

## Abstract

*The facial expression recognition system is a useful system to assist users in recognizing human facial expressions of the given image. The facial expressions describe the condition of human emotions. Some research on the recognition of human facial expression has been done using specific parameters. However, the search of the facial features feature in facial expressions is still a problem because in fact most of the human facial expressions can be seen from some facial muscles around the mouth, nose, and eyes.*

*This facial expression recognition system is consists of data collection and reference phases, finding region that influences the facial recognition process phases, and the implementation phase of facial expression recognition using the selected region. At the stage of finding the best region, research begins by calculating the accuracy for each region on the face. The results of the study will be obtained a number of region that have the highest accuracy. Finding best region stage and implementation is not much different. The process is preprocessing, feature extraction, and classification. The process of feature extraction is done by using the Local Binary Pattern (LBP) method because the factor that distinguishes facial expressions is the texture of the image. The method of classification used is K-Nearest Neighbor.*

*The study of facial expression recognition by exploring the commonalities among the expressions show that the best region or region for this study is 48 regions or 75% of the total region. The 48th regions is combined with radius=3 on the Local Binary Pattern,  $k = 3$  values in KNN, and 64 number of bin LBP's histograms.*

**Keyword:** *facial expression, local binary pattern, k-nearest neighbor, region.*