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Analyze the Frames of Video Transmission by using OFDM System

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Abstract : The effect of two modulation schemes for video transmission using an OFDM (Orthogonal Frequency Division Multiplexing) transceiver. The main aim is to transmit frames by using OFDM hardware. The frames are generated by C#. We evaluate the performance of these modulation schemes using C#. For analyzing the quality of the video is evaluated by SNR (Signal to Noise Ratio) and BER (Bit Error Rate). Which modulation is better we use QAM and PSK for the image transfer using OFDM transceiver. Which modulation technique gets more affected by the channel effects and more number of errors occurs, as compared to another one is analysis by computer simulation and standard quality of videos.

INTRODUCTION

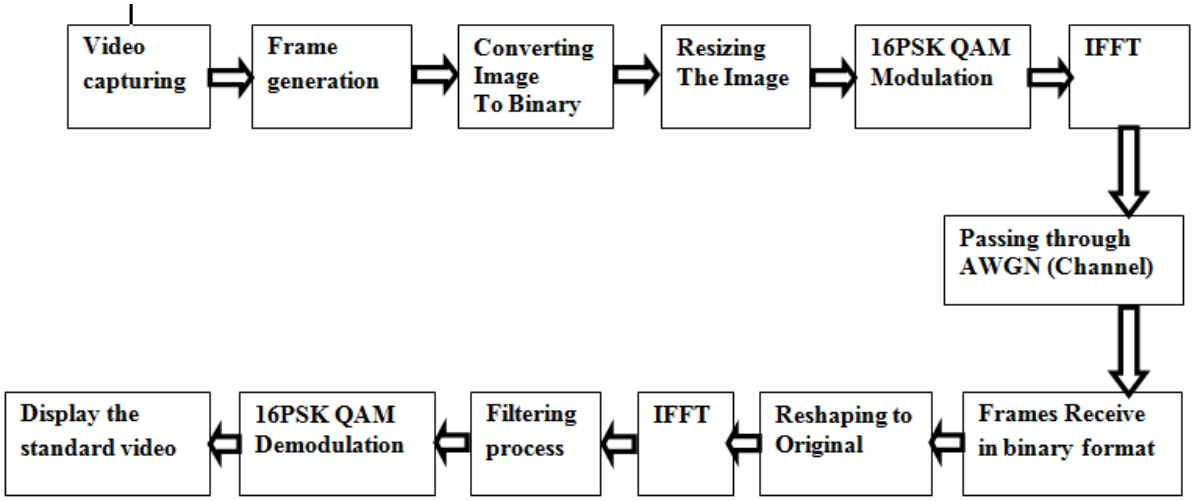
Due to the huge progress in the field of Wireless communication, the demand of high capacity wireless networks was felt, either by upgrading present technology or by devising new methods and techniques. The use of Orthogonal Frequency Division Multiplexing (OFDM) technology in the newer WLAN technologies promises a much improved and higher data rate and with further improvements, higher data rates can be achieved. The use of OFDM in LTE offers peak data rates of 100 Mbps for the cellular purposes. The main goal of 3rd and 4th generation wireless technologies is to entertain people with higher data rates along with the provision of wide range of services, like voice communication, video services (e.g. video call) and internet services, over the same platform. Channel estimation for video OFDM systems requires transmission of pilot image. This addresses the important issue of selecting these pilot image, so as to achieve a good quality estimate. It is shown that the best set of image to be used are those which are equally spaced. Furthermore, it is shown using the case of a first order Markov channel, that it is more efficient to use a few pilot image in all symbols, rather than use all image as pilot image in some symbols. Recently, there has been considerable interest in using Orthogonal Frequency Division Multiplexing (OFDM) transmission for mobile wireless channels. OFDM transmission invariably requires an estimation of the channel frequency response Blind channel estimation techniques try to estimate the channel without any knowledge of the transmitted data. However, whereas blind estimation methods are attractive because of the possible savings in training overhead, they are only effective when a large amount of data can be collected. This is clearly a disadvantage in the case of video wireless because the time-varying channel would preclude accumulation of a large amount of data. Therefore, it would seem that channel estimation for this case would need training

RELATED WORK

Digital Video Broadcasting combination of FFT size and guard interval are investigated channel estimation based on both Least Square (LS) and Linear Minimum Mean-Square Error (LMMSE) is performed to evaluate the performance by measuring the bit error rate (BER) with the help of computer simulation. Digital Video is the second-generation terrestrial transmission system for digital television broadcasting. The motivation to offer high definition television (HDTV) services as efficiently and effectively as possible. DVB-T2 builds on the technologies used as part DVB-T and adopts lots of advanced technologies, such as Physical Layer Pipe technology and low-density parity check (LDPC) codes to support highly flexible and reliable transmission. we mainly focus on the pilot aided channel estimation for DVB-T2. Least Square (LS) and Linear Minimum MeanSquare Error (LMMSE) based channel estimation are analyzed and compared by measuring the bit error rate. Here QPSK modulation schemes shown in table no.1 are used for Digital Video Broadcasting. Simulation results shown that LMMSE estimate has better performance than the LS estimate.

PROPOSED WORK

In this section the OFDM design for the image transmission is enlightened. How the image is transferred using PSK and QAM and a comparison for both the modulation schemes is made.



OFDM Hardware

Fig. Transmitter

Fig. Receiver

Hardware part consists of various components. Orthogonal frequency-division multiplexing (OFDM) is a method of encoding digital data on multiple carrier frequencies. At transmitter side The RF transceiver controls and modulates the radio frequencies that the antenna transmits and receives. The transceiver filters and amplifies the backscatter signal. Transformers are static device which convert the electrical energy from one circuit to another circuit without any change in frequency and power. Rectifier is a circuit which converts the AC electrical energy into Dc electrical energy. These components are used in transmitter and receiver part of hardware. The output of the rectifier is not pure DC, because it contains some amount of AC component which is called as ripple factor which gives the fluctuation and hence to minimize the ripple in the output the filter circuit is used.

PROBLEM DEFINITION

We analyse that during transmission the quality of video is degraded because of noise interferance.This problem is overcome by using filtering process. We analyse this problem by evaluating SNR (signal to noise ratio) and BER (bit error rate) by using C#.

Result

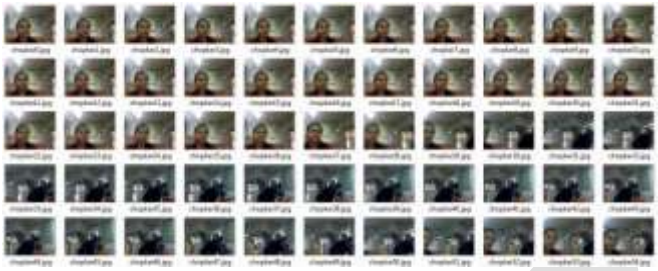


Fig. Frames generation

Above fig shows the frame generation of video. These are transmitted through OFDM transmitter in the binary form and receive also in binary form. This frame generation method is done by using c# and C++.

Fig. Frames in binary format

Conclusion

As per the increasing demand for increased channel capacity in wireless and mobile communications has been rapidly increasing. For recovered data quality is an important factor for communication. Here we have presented a method to evaluate the performance of OFDM system. The effects of two different modulation schemes for image transmission using an OFDM (Orthogonal Frequency Division Multiplexing) transceiver. We evaluate the performance of video quality using C # simulations. We analyse the interference problem by evaluating SNR (signal to noise ratio) and BER (bit error rate).

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