

A Design Approach For Speech Recognition System For Indian Languages

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ABSTRACT

Speech is a continuous acoustic signal, which is to be transformed into a sequence of discrete linguistic units. The present study investigated the nature of spoken words in Hindi and Oriya by five different speakers of different parts of eastern India. The word spotting technique and the variation of pitch and intonation is marked. The speakers are in the age group of 20 to 30 years of age. From a continuous sentence the word boundaries are detected and the nature of utterance of individual consonant and vowel are marked to study their behaviour for a particular speaker. The word boundaries are proposed based on F_0 patterns. The algorithm makes use of the properties of F_0 contour such as declination tendency, resetting and fall-rise pattern in Hindi as well as in Oriya. The syllabic units are identified by using the energy contour, pitch and the first order LP coefficients. Each syllabic unit is assigned an accent value L(low), H or h(high) by comparing F_0 values at the mid point of each syllabic nucleus with that of the previous syllabic unit and comparing the F_0 values at two different points within each syllabic unit in a sequence having an accent value L. An evaluation conducted on a corpus of 50 sentences in Hindi and Oriya read by five native speakers in an ordinary office environment showed that about 70-75 percent of the word boundaries and 25 percent of the function words were correctly identified.