

## 1. Introduction

A person's voice or speech is one of the richest sources of information, in this case, there can be information, for example, the message to be conveyed itself, the speaker, gender, language, and emotions. [1]. Emotions have become an inseparable aspect of human nature. In a social context, these emotions serve as a framework that operates within the bounds of social and ethical norms. They shape interpersonal interactions, giving rise to significant connections that resemble carefully written narratives. [2]. Emotions can also be one of the things for humans to understand each other's feelings.

Using voice to recognize emotions can reduce speech recognition problems because voice signals can be received directly without the use of tools [3]. It certainly makes it easier to recognize emotions. However, according to Pagidirayi. On the machine, the voice recognition problem still persists due to many changes in the development of the human paper on the word consortium [4]. Therefore, machines need to recognize sounds clearly and effectively, so that machines can communicate clearly and effectively like humans, it is necessary to develop machines that can recognize paralinguistic information such as emotions, which emotions can be conveyed through speech [5]. Studies on emotion recognition using speech have been carried out a lot because studies on this subject have many benefits in certain fields such as education, automobiles, security, communication, and health [3].

It is known that sound has several attributes, including frequency, loudness (dB), amplitude, and sample rate. In this study, one of the attributes mentioned, which is the sample rate, is one of the parameters to be included in the MFCC (Mel Frequency Cepstral Coefficients). The MFCC features will be extracted into descriptive statistical values to become features that will be selected as input for training and testing so that they can classify emotions. The emotion classes that will be classified are angry, disgust, fear, happy, neutral, pleasantly surprised, and sad, these emotion classes are in accordance with the theory of basic emotions introduced by Paul Ekman and Silvan Tomkins [6]. The aims of this study are to determine the characteristics and emotional features of the sound signal, implement a machine-learning technique to classify emotion through voice signals, and conduct a performance analysis of the machine-learning processes used.

The remainder of this paper is as follows. Section 2 will show papers that are related and has relevance to this study, we describe the methodology in Section 3, Section 4 will describe the data used for this study, the results of this study we describe in Section 5, and the conclusion of this study is in Section 6