

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



Senior Design Project

Reconstructing Better Audio by Using Spatial Microphone

Name: Md Mantasarul Elahi

ID: 151 2518 042

Faculty Advisor:

Dr. Mohammad Ashrafuzzaman Khan

Assistant Professor

Department of ECE

Summer 2019

LETTER OF TRANSMITTAL

September, 2019

To,

Dr. K. M. A. Salam

Professor and Chairman,

Department of Electrical and Computer Engineering,

North South University, Dhaka.

Subject: Submission of Capstone Project on “Reconstructing Better Audio by Using Spetial Microphone”.

Dear Sir,

With due respect, I would like to submit out **Capstone Project Report** on “*Reconstructing Better Audio by Using Spetial Microphone*” as a part of my BSc program. The report deals with the idea of reconstructing better audio captured with numerous recording devices by reducing unwanted noises found in the audio stream. This process of work would be helpful for people who likes to work with sound and make their task easier. People won’t need to manually process the audio clips in order to get a decent audio experience. I tried my level best to make the report meaningful and informative.

The Capstone project was very much valuable to me as it helped me to gain experience from practical field. It was a great learning experience for me. I tried to the maximum competence to meet all the dimensions required from this report.

I will be highly obliged if you are kind enough to receive this report and provide your valuable judgement. It would be an immense pleasure if you find the report useful and informative to have an apparent perspective on the issue.

Sincerely Yours,

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Md Mantasarul Elahi
Department of ECE
North South University, Bangladesh

APPROVAL

The Capstone project entitled “Reconstructing Better Audio by Using Special Microphone” by Md Mantasarul Elahi (ID: 151 2518 042), is approved in partial fulfillment of the requirement of the Degree of Bachelor of Science in Computer Science and Engineering on September, 2019 and has been accepted as satisfactory.

Supervisor:

Dr. Mohammad Ashrafuzzaman Khan

Assistant Professor

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh

Department Chair:

Dr. K. M. A. Salam

Professor and Chairman

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh

DECLARATION

This is a truthful declaration that the “**Capstone Project Report**” I have prepared is not a copy of any “**Capstone Project Report**” previously made by any other team. I also express my honest confirmation in support of the fact that the said “**Capstone Project Report**” 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.

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Md Mantasarul Elahi
Department of ECE
North South University, Bangladesh

ACKNOWLEDGEMENT

First of all, I wish to express my gratitude to the Almighty for giving me the strength to perform the responsibilities and complete the report.

Foremost, I would like to express my sincerest gratitude to my supervisor Dr. Mohammad Ashrafuzzaman Khan for his continuous support in my project throughout the whole CSE499A and CSE499B courses, for his patience, motivation, enthusiasm and knowledge. His guidance helped me all in the research, writing and completion of this project.

My sincerest appreciation also goes to North South University, Dhaka, Bangladesh for providing an opportunity in our curriculum while enabled us to have industrial level experience as part of our academics.

ABSTRACT

This article describes the design and implementation of a program that is capable of taking audio from multiple sources and using two filters, it will create the best possible version of the audio that is possible. Firstly, after taking in audio from multiple audio recording sources, it will firstly go through 'Unwanted Noise Reduction Filter' and its product will be a noise reduced output. After going through the first filter, the audio files will be filtered once again using 'Voice Enhancement Filter' and will produce an enhanced output. Lastly, all the audio files will be combined using 'Audio Merging Process' to produce the final output of the best possible version of the audio that has been recorded