Analysis of a Small Vocabulary Bangla Speech Database for Recognition

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 133

Number 6

Year of Publication: 2016

Authors:

Sumana Huque, Ahsan Habib Rasel, M. Babul Islam

10.5120/ijca2016907827

Abstract

To carry out any kind of research in the field of speech signal processing, a standard database is essential. There are many databases in different languages but not in Bangla language. Therefore, in this article, it has been attempted to develop and analysis a small vocabulary Bangla database for recognition. In this database 11 Bangla digits (/ak/, /dui/, /tin/, /chaar/, /panch/, /chhoy/, /shaat/, /aat/, /noy/, /zero/, /shunno/) have been used. The developed database consisted of two sets of data such as training and testing datasets. The training dataset contains 3824 utterances of 50 speakers, and testing dataset is subdivided into four groups (clean1, clean2, clean3 and clean4) and contains 1985 utterances of 52 speakers. All recordings have been done in a quiet room but not sound proof with the A4Tech HS-60 headset microphone interfaced to an Intel Dual Core 2.0 GHz CPU. The software used to record and edit the speech file is wavepad. Finally, an HMM based recognizer is developed to evaluate the database. The word accuracy for test sets is found to be 98.05% on the average. In this recognition process Mel-LPC based front-end and as a reference recognizer HTK (Hidden Markov Model Toolkit) have been used.
References


Index Terms

Computer Science
Pattern Recognition

Keywords

Bangla Speech Database, Bangla Speech Recognition, HMM, Mel-LPC