ABSTRACT

The heart sound coming from the patient is observed using a stethoscope, which is a medical tool to determine the patient's condition. The technique for this observation is called auscultation. The sound produced describes the condition of a person's heart. Normal heart sound models are usually compared to abnormal sound models. If there are differences in the sound model or there are additional sounds that appear, there is usually an abnormality in the heart.

The development of various methods has been carried out by previous research and medical devices have been developed to observe heart sounds. The purpose of this study is to demonstrate the use of Short-Time Fourtier Transform (STFT) and feature extraction of the Gray Level Difference Method (GLDM) to classify normal and abnormal heart sounds. In the classification process, this study uses texture feature extraction using the second-order statistical feature extraction method. The technique is carried out by calculating the probability of the relationship between pixels in various orientations and spatial distances (d), based on an analysis based on a shift in direction/angle of 0^0, 45^0, 90^0, and 135^0. The sample data are data sets of normal and abnormal heart sounds. For the accuracy of the classification features used, the KNN uses distance to measure the convenience of the data and measures it using the K number of training data values that are closest to the test data. With the KNN algorithm, the classification accuracy is 73.3333% with d=1 and k=5.

Keywords: *heart sound, STFT, GLDM, texture analysis.*