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# IMAGE BROADCAST BY APPLYING DIVERSITY METHOD: A STATE OF THE ART REVIEW

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***Abstract***

*For digital images that are created by digital photography, JPEG is a lossy compression process. Data compression is required in order for an image to support hundreds of colours and to be transmitted at a faster rate. There are disadvantages to JPEG image transmission using existing technologies, such as quality degradation and computational complexity. An efficient scheme to transmit JPEG images over wireless channels is given by the proposed method. The compression takes place primarily in four steps: DCT, Quantization, Zig-Zag, Huffman encoding. Each 8*8 block of the image is arranged by DCT into 64 coefficients with 1 DC and 63 DC coefficients. A number of values is compressed by quantization to a single quantum value. Using the CDMA process, the encoded bits are distributed. Here, a very wide bandwidth signal called the spreading signal multiplies the narrowband message signal. The Gold code of chosen length 31 is the Spreading sequence used. Diversity techniques are used in the channel to boost the efficiency of the scheme and to reduce the effects of multipath fading. The signal is "distributed" on the receiver side using a synchronized replica of the PN code.*

***Keywords:*** *Communication, Digital Images, DCT, PN Sequence, Quantization, Wireless Communication.*

## I. INTRODUCTION

A necessary feature of modern mobile communication systems is the capability to provide multimedia services. The transmission of multimedia signals over wireless networks like the IEEE 802.11a is a very challenging problem in wireless communication [1]. Wireless technology is

gaining increasing importance in the multimedia arena. Wireless imaging is expected to become a breakthrough application for the successful commercial deployment for the wireless mobile communication systems [2].

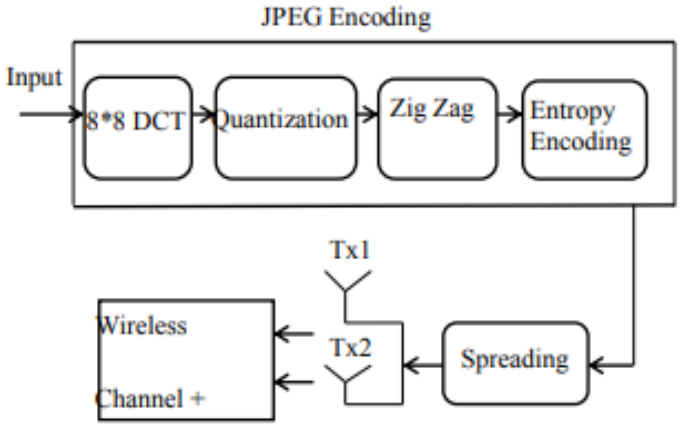


Fig. 1: Illustrates the block diagram of the transmitter [3]

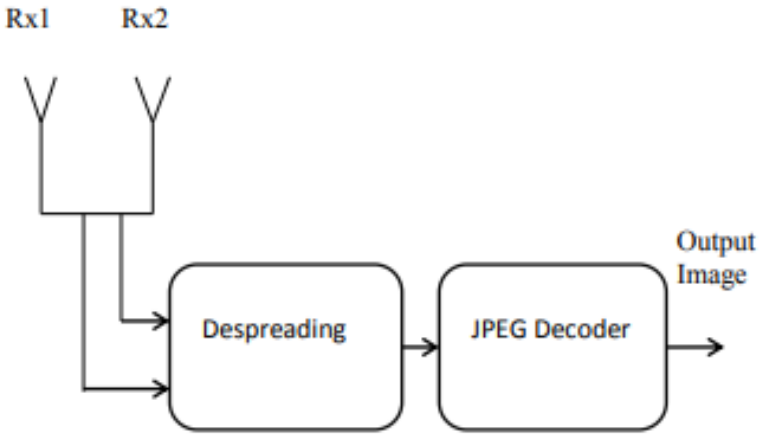


Fig. 2: Illustrates the general block diagram of the receiver

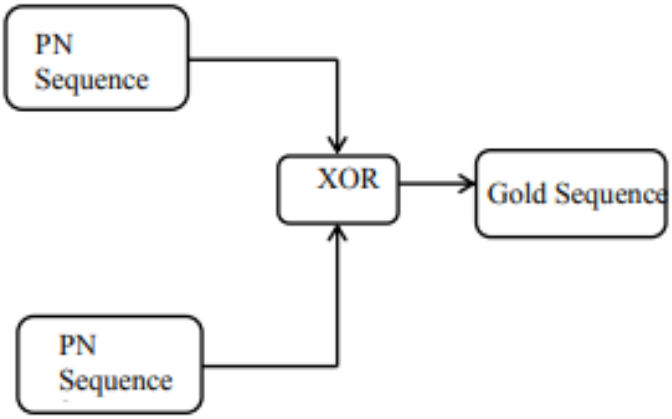


Fig. 3: Illustrates the gold sequence generation method [4]

This article describes an important method for the transmission of JPEG images over wireless networks. The main aim of this approach is to enhance the efficiency of wireless JPEG image transmission by countering multipath fading by the use of diversity in the channels [5]. On the given input image, the first step of this method is to perform DCT. DCT coefficients are ordered by zigzag ordering at low, medium, and high frequencies. The resulting coefficients are encoded with entropy. The encoded bits are scattered by means of the CDMA multiple access scheme. The coefficients that are distributed are sent via the channel. Figure 1 illustrates the suggested approach. Figure 2 shows the receiver's general block diagram. The process of gold sequence generation is illustrated in Figure 3. The spreading activity is shown in Figure 4.

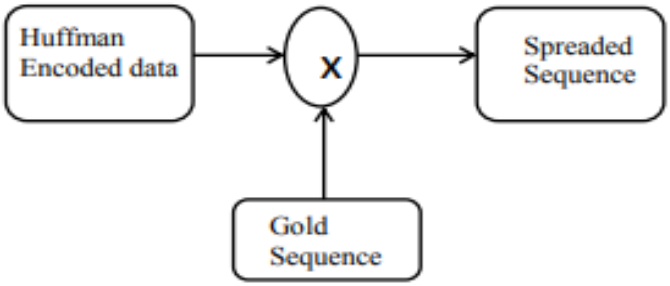


Fig. 4: Illustrates the operation of the spreading

## II. LITERATURE REVIEW

An analysis of the characterization of multiplexing and diversity in visual MIMO was performed by Ashok et al. For high data rate systems, handheld optical wireless systems have so far been

limited to very short ranges. Via camera receivers and light emitting transmitter arrays, it may be feasible to overcome the data rate limitations over wide transmission ranges in optical wireless through a term we call "visual MIMO". Multiple transmitting elements of a light emitting array (LEA) are used in this definition as transmitters to communicate to the camera's individual pixel elements that serve as multiple receiving elements to create the visual MIMO channel. While multiplexing data over parallel data channels is very similar in principle to RF MIMO, the visual MIMO method differs dramatically in its depiction [6].

## III. DISCUSSION AND CONCLUSION

There are some disadvantages to the numerous current methods of JPEG image transmission, such as quality degradation and computational complexity. A new technique using diversity techniques is used to minimize multipath fading and improve the quality of the image. A transmission frequency several times greater than the information bandwidth is used by spread-spectrum modulation. The Gold code works better than other codes in multi-user environments. The PSNR enhancement for decoded images shows the effect. The grey level image for the input image is shown in Fig.5. For each and every 8*8 matrix of the input image, the Discrete Cosine Transform is carried out. The image is arranged into 64 coefficients with 1 DC coefficient and the remaining 63 AC coefficients when conducting the DCT operation. The quantization table is used to quantize the DCT coefficients. This is achieved by dividing the element-wise quantized DCT coefficients with the matrix of the quantization table and then rounding them into integers. The quantified coefficients are encoded using the CDMA multiple access technique and are distributed.

## IV. REFERENCES

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