

Title: Predicting Pre-Owned Bike Values with Machine Learning Techniques in Bangladesh

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Abstract: As the importance of sustainable practices in the automobile sector grows, it's critical to anticipate motorcycle prices and offerings. With so many variables to consider when buying a secondhand motorcycle-condition, mileage, brand reputation, model characteristics, etc.-accurate pricing prediction is essential for both customers looking for good values and sellers hoping to maximize profits. This study investigates the effectiveness of four machine learning techniques Decision Tree models, Support Vector Regression (SVR), K-Nearest Neighbors (KNN), and Stochastic Gradient Descent (SGD) Regressions-in predicting motorcycle prices using a dataset obtained from motorcycle merchants. It's noteworthy that these methods are used with a hybrid architecture to improve prediction accuracy. Different approaches are compared and contrasted to find the best fit for the given dataset, and the difficulties and roadblocks that come with them are also discussed. After extensive testing, the decision tree model's effectiveness is shown with an amazing 97% accuracy rate, providing accurate price estimates that are essential for encouraging sustainable habits in the ever-changing Internet of Things environment. With an impressive accuracy rate, this methodology provides precise pricing estimations, which are critical for supporting sustainable practices in the automotive industry.

Key words: Support vector machines , Industries , Accuracy , Motorcycles , Stochastic processes , Pricing

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