



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

Senior Design Project

Kotha: An App for Communicating with Deaf & Dumb Using CNN

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DECLARATION

We, hereby, declare that the work presented in this report is the outcome of our eight months of work performed under the supervision of Tanjila Farah, Department of Electrical and Computer Engineering, North South University, Dhaka, Bangladesh. The work was spread throughout one of the final year courses, CSE 499, Senior Design Project, following the course curriculum of the Department for the Bachelor of Science in Electrical and Electronics Engineering program. We pledge that there is no similarity with this work and any other work we know of.

Students' name & signature:

Fozle Rabbi

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APPROVAL

The senior project report on 'Kotha: An App for Communicating with Deaf & Dumb Using CNN' has been submitted by Afsana Rahman (ID #1430458042), Fozle Rabbi (ID #1610737042), Takria Mahadi Aurnob (ID #1520859042), students of the Department of Electrical and Computer Engineering, North South University, Bangladesh. This report partially fulfills the requirement for the degree of Bachelor of Science in Electrical and Electronics Engineering in December 2019 and has been accepted as satisfactory.

Supervisor's Signature

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ABSTRACT

There are people around us who can't talk or listen and sometimes both. Few of them are by birth and others became like this due to injuries or accidents. This inspired us to create a project that can help hearing-impaired and mute people to communicate with others. We used the Convolutional Neural Network(CNN) to train our model and OpenCV to create our gestures. We created 36 gestures with 50x50 resolution where there are 1200 images for each gesture. These pictures were then flipped using `flip_image.py`. This script flips every image along the vertical axis. The model was trained multiple times for an accurate result. For the app, we used TensorFlow Lite to convert our model to be usable on mobile devices. TensorFlow Lite allows pre-trained models to be used in Android apps.