer Engineering in partial fulfilment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering

By

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Fall 2022

Declaration

It is hereby acknowledged that:

- No illegitimate procedure has been practiced during the preparation of this document.
- This document does not contain any previously published material without proper citation.
- This document represents our own accomplishments while being Undergraduate Students at North South University

We declare that this CSE499 Senior project report entitled *A Deep Learning approach using Action Recognition for Pedestrians & Vehicle Overtaking of Bangladesh Highway Road Dataset & it's Implementation* has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree. We would like to request you accept this report as a partial fulfilment of the Bachelor of Science degree from the Electrical and Computer Engineering Department of North South University.

Sincerely,

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(Member 1: Signature) **(Date)**

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(Member 2: Signature) **(Date)**

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(Member 3: Signature) **(Date)**

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(Member 4: Signature) **(Date)**

Approval

This is to certify that the CSE499 Senior Project report entitled *A Deep Learning approach using Action Recognition for Pedestrians & Vehicle Overtaking of Bangladesh Highway Road Dataset & it's Implementation* , submitted by Kazi Tamzid Akhter Md Hasib (Student ID : 1620570042), Shams Saniat (Student ID: 1821848042), Iftekhar Islam Khan Pranta (Student ID: 1721194042), A. S. M. Samiul Islam (Student ID: 1921826042) are undergraduate students of the Department of Electrical Computer Engineering, North South University. This report partial fulfilment of the requirement of the Degree of Bachelor of Science in Computer Science and Engineering in September and has been accepted as satisfactory.

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Abstract

Intelligent transportation systems have been met with resounding approval from individuals, governments and automobile manufacturers located all over the globe. The primary problems in the field of intelligent and self-driving & non self driving vehicles are identifying impediments, particularly people, and preventing accidents with them. In order to advance intelligent transportation systems for both self-driving cars and all other manual cars, we focused on using deep learning methods to identify pedestrians. After that, some of the most popular deep learning techniques were covered. The accurate identification of pedestrians in self-built automobiles still has a lot of flaws. This study highlights the challenges the transportation industry faces. The solutions are intended to help reduce traffic, accidents. Large automakers (including Google and Tesla) , working to develop self-driving and non-self-driving vehicles that can transport passengers safely even while the driver is sleepy. Sensors that can sense their surroundings, identify what is close by, and communicate that information to the driver must be installed in these cars. neural networks, which often include several hidden layers and nonlinear processing units, are the basis for most deep learning approaches.