

## **ABSTRACT**

In the traditional knowledge-based systems of identification and authentication, there exists a certain degree of vulnerability. This has invoked the exploration of alternative/additional paradigms like physical token based systems and biometrics. Such a challenging biometric approach is speaker recognition, identification and authentication. Because of the inherent technological challenges, developing and improving speaker recognition, identification and authentication system ignites enough enthusiasm among the research community. Though currently this technique is not used widely, but it has a bright prospect in the near future.

Recent advances in research and development in speaker recognition, identification and authentication system have resulted in the speaker verification/authentication becoming one of the most trusted methods for authorization and in forensics. However field deployments in robust environment remain a prime challenge for the researchers. Hence challenge of designing such robust speaker verification/authentication system has been receiving improvised attention from the researchers. In this thesis, we have proposed a three layered approach to recognize, identify and authenticate a native speaker in the domain of BODO language.

Level 1: Spectral feature sets:                      i. Pitch and ii. Formant frequency

Level 2: Acoustic feature set:                      i. MFCC ii. LPC

Level 3: Prosodic feature set:                      i. STE ii. ZCR

Aim and intention of our research work is to develop a platform for speaker authentication with reference to BODO language namely SPEaker Recognition Identification Authentication system for Bodo language (SPERIA B) and future research. Speech and speaker recognition or authentication techniques are not language dependant. SPERIA B is also language independent. Proposed system techniques may be applicable to other language as well.

*Copyright:*

©*Bimal Kumar Kalita*, 2017. All rights reserved.