Universiti Teknologi MARA

# Facial Expression Type Recognition using K-Nearest Neighbor Algorithm

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# ABSTRACT

Customer satisfaction measurement is one of the most crucial ways to identify and improve the business strategy of the organization and the department that involved is in the customer service management. One of the methods to measure the customer satisfaction is by trying to measure the customer emotional aspect. Therefore, it is important to identify customer expression about the services provided and this can be solved using the facial expression recognition to get an accurate measurement of the customer satisfaction. The facial expression consists of three steps that are face detection, facial feature extraction, and classification of feature extraction. The main problem that occurs in measurement the customer satisfaction is the problems with the survey content and the way of the customer respond with the services that lead to an inaccurate customer satisfaction measurement. In this proposed project, the classification step is being focused on and become the main objective. The k-Nearest Neighbor classifier is applied as the classification algorithm. The confusion matrix calculation is used to measure the accuracy of k-NN classifier. Based on this calculation, the accuracy of this algorithm is 93% using the $k$ values of 5. The future work that continue based on this project proposed is by study and applied other type of algorithm that can produce the high performance and accuracy of classification of facial feature for facial expression recognition.

# TABLE OF CONTENTS

## CHAPTER THREE: METHODOLOGY



## CHAPTER FOUR: RESULTS AND FINDINGS