Abstract

In the modern day digital automated world, speaker identification system plays a very important role in the field of fast growing internet based communications/transactions. In this paper, speaker identification in the context of mono, cross and multilingual are demonstrated using the two different feature extraction techniques, i.e., Mel-Frequency Cepstral Coefficients (MFCC) and Linear Predictive Cepstral Coefficients (LPCC) with the constraint of limited data. The languages considered for the study are English (international language), Hindi (national language) and Kannada (regional language). Since the standard multilingual database is not available, experiments are carried out on our own created database of 30 speakers in the college laboratory environment who can speak the three different languages. In case of limited data condition, owing to less data the existing techniques in each stage may not provide good performance. To alleviate the problem of limited data, the vocal tract feature extracted from MFCC and LPCC techniques are combined. As a result the combination of features gives nearly 30% higher performance compared to the individual features for a set of 30 speakers.


Index Terms

Computer Science

Pattern Recognition

Keywords

Speaker identification monolingual crosslingual multilingual MFCC LPCC VQ