**Abstract**

For More Than Three Decades, A Great Amount Of Research Was Carried Out On Various Aspects Of Speech Signal Processing And Its Applications. Highly Successful Application Of Speech Processing Is Automatic Speech Recognition (ASR). Early Attempts To ASR Consisted Of Making Deterministic Models Of Whole Words In A Small Vocabulary And Recognizing A Given Speech Utterance As The Word Whose Model Comes Closest To It. The Introduction Of Hidden Markov Models (Hmms) In The Early 1980 Provided Much More Powerful Tool For Speech Recognition. And The Recognition Can Be Done For Continuous Speech Using Large Vocabulary, In A Speaker Independent Manner. Two Approaches Like Conventional Template-Based And Hidden Markov Model Usually Performs Speaker Independent Isolated Word Recognition. In This Work, Speaker Independent Isolated Tamil Digit Speech Recognizers Are Designed By Employing Template Based And HMM Based Approaches. The Results Of The Approaches Are Compared And Observed That HMM Based Model Performs Well And The Word Error Rate Is Greatly Reduced.