International J. of Math. Sci. & Engg. Appls. (IJMSEA)
ISSN 0973-9424, Vol. 6 No. II (March, 2012), pp. 389-398

CONVOLUTIONAL ENCODING AND VITERBI DECODING USING SOPC : A SURVEY

ANURADHA V. KULKARNI[1] , D. S. MANTRI[2] AND S. S. WAGH[3]

[1]B.E.(Electronics), M.E. (VLSI & embedded System)- Pursuing
- Sinhgad Institute of Tech. Kusgaon(BK.),Lonavala, Pune, India
[2]Professor in STE'S Sinhgad Institute of Tech.,
Kusgaon (BK.), Lonavala, Pune. Maharashtra, India
[3] Professor in STE'S Sinhgad Institute of Tech.,
Kusgaon (BK.), Lonavala, Pune. Maharashtra, India

Abstract

Survey on convolutional encoding and Viterbi decoder using SOPC (system on programming chip) is presented here. Viterbi decoder is a basic and important block in any Code Division Multiple Access (CDMA), and CDMA system uses FEC schemes like convolutional encoder to prevent interference. The purpose of FEC communication is to add redundancy to the transmitted data so that any errors introduced by the communication channel can be corrected at the receiver. One of the most popular FEC techniques is convolutional encoding and viterbi decoding. The viterbi algorithm is a popular method used to decode convolutionly coded messages. Instead of estimating a message based each individual sample in the signal, the convolution encoding and viterbi decoding process packages and encodes a message as a sequence, providing a level of correlation between each sample in the signal.

Key Words : *Convolutional encoding, Viterbi decoding, SOPC, State diagram, Trellis diagram.*