PROTOTYPE OF CHANNEL CODING ALGORITHM ON DIGITAL SIGNAL PROCESSING BOARD

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ABSTRACT

This paper studies error-control coding using MATLAB Communications Toolbox. Channel coding deals with error control techniques. There are two methods of error control, which are Automatic Repeat Request (ARQ) and Forward Error Correction (FEC). In this research, focus only made to Convolutional Codes (CC) which is under FEC technique. FEC is widely used technique to achieve reliable data transmission. Transmitted signal always affected by random and burst errors. Therefore to reduce these errors, error-control coding is necessary to use. In this study, we will look into CC only. The parameters involved are different constraint lengths, modulation techniques and decoding decision types. This paper approaches for CC as error detecting and correcting system with simulation and implementation. The best CC will give lower Bit Error Rate (BER) given by constraint length, K equals to 9 as compared to the other lengths 7, 5 and 3. Besides that, from the results it is proved that Binary Phase Shift Keying (BPSK) and Quadrature Phase Shift Keying (QPSK) is the best among Quadrature Amplitude Modulation (QAM). This comparative study between those parameters will lead to the best selection of the CC. This paper concludes by the result of study carried out on simulations and implementations.

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