North South University

Department of Electrical and Electronic Engineering

Senior Design Project

Real-Time Face Mask Detection

Spring 2021

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Section	12	
Group No	01	
Date	20-05-2021	
Submitted To	Faculty Advisor Dr. Atiqur Rahman Associate Professor Department of ECE	

LETTER OF TRANSMITTAL

May 20, 2021

To

Dr. Mohammad Rezaul Bari

Associate Professor and Chairman,

Department of Electrical and Computer Engineering

North South University, Dhaka

Subject: Submission of Senior Design Project Report on "Real Time Face Mask Detection."

Dear Sir,

With due respect, we would like to submit Our Senior Design Project Report on "Real Time Face Mask Detection" as a part of our BSc program. The report deals with different data structures, machine learning, open CV, programming language, different tools, and various software engineering techniques. We tried our level best to make the report meaningful and informative.

The Senior Design Project is valuable to us as it helped us gain experience from the practical & theoretical fields. It was a great learning experience for us. We tried to the tremendous competence to meet all the dimensions required from this report.

We will be highly obliged if you are kind enough to receive this report and provide your valuable judgment. It would be our immense pleasure to find this report valuable and informative to have a clear perspective on the issue.

Sincerely Yours,

Md Ijaz Ahmed

ECE Department

North South University, Bangladesh

Md Muanna Zilan

ECE Department

North South University, Bangladesh

Asif Anan

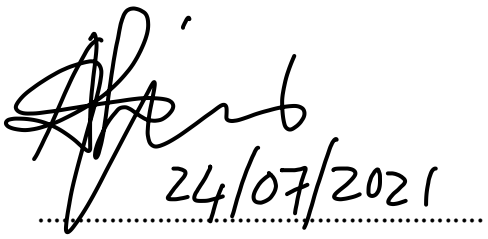
ECE Department

North South University, Bangladesh

APPROVAL

Our Senior Design Project Report on "Real-Time Face Mask Detection" - by Md Ijaz Ahmed (ID # 1620483042), Md Munna Zillan (ID # 1530810042), and Asif Anan (ID # 1621358042) is approved in partial fulfillment of the requirement of the Degree of Bachelor of Science in Computer Science, and Engineering on Spring,2021 and has been accepted as satisfactory.

Supervisor:



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Dr. Atiqur Rahman

Associate Professor

Department of Electrical and Computer Engineering

North South University, Dhaka, Bangladesh.

Department Chair:

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Dr. Mohammad Rezaul Bari

Associate Professor and Chairman,

Department of Electrical and Computer Engineering

North South University, Dhaka, Bangladesh

DECLARATION

This is our truthful declaration that the Senior Design Project Report on "Real-Time Face Mask Detection" we have prepared is not a copy of any "Senior Design Project Report Or Capstone Project Report" previously made by any other team. We also express our honest confirmation in support of the fact that the said: Senior Design Project Report on "Real-Time Face Mask Detection" has neither been used before to fulfill any other course-related purpose nor it will be submitted to any other team or authority in the future. Any material reproduced in this project has been appropriately acknowledged.

Md Ijaz Ahmed

ECE Department

North South University, Bangladesh

Md Muanna Zilan

ECE Department

North South University, Bangladesh

Asif Anan

ECE Department

North South University, Bangladesh

ACKNOWLEDGEMENT

First of all, we wish to express our gratitude to the Almighty for giving us the strength to perform our responsibilities and complete the report.

The Senior Design Project program is beneficial to bridge the gap between theoretical knowledge and real-life experience as part of the Bachelor of Science (BSc) program. This report has been designed to have practical experience through theoretical understanding.

We also acknowledge our profound sense of gratitude to all the teachers who have been instrumental in providing us the technical knowledge and moral support to complete the project with full understanding.

We believe that the "Capstone Program" and its accompanying "Capstone Showcase" are brave undertakings of North South University in nurturing the latent talents of engineering students in Bangladesh. With these activities, we have fully realized our four-year BSc education and its application in real life. Unfortunately, we have missed gaining the chance to show our projects in the "Capstone Program" due to COVID-19. We believe soon everything is going to be expected & these Capstone activities will help our fellow junior.

We would like to convey our gratitude to our faculty Dr. Atiqur Rahman for his stimulating inspiration, thoughtful guidance, valuable suggestions, sagacious advice, and kind co-operation throughout the work undertaken, which has been instrumental in the success of our project. It is often difficult to understand the wide spectrum of knowledge at this level of understanding without proper guidance and advice. His suggestions, guidance, and rigorous help have made the report in an exemplary manner.

We thank our family and friends for their moral support to carve out this project and always offer their support.

ABSTRACT

Nowadays, Covid-19 is a global problem. To ensure safety government announced to wear a face mask for everyone. Everyone should maintain this rule. But some people don't follow this rule. Some people don't wear a face mask when they are in a public spot. And police are also monitoring face mask safety. But the authority can't maintain it all the time. So, we are building an application that will detect the face mask using a camera in real-time. This system's primary goal is to see the face mask using a camera. This system will help the government or the respective authority determine who wears a face mask and who does not wear a mask and take necessary action against those persons. The algorithm is trained to capture facial features in real-time video streams and images and recognize whether everyone's wearing a protective mask with a standard accuracy rate. Equally useful for both individual and group detection, our face mask detection system can supplement or reduce the number of enforcement agents on the ground. After performing the initial analysis, the system classifies every person as "wearing a mask" or flags as "not wearing a mask" and sends an instant alert, so we can take further action — dispatch a public audio announcement, send a custom message to a digital screen, or a personalized message to the person's phone. Proactively manage and correct visitors' behavior while remaining compliant with privacy regulations.