Department of Electrical and Computer Engineering
North South University

Senior Design Project

Chronic Kidney Disease Prediction Using Machine Learning

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Associate Professor

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Fall, 2022

LETTER OF TRANSMITTAL

June, 2023

To

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

Subject: **Submission of Capstone Project Report on "Chronic Kidney Disease Prediction Using Machine Learning"**

Dear Sir,

With due respect, we would like to submit our **Capstone Project Report** on **"Chronic Kidney Disease Prediction Using Machine Learning"** as a part of our BSc program.

Chronic Kidney Disease (CKD) affects over 10% of the global population, with significant implications for public health. It's projected to become a leading cause of mortality. Detecting CKD early is crucial, and this work proposes using machine learning to predict the disease's presence. The document outlines related research, system design, impact analysis, ethics, tools, results, and conclusions.

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,

.....
Md Gulam Rahman
ECE Department
North South University, Bangladesh

.....
Bishal Bhowmik
ECE Department
North South University, Bangladesh

.....
Joy Chandra Saha
ECE Department
North South University, Bangladesh

.....
Fairooz Nawar
ECE Department
North South University, Bangladesh

APPROVAL

This CSE499A and B report entitled **Chronic Kidney Disease Prediction Using Machine Learning** has been submitted by **Md Gulam Rahman** (Student ID: 1831112042), **Joy Chandra Saha** (Student ID: 1831563042), **Bishal Bhowmik** (Student ID: 1831047042) and **Fairooz Nawar** (Student ID: 1831244042), who are undergraduate students of the Department of Electrical Computer Engineering. This report partially fulfills the requirements for the degree of Bachelor of Science in Computer Science and Engineering. It has been accepted as satisfactory and is being submitted on 25th December 2022.

Supervisor's Signature

…….

Dr. Mohammad Ashrafuzzaman Khan

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

Md Gulam Rahman

Bishal Bhowmik

Joy Chandra Saha

Fairuz Nawar

ACKNOWLEDGEMENTS

The authors would like to express their heartfelt gratitude towards their project and research supervisor, Dr. Ashrafuzzaman Khan, Associate Professor, Department of Electrical and Computer Engineering, North South University, Bangladesh, for his invaluable support, precise guidance and advice pertaining to the experiments, research and theoretical studies carried out during the course of the current project and also in the preparation of the current report.

Furthermore, the authors would like to thank the Department of Electrical and Computer Engineering, North South University, Bangladesh for facilitating the research. We would also like to thank my friends Md Gulam Rahman, Joy Chandra Saha,Bishal Bhowmik and Fairooz Nawar for helping us in this project. The authors would also like to thank their loved ones for their countless sacrifices and continual support.

ABSTRACT

Chronic Kidney Disease Prediction Using Machine Learning

Chronic Kidney Disease (CKD) is a widespread and serious global health issue affecting more than 10% of the population. Its progression often goes unnoticed until late stages due to slow development and minimal symptoms. This work aims to predict CKD using various machine learning models, such as logistic regression, K Nearest Neighbor, and Decision tree algorithms. The document presents related research, system design, impact assessment, ethical considerations, tools employed, and concludes with results and insights. Early detection through machine learning can significantly improve preventive measures and overall health outcomes.