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A preliminary study on the use of formant analysis of Sinhala vowel sounds for distinguishing caller's age

Pushpakumara R.A.M., Alwis P.H.A.S., Bodhika J.A.P.*
Department of Physics, University of Ruhuna, Wellamadama, Matara, Sri Lanka.

Automatic caller identification has become a challenging research problem due to its wide variety of applications. This study used formant analysis of Sinhala vowel sounds to identify caller's age, mainly ranging from16 to 27 years. Participants were separated into male and female classifications so that each age range, 16 – 18, 19 – 20, 21 – 22, and 23 – 27, comprised of 15 males and 15 females from a sample of 360 individuals. A smartphone, OppoF9, was used for voice recordings, and the required biometric information was collected via a Google form. The discourse material was comprised of two Sinhala vowels ("ඇ", "ඇා"). Formants 1 and Formant 2 of voice pieces were graphically dissected using Praat software. SPSS and Minitab softwares were used for statistical analysis. The age was distinguished by applying the statistical tools of Pearson's Correlation and ANOVA test on the identified formants. The study result reveals that the Formant-1 of vowel "ඇ" is highly clustered for male individuals aged 17 and 19. Formant-2 of vowel "ඇ" is highly clustered for females of age 26. Formant-1 of vowel "ඇ" is clusters among male age groups of 16-18, 19-20, 21-22, and 23-27 and female age groups of 16-18, 19-21, and 22-27. This study was successful in separating certain age groups of males and females.

Keywords: Sinhala vowel, Formant, Age of 16-27, Gender

*Corresponding author: jbodhika@phy.ruh.ac.lk