

# Image Transmission on Wireless Network by Using Ofdm Technology with Rayleigh Fading Channel

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## Abstract

In this paper, an gray scale(8 bit) bit map image is transmitted by the transmitter and by using the orthogonal frequency division multiplexing with through the Rayleigh fading channel. individual frame is transmitted in parallel so that multi input channel can be used to increase efficiency.

## Keywords

OFDM,

Rayleigh fading channel

## 1. Introduction

OFDM modulation has been adopted by several wireless multimedia transmission standards, such as Digital Audio Broadcasting (DAB) and Digital Video Broadcasting.[5]. OFDM as a multicarrier transmission technique is a subject of high interest in wireless communications. The use of OFDM has increased greatly due to its numerous advantages: high data rate transmission, the quality of the reception and its ability to combat Inter symbol Interference (ISI) especially in fading channels.[6]

Single carrier communication system, the symbol period must be much greater than the delay time in order to avoid inter-symbol interference.[1] Since data rate is inversely proportional to symbol period, having long symbol periods means low data rate and communication inefficiency. A multicarrier system, such as FDM (Frequency Division Multiplexing), divides the total available bandwidth in the spectrum into sub-bands for multiple carriers to transmit in parallel [2] However, inter-carrier interference (ICI) will occur due to lack of spacing to separate the carriers. Orthogonal frequency division multiplexing is a multicarrier digital Communication scheme to solve both issues. It combines a large number of low data rate carriers to construct a composite high data rate communication system.

Proposed work: In this 8 bit gray scale image is taken as input, then its each pixel is converted in to 8bit frame. Each frame is parallel modulated by using different modulation technique. After this inverse fast

furrier transformation is calculated because by doing this frequency domain is converted in to time domain so that channel can be utilized efficiently. after that header and trailer is added to frame and cyclic extension is performed foe error calculation so that receiver easily find out whether received frame correct or not. Then individually frame serially transmitted through the Rayleigh fading channel by introducing Gaussian white noise.

After receiver side header and trailer are removed and these frames are par ally converted into time to frequency division by calculating the fast furrier transformation. Then demodulation is performed same as sender side but reverse in process. Then 8 bit pixel value corresponded frame is find out With error calculation.

## 2. Error Calculations

As we know when an image is transmitted some pixels may be missing at the output of the receiver.

1. Bit Error Rate (BER): Dividing the total number of errors by total number of demodulated symbols, the bit-error-rate (BER) is found.

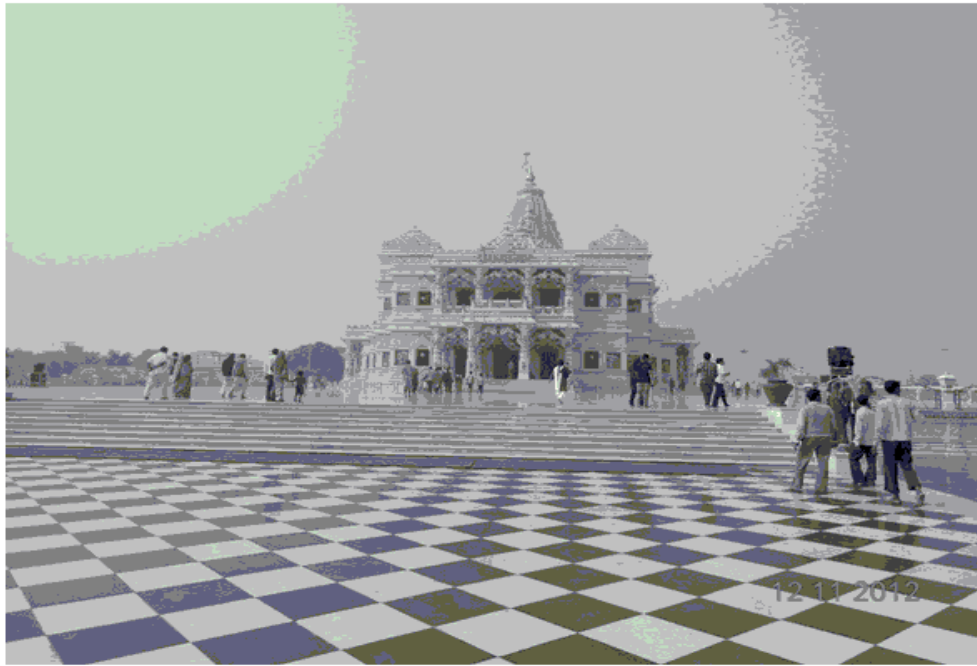
## 3. Phase Error

It is the difference between the received phase and the translated phase for the corresponding symbol before transmission

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**Fig: 1.**Original 8 bit gray scale image



**Fig: 2.** output image

#### 4. Conclusion

This implementation transmitted image and showed analysis and performance by using different

modulation technique. Bit error rate is also calculated because the random noise Generated and total time for transmission is calculated.

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