

Color Detection using K-Nearest Neighbour

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Abstract: *In the digital and real-world applications, precise color recognition and detection are crucial for tasks such as image analysis, object identification, and human-computer interaction. This paper presents an approach to color detection using the K-Nearest Neighbors (KNN) algorithm, leveraging a dataset that includes Hex Code, Red, Green, Blue (RGB) values, and Color Names. By converting color values into RGB coordinates, we train a KNN model to classify and predict the closest matching color based on Euclidean distance metrics. This method offers a computationally efficient, non-parametric approach to color recognition that allows for real-time processing and adaptability across various lighting conditions and devices. Our experiments demonstrate that KNN achieves high accuracy in color detection tasks, providing an effective solution for applications in computer vision, e-commerce, and augmented reality. The model's performance, combined with its simplicity, illustrates the potential for KNN-based color detection to enhance color-sensitive applications with minimal computational overhead.*

Keywords: Color Detection, K-Nearest Neighbour, RGB Classification, Machine Learning