

## TEXT- INDEPENDENT MULTI-SENSOR SPEAKER VERIFICATION SYSTEM

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### ABSTRACT

The performance of common speaker verification (SV) system vastly affected when speaker model training is done in the speech sample that recorded done by one device and the testing is done in another device. It is a major problem of speaker verification system in multi-device environment. In this paper we report the experiment carried out on the recently collected speaker recognition database Arunachali Language Speech Database (ALS-DB) a multilingual and multichannel database to study the impact of device variability on speaker verification system. The collected database is evaluated with Gaussian mixture model and Universal Background Model (GMM-UBM) and Mel - Frequency Cepstral Coefficients (MFCC) combined with prosodic features as a front end feature vectors based speaker verification system. The impact of the device both matching and mismatch in training and testing has been evaluated in text independent manner. For matching condition of device we have found Equal Error Rate (EER) **7.50%** with minimum Detection Cost Function (MinDCF) value **0.1062** and for mismatching condition of devices that of **18.70%** with MinDCF value **0.3425**. The performance of the SV system has degraded approximately **11.00%** due to mismatching condition of devices in text independent speaker verification system.

**KEYWORDS:** GMM-UBM, MFCC, Multi-Sensor, Prosodic, Speaker Verification