ABSTRACT

Aphthous Stomatitis Recurrent (SAR) is an ulcerative condition in the oral cavity commonly called thrush. SAR can attack the inner cheek mucous membranes, gums, and the inside of the oral cavity. Although this disease is not dangerous but challenges it in the oral cavity which is very difficult, making it difficult to eat, talk and move. Therefore, a system that can help the oral cavity is needed so that it can help the doctor's work.

In this Final Project (TA) a system has been designed that can facilitate infection of the oral cavity in speech signals / speech processing. In the oral cavity detection system it consists of feature extraction from the speech signal and classification of oral cavity infections. The process of distinguishing audio signals is based on the Discrete Cosine Transform (DCT) feature and the K-Nearest Neighbor (KNN) classification method. The speech signal is transformed DCT to get the next feature needed by the KNN to determine whether the speech sound can detect infection or not.

The success parameters of this simulation are approval (ACC) and computation time. From the results of the tests carried out, the system was able to distinguish the sound of people suffering from sick stomatitis and not having stomatitis pain. Accuracy values obtained in the research system with DCT feature extraction method and KNN classification method reached 80%. In the KNN classification process, Distance Correlation is the best type of distance that can be used in this system with a value of K = 1 and K = 7. Correlation distance is used for association research between two random variables in the study. The largest verification value in this test is 87.5% with a computation time of 0.693 seconds. With these results, forensic experts will get the right results to get an oral infection.

Keywords: *Signal Speech, Infection, K-Nearest Neighbor (KNN), Discrete Cosine Transform (DCT).*