Facial Expression Detection to Measure Customer Satisfaction Levels Using Convolutional Neural Network Method

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ABSTRACT

The primary focus on enhancing customer satisfaction and service quality lies in the customer satisfaction system using Convolutional Neural Network (CNN). This method enables the real-time detection of customers facial expression to evaluate their satisfaction levels. Three types of datasets are utilized in this research to train various CNN models: primary, secondary, and mixed datasets. The results of multiple trials conducted reveal that the CNN From the Scratch 3 model, trained on a mixed dataset divided into an 80:20 ratio for training and testing data respectively, achieves an accuracy of 90,43% for training and 90,46% for testing. User Acceptance Testing (UAT) trials of the customer facial expression detection website demonstrated a success rate of 88%, indicating a relatively high level of acceptance among users for the customer expression detection website. The time required to detect customer facial expression is 30 seconds, as directly tested in the shop.

Keywords: *Convolutional Neural Network (CNN), Deep Learning,* Customer Satisfaction, *Facial Expression*