Department of Electrical and Computer Engineering
North South University

Senior Design Project

Assistive App for Visually Impaired People

Arham Chowdhury **ID# 1931861642**

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Faculty Advisor:

Dr. Shahnewaz Siddique

Associate Professor

ECE Department

Summer, 2023

LETTER OF TRANSMITTAL

November, 2023

To

Dr. Rajesh Palit
Chairman,
Department of Electrical and Computer Engineering
North South University, Dhaka

Subject: **Submission of Capstone Project Report on "Assistive app for Visually impaired people"**

Dear Sir,

With due respect, we would like to submit our **Capstone Project Report** on "**Assistive App for Visually Impaired People**." This detailed report delves into the integration of deep learning and Android development techniques, showcasing the creation of a versatile solution. Throughout this project report, we reflect on the invaluable experience gained as we applied theoretical knowledge in a practical setting, contributing to our skills in real-world application development

We will be highly obliged if you kindly receive this report and provide your valuable judgment. It would be our immense pleasure if you find this report useful and informative to have an apparent perspective on the issue.

Sincerely Yours,

Arham Chowdhury
.....
Student Name1
ECE Department
North South University, Bangladesh

Tasnuva Nawar
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Student Name2
ECE Department
North South University, Bangladesh

Saifuzzaman
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Student Name3
ECE Department
North South University, Bangladesh

Sumiya Sultana
.....
Student Name4
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North South University, Bangladesh

APPROVAL

Student Name Arham Chowdhury (ID # 1931861642), Student Name Tasnuva Nawar (ID # 1931816642), Student Name Saifuzzaman (ID # 1931406042) and Student Name Sumiya Sultana (ID # 1931277642) from Electrical and Computer Engineering Department of North South University, have worked on the Senior Design Project titled "Assistive app for Visually impaired people" under the supervision of Dr. Shahnewaz Siddique partial fulfillment of the requirement for the degree of Bachelors of Science in Engineering and has been accepted as satisfactory.

Supervisor's Signature

…….

Dr. Shahnewaz Siddique

Associate Professor

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh.

Chairman's Signature

…….

Dr. Rajesh Palit

Professor

Department of Electrical and Computer Engineering

North South University

Dhaka, Bangladesh.

DECLARATION

This is to declare 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. All project related information will remain confidential and shall not be disclosed without the formal consent of the project supervisor. Relevant previous works presented in this report have been properly acknowledged and cited. The plagiarism policy, as stated by the supervisor, has been maintained.

Students' names & Signatures

Arham Chowdhury

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1. Student Name1

Tasnuva Nawar

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2. Student Name2

Saifuzzaman

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3. Student Name3

Sumiya Sultana

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4. Student Name4

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ABSTRACT

Assistive app for Visually impaired people

Monetary transactions are an indispensable part of our day to day activities. In case of a large amount of cash transaction, human error is a matter of concern. Thus the need for an efficient automated system for currency recognition has become significant these days. The challenge of currency recognition and object detection remains a significant obstacle for individuals with visual impairments. This issue is particularly pronounced in developing nations, where robust currency recognition systems are scarce. Recent research efforts have sought to address this issue, focusing on the complexities posed by the gradual degradation of currency notes over time. Recognizing currency notes has become increasingly complex due to wear and tear. Notably, the development of currency recognition systems adjust to the needs of visually impaired individuals in Asian countries has been relatively limited. To address this challenge, research has been conducted, leading to the forthcoming implementation of a practical application featuring two core components: an Image Classification Module and a Text-to-Speech Module. The primary hurdle in both modules is to enhance accuracy by using deep learning techniques. This initiative represents a crucial step in improving accessibility for visually impaired individuals, especially in regions with limited resources. The trained deep learning model achieved a remarkable 91% accuracy, indicating the convergence of the model during the validation process. This outcome signifies a significant advancement in providing accurate and reliable currency recognition and object detection for visually impaired users.