Department of Electrical and Computer Engineering
North South University

Senior Design Project

5G Network Based Smart Web-Assistant System for The Academic Activities of NSU Students

Sadman Sakib Nobel	**ID # 1530445043**
Sium Ahmed	**ID # 1610861042**
Atkeya Amena	**ID # 1620141042**

Faculty Advisor:

Mr. Zunayeed Bin Zahir

Lecturer

ECE Department

Summer, 2021

Declaration

This is to declare that no part of this report or the project has been previously submitted elsewhere to fulfill any other degree or program. Proper acknowledgment has been provided for any material that has been taken from previously published sources in the bibliography section of this report.

....
Sadman Sakib Nobel
ECE Department
North South University, Bangladesh

....
Sium Ahmed
ECE Department
North South University, Bangladesh

....
Atkeya Amena
ECE Department
North South University, Bangladesh

Approval

The Senior Design Project entitled "**5G Network Based Smart Web-Assistant System for the Academic Activities of NSU Students'**" by Sadman Sakib Nobel (ID#1530445043), Sium Ahmed (ID#1610861042), and Atkeya Amena (ID#1620141042) has been accepted as satisfactory and approved for partial fulfillment of the requirement of BS in CSE and EEE degree program on September 2021.

Supervisor's Signature

Zunayeed Bin Zahir
Lecturer
Department of Electrical and Computer Engineering
North-South University
Dhaka, Bangladesh.

Department Chair's Signature

Dr. Mohammad Rezaul Bari
Associate Professor & Chair
Department of Electrical and Computer Engineering
North-South University
Dhaka, Bangladesh.

Acknowledgment

First of all, we would like to express our profound gratitude to our honorable course instructor, **Mr. Zunayeed Bin Zahir**, for his constant and meticulous supervision, valuable suggestions, patience, and encouragement for the project.

We would also like to thank the ECE department of North South University for providing us with the opportunity to have an industrial-level design experience as part of our curriculum for the undergraduate program.

Finally, we would like to thank our families and everybody who supported us and provided us with guidance to complete this project.

Abstract

Due to high demand of data, 5G is at large in its application for its feature of support high data rate bandwidth. This report suggests that by using 5G we will be able to build a system which will solve the campus problems of the student of the North South University. It's a web application that works with a high bandwidth network. In this case, it's a 5G network-based web assistant system for the academic activities of NSU students. This web application can transmit a massive data size through the 5G network into the user's device. The web application has a secure backend for user authentication. And the user interface is built on a react library which will provide a real-time seamless user experience. It will be seamless as any android or iOS application. The web application will feature a user location-based map system which will provide the user the data of his everyday needs inside the north-south university campus. We also categorized the map interface into three specific categories according to the NSU campus architecture. The categories are accessible to the users. An in-campus high bandwidth network was used to push this data into the user interface for every user. There will be a 5G network-based high bandwidth antenna in every corner of the campus, which will provide users with a real-time fast data fetching experience. For the data, the web app uses an RFID reader, fingerprint reader, to collect the data from the source. The key idea is to get the data from one end and push it to the other end, which are the students. Being a web application, users can get access through any network.