Department of Electrical and Computer Engineering
North South University

Senior Design Project

The Prediction of Stock Market Using Recurrent Neural Network

Sadman Bin Islam **ID # 1611957042**

Mohammad Mahabubul Hasan **ID # 1421274042**

Faculty Advisor

Dr. Mohammad Monirujjaman Khan

Associate Professor

ECE Department

Spring, 2021

DECLARATION

This is to certify 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. Any material reproduced in this project has been properly acknowledged.

Students' name & Signature

1. **Sadman Bin Islam**

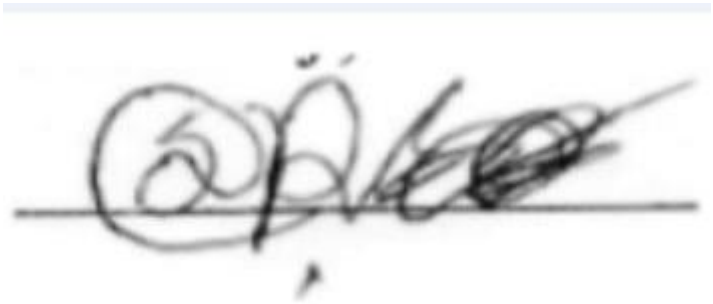
Sadman

Mahabub

APPROVAL

The capstone project entitled "**The Prediction Of Stock Market Using Recurrent Neural Network**" by **Sadman Bin Islam (ID#1611957042) and Mohammad Mahabubul Hasan (ID#1421274042)** is approved in partial fulfillment of the requirement of the Degree of Bachelor of Science in Computer Science and Engineering on May and has been accepted as satisfactory. 3

Supervisor's Signature



Dr Mohammad Monirujjaman Khan
Associate Professor
Department of Electrical and Computer Engineering
North South University
Dhaka, Bangladesh.

Department Chair's Signature

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

ACKNOWLEDGMENT

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 capstone project program is very helpful to bridge the gap between the theoretical knowledge and real life experience as part of Bachelor of Science (BSc) program. This report has been designed to have a practical experience through the theoretical understanding.

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

It is imperative to show our appreciation for our honorable faculty member Dr. **Mohammad Monirujjaman Khan** for his undivided attention and help to achieve this milestone. Also, our gratefulness is divine to the North South University, ECE department for providing us a course such as CSE 499 in which we could really work on this project and materialize it the way we have dreamt of.

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

ABSTRACT

Stock price forecasting is becoming increasingly popular recently in the financial realm. Shares price prediction is important for increasing the interest of speculators in putting money in a company's stock in order to grow the number of shareholders in the stock. Successfully predicting the future price of a stock could result in a sizable return. When it involves forecasting, various methodologies are used. This report uses a replacement stock price prediction framework is proposed utilizing a well-liked model which is Recurrent Neural Network (RNN) model i.e., Long Short-Term Memory (LSTM) model. It is often shown from the simulation results that utilizing these RNN models, i.e., LSTM, and with proper hyper-parameter tuning, the proposed scheme can forecast future stock trend with high accuracy. The RMSE for LSTM model was measured by varying the number of epochs, difference between predicted stock price and actual stock price. The model is trained and evaluated for accuracy with various sizes of knowledge. The assessments are conducted by utilizing a freely accessible dataset for stock markets having date, volume, open, high, low, and closing prices. The major goal of this article is to determine to what degree a Machine Learning algorithm can anticipate the stock market price with greater accuracy.