

CarKoto

Bangladesh Used Car Buy And Sell Platform And Price Prediction Using Machine Learning.

Project Team

Sabrina Jahan Akhi 1821164042
Abdullah Nafis Chowdhury 1921081042
Sayem Ahmed Sajil 1921449642

Session Spring 2023

Supervised by
Dr. Mohammad Abdul Qayum



Department of Electrical and Computer Engineering

**North South University
Bashundhara, Dhaka, Bangladesh**

November, 2023

Student's Declaration

We declare that this project titled “Bangladesh Used Car Price Prediction Using Machine Learning and Buy and Sell Platform.”, submitted as requirement for the award of degree of Bachelors in CSE 499 Senior Design, does not contain any material previously submitted for a degree in any university; and that to the best of our knowledge, it does not contain any materials previously published or written by another person except where due reference is made in the text. We understand that the management of Department of Electrical and Computer Engineering, North South University, has a zero tolerance policy towards plagiarism. Therefore, We, as authors of the above-mentioned thesis, solemnly declare that no portion of our thesis has been plagiarized and any material used in the thesis from other sources is properly referenced. We further understand that if we are found guilty of any form of plagiarism in the thesis work even after graduation, the University reserves the right to revoke our BS degree.

Sabrina Jahan Akhi

Signature: _____

Abdullah Nafis Chowdhury

Signature: _____

Sayem Ahmed Sajil

Signature: _____

Verified by Plagiarism Cell Officer
Dated:

Certificate of Approval



The Department of Electrical and Computer Engineering, North South University Sciences, accepts this thesis titled Bangladesh Used Car Price Prediction Using Machine Learning and Buy And Sell Platform., submitted by Sabrina Jhana Akhi 1821164042, Abdullah Nafis Chowdhury 1921081042, and Sayem Ahmed Sajil 1921449642, in its current form, and it is satisfying the dissertation requirements for the award of Bachelors Degree in CSE 499 - Senior Design.

Supervisor

Dr. Mohammad Abdul Qayum

Signature: _____

FYP Coordinator
North South University, Bashundhara, Dhaka

Dr. Rajesh Palit
HoD of Department of Electrical and Computer Engineering
North South University

Contents

1	Introduction	7
1.1	Background and Motivation	7
1.2	Purpose and Goal of the Project	7
1.3	Organization of the Report	8
2	Research Literature Review	9
2.1	Existing Research and Limitation	9
3	Platforms and Diagrams	12
3.1	Hardware and/or Software Components	12
3.2	System Design	13
3.3	Hardware and/or Software Implementation	14
3.4	Website Design Templates	14
3.4.1	Landing Page	14
3.4.2	Sign Up	15
3.4.3	Login	15
3.4.4	Homepage	16
3.4.5	About	17
3.4.6	Contact	17
3.4.7	Car Price Prediction	18
3.4.8	Predicted Price	18
3.4.9	Car Sell	19
3.4.10	Car Ads	20
3.4.11	e-Garage	20
4	Investigation/Experiment, Result, Analysis and Discussion	21
4.1	Dataset Collection	21
4.2	Methodology	21

4.3	Jupyter Notebook Experimentation	22
4.3.1	Dataset:	22
4.3.2	Exploratory Data Analysis:	23
4.4	Data Preprocessing	26
4.4.1	Registration & Selling Price	26
4.4.2	Model Year & Selling Price	26
4.4.3	Model Year & Mileage	27
4.5	Cleaning Data & Removing Outliers	27
4.6	Converting Categorical Features to Numbers:	28
4.7	Splitting dataset into Train & Test Set:	29
4.8	Heatmap Correlation	29
4.9	Models Execution & Result:	30
4.9.1	Different AI Competitive prices with CarKoto	34
5	Impact of the project	35
5.1	Impact of this project on societal, health, safety, legal and cultural issue	35
5.2	Impact of this project on environment and sustain- ability	37
6	Project Planning and Budget	39
7	Complex Engineering Problems and Activities	41
7.1	Complex Engineering Problems (CEP)	41
7.2	Complex Engineering Activities (CEA)	42
8	Conclusion	44
8.1	Summary	44
8.2	Limitations	44
8.3	Competitors of this project	45
8.4	Future Improvement Plans	45

List of Figures

3.1	Structured Outline For Proposed Methodology	13
3.2	Landing Page	14
3.3	Sign Up	15
3.4	Login	15
3.5	Homepage	16
3.6	About	17
3.7	Contact	17
3.8	Car Price Prediction	18
3.9	Predicted Price	18
3.10	Car Sell	19
3.11	Car Ads	20
3.12	e-Garage	20
4.1	Dataset	22
4.2	Body Type	23
4.3	Fuel Type	23
4.4	Transmission	24
4.5	Registration	24
4.6	Categorical features relationship with price	25
4.7	Data Preprocessing	26
4.8	Model Year & Selling Price	26
4.9	Model Year & Mileage	27
4.10	Cleaning Data & Removing Outliers	28
4.11	Converting Categorical Features to Numbers:	28
4.12	Splitintg dataset into Train & Test Set	29
4.13	Heatmap Correlation	29
4.14	Models Execution & Result	30
4.15	Model	33

Chapter 1

Introduction

1.1 Background and Motivation

Buying a Brand New Car in Bangladesh is quite an impossible task for the majority of people. Bangladesh is a densely populated country and we face huge traffic congestion on the road because of a higher quantity of private vehicles. That is why our government has taken a decision of improvising higher taxes on brand new and reconditioned vehicles and for this many people can't afford to get a brand new or reconditioned car. That is why we are observing that many people are now shifting to buy used cars in Bangladesh. But as the demand for used cars is increasing day by day, the price of used cars is also increasing. Moreover, some people who do used car selling business are asking too much more than they used to. For this we came up with an idea of using artificial intelligence to predict the price of the car depending on the features it has. This will make it easier for the public to investigate the car price before they go to purchase it. This will reduce the risk of getting scammed from the fake used car market.

1.2 Purpose and Goal of the Project

The Bangladesh Used Car Price Prediction and Buy and Sell Platform is an innovative and user-centric online service that leverages the power of machine learning to provide accurate price predictions for pre-owned vehicles in the Bangladesh market. This platform not only serves as a valuable resource for individuals looking to buy or