

ABSTRACT

Weather is a natural phenomenon that has an impact on humans. Extreme weather can cause natural disasters that are very detrimental to humans. Information about weather conditions is needed by humans. This information is very useful for living everyday life. Current classification systems rely on a series of expensive sensors or human assistance.

This study classifies weather conditions using the Principal Component Analysis (PCA) and K-Nearest Neighbor (KNN) methods. This process utilizes Principal Component Analysis (PCA) to reduce data to be more effective. And using K-Nearest Neighbor (KNN) to classify the data. K-Nearest Neighbor (KNN) uses distance to classify data. The selected distance is the shortest distance that will show neighbors to produce output whether the weather is sunny, cloudy, foggy, rainy and sunrise.

Based on the results of the study, the weather classification system was obtained using the Principal Component Analysis (PCA) and K-Nearest Neighbor (KNN) methods with an accuracy of 87.50%. The accuracy results were obtained when 450 test data and 1050 training data were used. The best parameters generated, namely the image size 256 x 256, the type of KNN is Cosine, the value of KNN is at $k = 9$, and the PCA percentage is 30%.

Keywords: Weather Classification, Principal Component Analysis (PCA), K-Nearest Neighbor (KNN)