

ABSTRACT

Choir is a set of singers that have different character in voice. This is a very important step to get the best composition of a choir. To determine his/her voice type, in real life, someone must see or consult with vocal teacher, music expertise, even doctor. It is deplorable since rapidly development of Digital Audio Signal Processing these days.

Vocal range is used occasionally to determine his/her voice type and yet, it can be modeled in mathematical equation. So, it is possible to make a software implementation for determining human type voice using this method. This final project concerns in designing a system which has ability to determine singer's voice type based on his/her vocal range. In this final project, the designed system uses several method; MFCC (Mel-Frequency Cepstral Coefficient) and PLP (Perceptual Linear Predictive) for features extraction algorithm, PDA (Pitch Determination Algorithm) for pitch detection and Backpropagation Artificial Neural Network as features classification algorithm. The way system works are first system identifies input's gender using MFCC/PLP features and Backpropagation ANN, and then system indentifies input's voice type using MFCC/PLP features, pitch information, gender information and Backpropagation ANN. The outputs of system are gender, pitch and voice type information.

The result shows that system can identify input's gender with highest accuracy 97.06 % and voice type with highest accuracy 69.41 %. The system still cannot be implemented as public software due to lack of accuracy.

Keywords: Cepstrum, Pitch Determination Algorithm, Gender Identification, MFCC, PLP, Voice Type, Speech Recognition.