Acoustic Echo Cancellation Using Discrete Cosine Transform of Least Mean Square algorithm (DCT-LMS)

HtarEiKhaing, MyatThandaKhin
Department of Computer Technology, University of Computer Studies, Yangon
htar009@gmail.com,myattk05@gmail.com

Abstract

One of the Digital signal processing operations, filtering can achieve acoustic echo cancellation. Acoustic echo cancellation is a common occurrence in today's telecommunication systems. Echo is the phenomenon in which delayed and distorted version of an original sound or electrical signal is reflected back to the source. These reflected signals caused of time delayed and a reduction in the quality of the communication. The cancellation of echo can be efficiently accomplished by using adaptive filtering algorithms is implemented in this paper. This system presents analysis of two algorithms namely Least Mean Square (LMS) and Discrete Cosine Transform Least Mean Square (DCT-LMS). The algorithms is implemented in Matlab and tested for echo reduction in speech signals. The performance of the proposed method is evaluated by using Echo Return Loss Enhancement (ERLE) and Mean Square Error (MSE). According to the experimental results, the use of DCT-LMS algorithm will perform better performance than the fixed step-size LMS algorithm.