**Abstract**

The primary issue in designing a speech recognition system is the choice of suitable modeling unit. Speech recognition systems may be based on any one of the modeling unit like, word, phoneme and syllable. The selection of sub-word unit depends on many factors such as vocabulary size, complexity of the task, language. Phoneme is the most commonly used sub-word unit in state-of-the-art speech recognition systems, which is an indivisible unit of sound of a particular language. The choice of sub-word units, and the way in which the recognizer represents words in terms of combinations of those units, is the problem of sub-word modeling. This paper explores the various sub-word unit models used in speech recognition and presents the advantages and disadvantages of each sub-word unit.