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Predictive analysis of electric vehicle prices across various car brands in Germany

Zhi Lin Lee[1] · **Nur Haizum Abd Rahman**[1] · **Jim Chong**[2]

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Abstract
Diverse factors influencing electric vehicle (EV) pricing pose significant challenges for manufacturers, consumers, and policymakers. Hence, manufacturers need help to develop competitive pricing strategies, promote market growth, and consumer confidence. Bridging this knowledge gap is essential for fostering a more transparent and effective EV market, necessitating comprehensive research to identify pricing influencers and provide actionable insights for stakeholders. This project utilizes a data science methodology to investigate factors influencing EV prices, predict new EV prices using machine learning techniques, linear regression, and support vector regression (SVR), and assess prediction accuracy through magnitude error. Data for analysis are sourced from Germany, Cheapest Electric Cars 2023 dataset. The results show significant correlations between EV prices and technological features; TopSpeed and Useable batteries show a positive correlation of 0.78 with prices in Germany, indicating that improvements in these features drive up EV costs. In prediction, linear regression is much more reliable than SVR in predicting EV prices. These findings are expected to give stakeholders actionable insights to comprehend market dynamics and enhance pricing strategies within the EV industry.

Keywords Electric vehicles · Price · Predictive model · Machine learning

Nur Haizum Abd Rahman and Jim Chong contributed equally to this work.

✉ Nur Haizum Abd Rahman
haizum@umpsa.edu.my

Zhi Lin Lee
zhilin0228@gmail.com

Jim Chong
jim@crcg.com.my

[1] Centre for Mathematical Sciences, Universiti Malaysia Pahang Al-Sultan Abdullah, Lebuh Persiaran Tun Khalil Yaakob, 26300 Kuantan, Pahang, Malaysia

[2] Cardas Research & Consulting Group, Jalan PJU 1/39, Dataran Prima, 47301 Petaling Jaya, Selangor, Malaysia

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