Abstract

The development of technology, especially in the security system, is an important factor in human life. The vehicle security system is the most important thing that must be considered given the prevalence of burglary and theft which results in losses to vehicle owners. Based on the above facts, Voice Authentication makes it possible to use it to start a vehicle using one's own voice as a password. In this final project, a Voice Authentication system is built which is placed on a smart helmet that is connected via Bluetooth communication to a motorcycle vehicle so that it can identify the user's voice based on the voice intonation, voice accent, speaking style, etc., which aims to start a motorcycle vehicle. In this final project uses feature extraction of Mel Frequency Cepstral Coefficients (MFCC) and Dynamic Time Warping (DTW) as modeling classifications that will be applied to smart helmets. MFCC is used for feature extraction based on voice input via a microphone placed on a smart helmet using the * .WAV audio format. Meanwhile, the DTW method is used to compare the results of vector MFCC with voice input to identify predefined sounds such as "turn on the engine" sound pattern. In this final project, the results of the performance testing of the MFCC and DTW methods can recognize authoritative voices with an accuracy of up to 81.67%.

Keywords: Voice Authentication, Smart Helmet, Security System, MFCC, DTW