

ABSTRACT

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Development of a cushion shade recommendation website based on skin tone and undertone analysis using the K-Nearest Neighbor (KNN) method

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(xiv + 88 + Appendix)

Selecting a cushion product that matches your skin tone and undertone is often a challenge for consumers, especially when shopping online without the ability to try the product in person, which can result in makeup that doesn't match the user's natural skin tone. This study aims to develop a web-based cushion recommendation system called MyShade that can classify skin tone and automatically determine a user's skin tone and undertone from facial images. The method used for skin color classification is K-Nearest Neighbor (KNN) with a K value of 5, while undertone determination is performed using a rule-based approach based on the threshold values of the RGB color components extracted from the image. The system was built using Laravel, Python, and a MySQL database, with a Bootstrap 5-based interface. Test results showed that the skin color classification model achieved 73.10% accuracy and 72.22% undertone accuracy using the rule-based method. The system was successfully implemented and deployed using Railway's hosting service, making it accessible online at <https://myshade.up.railway.app>. This system allows users to receive more accurate cushion recommendations tailored to their individual skin characteristics.

Bibliography (2021–2026)