International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

IJIEMR Transactions, online available on 18th November 2017. Link :
http://www.ijiemr.org/downloads.php?vol=Volume-6&issue=ISSUE-10

Title: A New Digital Barcode Modulation Method for Data Transmission in Mobile Devices.

Volume 06, Issue 10, Page No: 258 – 262.

Paper Authors

*** T.RAMYA SRUTHI, M.PAVANI.**

* Dept of ECE, KLR Engineering College.

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

A NEW DIGITAL BARCODE MODULATION METHOD FOR DATA TRANSMISSION IN MOBILE DEVICES

***T.RAMYA SRUTHI, **M.PAVANI**
*PG Scholar, Dept of ECE, KLR Engineering College, Palwancha, Telangana.
**Associate Professor, Dept of ECE, KLR Engineering College, Palwancha, Telangana
Ramyasruthi77@gmail.com mangu.pavani2@gmail.com

ABSTRACT:

The idea of 3-D scanner tags is of magnificent significance for use in remote data transmission between handheld electronic contraptions. In a typical setup, any record on a cell phone, for example, can be traded to a moment remote through a movement of pictures on the LCD which are then gotten and decoded during that time's camera PDA. In this investigation, another approach for data change in 3-D institutionalized labels is displayed, and its execution is evaluated in examination to other standard schedules for scanner label modification. In this new approach, orthogonal repeat division multiplexing (OFDM) change is used together with differential stage development keying (DPSK) over bordering repeat region parts. A specific purpose of this investigation is to develop a system that is exhibited tolerant to camera improvements, picture darken, and light spillage within neighboring pixels of a LCD.

Keywords: Barcode, data transfer, differential phase shift keying, orthogonal frequency-division multiplexing (OFDM) modulation.

I. INTRODUCTION

BARCODES have accepted a remarkable part in empowering various recognizing verification strategies since their improvement in 1952 [1]. Honestly scanner tag is a clear and astute system for securing machine discernable automated data on paper or thing groups. As pressing needs to trade extensively more data speedier and with high constancy have ascended, there have been various improvements that were made on the main scanner label layout. Development of two dimensional (2D) or system scanner labels opened another front for these commonsense codes and their application in more many-sided data trade circumstances like securing contact data, URLs notwithstanding different things, in which QR codes [2] have ended up being logically outstanding. An examination of 2D scanner tag for each formance camera phone applications can be found in [3].

A huge piece of the undertakings in cross section scanner label headway have been given to institutionalized IDs appeared on a touch of paper as that is how they are regularly used. With the substitution of books with tablets and computerized book perusers one could analyze that re-game plan of the paper with LCD may open another promising front for more broad employments of 2D scanner labels as a mean of data trade. Moreover not under any condition like the static paper, the LCD may show time-varying institutionalized recognizable pieces of proof for the inescapable trade of surges of data to the tolerating electronic device(s) as depicted in Fig. 1. This idea has been completed in [4] where transmission of data between two telephones through a movement of 2D QR codes is inspected, achieving bit rates of under 10 kbps for forefront mobile phones. Later the musing was additionally made in [5] in which a PC screen and a modernized camera are used

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

for transmission and social affair with bit rates of more than 14 Mbps accomplished in docked transmitter and beneficiary conditions over separations of up to 4 meters. Regardless, this rate drops to somewhat more than 2 Mbps when the division is extended to 14 meters. The prevalent execution of the later utilization is proficient using a more fruitful modification and coding get ready for The general idea is to use the inverse Fourier change (IFT) of data like OFDM to control LCD pixels. While picture dark and light spillage massively diminishes the execution of QR decoders they restrictedly affect OFDM adjust. Other than their execution defilement is restricted to known parts of the decoded information. This earlier learning influencing the execution of such reasonable frameworks.

II. DATA TRANSFER CAPACITY

There are many factors affecting the amount of data that can be extracted from a particular LCD, some of them depend on the LCD design itself and others on the camera working as the receiver. Moreover, there are on non-uniform slip probability might be used for flexible mix-up correction coding in see.

Graph of the calculation utilized for information exchange .mistake redress coding, current investigation intensifies this thoroughly considered additional modifications on the change design in a way to diminish LCD-camera relative improvements in the midst of the catch of a singular edge, which results in development darken mutilation on the got pictures. This kind of reshaping as would be organized later truly ruins the execution of Quadrature Phase Shift Keying (QPSK) regulated OFDM signals. The required improvement strength is expert by setting data in organize differentiations of neighboring repeat portions inciting a DPSK-OFDM arrange for which would be called recently the DPSK method all through this examination. Watching that any stage distortion due to development darken would impact neighboring repeat sections insignificantly, data might be transmitted constantly even in the area of high LCD, camera relative development. A structure's diagram envisioned is showed up in Fig. 2. This strategy moreover wipes out the immediate estimation requirements achieving lower getting ready power. To grow data transmission rate, one should consider extracting most outrageous data from a single picture showed up on a LCD and after that assemble the rate at which constant edges will be decoded. In light of this issue, any framework that is introduced should beneficially utilize the available information exchange limit considering development turns. Past investigations have demonstrated the believability of such structures and have watched out for the effects of single turns like direct misalignment [9], defocus cloud [10] and lighting [11] on the adjust systems under idea, yet they have not gave a comparable assessment of these systems in a controlled circumstance. In addition, no examinations were introduced with regards to LCD camera developments which phenomenally impact the execution of the system in applications that incorporate handheld camera-phone beneficiaries. As a result, this examination presentation DPSK-OFDM as a technique for diminishing LCD camera movement curves and sets a movement of diversions in light of numerical showing for darken and development on the got pictures in a way that the mutilation would be the same for PAM (Pulse Amplitude Modulation), QPSK-OFDM and DPSK-OFDM adjustments. In this way, a strong examination can be made between these genuine change methods paying little regard to various parameters some limitations due to the system’s processing capability and power consumption. Despite the fact that by and by, it may be trying to acquire a reasonable appraisal

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

of the framework's execution, it is critical to realize what influences the exchange rate and what should be possible about every constraining element in this information transmission medium. The information limit of a LCD may be computed by considering for occasion the greatest number of bits in a crude picture as appeared on the LCD. A showcase having the lines and segments, demonstrating a shading picture in channels (normally for red, green and blue) and shading bit profundity of bits per channel would have the most extreme data of: This is the most extreme data that can be appeared on the LCD on a solitary picture because of the discrete way of the information appeared. A revive rate of for the LCD prompts an information rate of For a cutting edge wireless with a high determination dis-play having 16M hues, the parameters would be, and Hz bringing about M bits and Gbps, which is a greatly high information rate notwithstanding when contrasted with current radio recurrence wire-less advances. Lamentably, this rate can't be accomplished because of the confinements as portrayed in the following Sections II A–D.

A CAMERA LIMITATIONS

A propelled camera could be considered as a device which tests a 2D signal. For right testing of persistent housings in time, camera catch rate should be 2 times the display restore rate) unless there is a synchronization system set up to authorize the camera shade when the photo is stabilized on the showcase (accurately between packaging changes). As it is not usually the circumstance, if the camera catch rate is for example Hz then the showcase empower rate couldn't surpass 4 Hz. To satisfy the Nyquist criteria for picture determination, each pixel of the photo showed up on the LCD should be tried by 2 or more pixels in the camera [12]. The photo sensor uses foreordained number of bits per channel for change of each shading pixel, coming to fruition into quantization confusion. To limit the effect of this hullabaloo on the general acknowledgment execution it should be maintained dB underneath structure noise level [13], which of course must be kept up well underneath sign power level, dependent upon the regulation method used, with a particular deciding objective to have satisfactory piece misstep rates (BER)

B. Power Limitations

The limit of each correspondence channel relies on upon the signal's force sent through that medium as anticipated by Shannon hypothesis [15], and for this situation the force distance and angle between camera and LCD (perspective distortion);

• camera and subject relative motion;

• out of focus lens;

• compression distortions;

• unwanted ambient light sources;

• dirt and permanent marks on the LCD;

• noise (primarily additive Gaussian noise).

Moreover, nonlinear distortions exist in a typical optical wireless data transmission setup due to transmitter and receiver physical limitations that are discussed in [21]. These undesired- able effects should be addressed to ensure the feasibility of the algorithm under realistic scenarios, while preserving the ability for attaining high data transfer rates. Thus the average power of is maximized for LCD projection. Finder Patterns: Proper demodulation of data requires precise extraction of the modulated data from captured image and compensating for any perspective distortions. General finder patterns used with

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

2D barcodes may be used here like the 1, 1, 3, 1, 1 pattern used in QR-codes, for which fast and efficient detection algorithms have already been developed in [25] and [26]. A sample image generated by the preceding method is shown in Fig. 6 as it would be shown on the LCD of the transmitting device.

SIULATION RESULTS

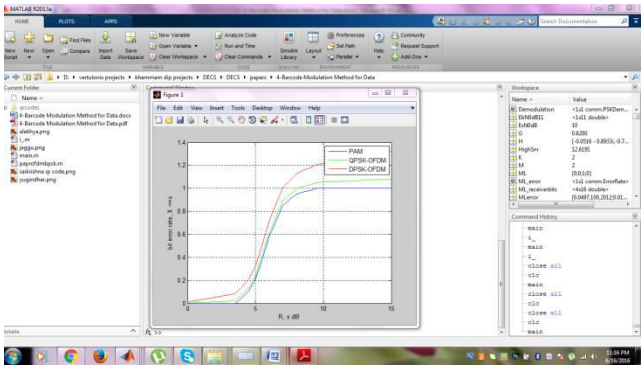

FIG: Effect of low pass filtering on BER performance. When cutoff fre- quency is higher than 20%, OFDM based methods are superior to the PAM method.

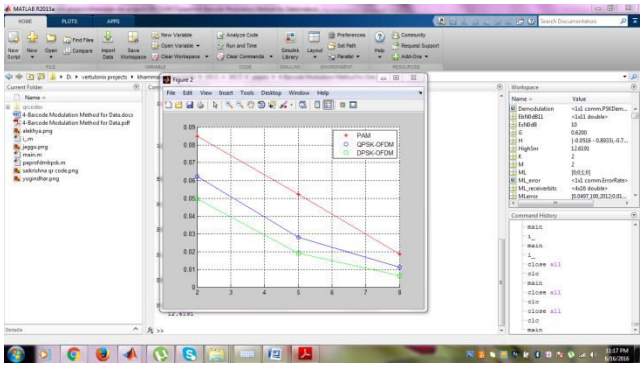

FIG:BER for various averaged uniformly over angle range for three modulation methods studied.

CONCLUSION AND FUTURE WORK

In this paper Differential Phase Shift Keying was combined with Orthogonal Frequency Division Multiplexing in order to modulate data stream into visual two dimensional barcodes. It was shown that QPSKOFDM modulation has serious short- comings in the mitigation of camera LCD movements where the phase of each element changes continuously. On the other hand, addition of a differential phase modulator before OFDM to modulate the data stream into phase differences of adjacent elements (DPSK-OFDM) causes the motion effect to increasingly weaken because of its gradual change from element to element, contributing to a small deviation from the ideal phase in the received signal. It was observed that under relative LCD-camera motions that generate error rates in excess of 30% in PAM and QPSK-OFDM, the proposed system of DPSK-OFDM will maintain an error rate less than 8% which is practically correctable using error correction coding. Future inquiries in a resolution to this problem have to address the best choice of differential pattern to optimize performance for various motion scenarios. Moreover, extension of the current two-bit per symbol constellations increases data transfer capacity, and its BER performance evaluation would be required. Nevertheless, a study on the effect of perspective correction errors on the BER performance of this algorithm compared to the other ones could augment our understanding of its applicability to real world scenarios.

REFERENCES

[1] N. J. Woodland and B. Silver, ―Classifying apparatus and method,‖ U.S. Patent 2 612 994, Oct. 7, 1952.

[2] Information Technology—Automatic Identification and Data Capture Techniques—QR Code 2005 Bar Code Symbology Specification, ISO/IEC 18004:2006, 2006.

[3] H. Kato and K. Tan, ―Pervasive 2d barcodes for camera phone appli- cations,‖ Pervasive Comput., vol. 6, no. 4, pp. 76–85, Oct. 2007.

[4] X. Liu, D. Doermann, and H. Li, ―Vcode-pervasive data transfer using video barcode,‖ IEEE Trans. Multimedia, vol. 10, no. 3, pp. 361–371, Apr. 2008.

[5] S. D. Perli, N. Ahmed, and D. Katabi, ―Pixnet: Interference-free wireless links using LCD-camera pairs,‖ in Proc. MobiCom, 2010, pp. 137–148.

[6] J. Memeti, F. Santos, M. Waldburger, and B. Stiller, ―Data transfer using a camera and a three-dimensional code,‖ Praxis der Informations verarbeitung und Communication, vol. 36, no. 1, pp. 31–37, 2013.

[7] C. Pei, Z. Zhang, and S. Zhang, ―Softoc: Real-time projector-wallcamera communication system,‖ in Proc. ICCE, Jan. 2013, pp. 100– 101.

[8] S. Kuzdeba, A. M. Wyglinski, and B. Hombs, ―Prototype implementa- tion of a visual communication system employing video imagery,‖ in Proc. CCNC, 2013, pp. 184–189.

[9] M. Mondal and J. Armstrong, ―Impact of linear misalignment on a spa- tial OFDM based pixelated system,‖ in Proc. 18th Asia-Pacific Conf. Commun., Oct. 2012, pp. 617–622.

[10] M. Mondal and J. Armstrong, ―The effect of defocus blur on a spatial OFDM optical wireless communication system,‖ in Proc. 14th Int. Conf. Transparent Opt. Netw., Jul. 2012, pp. 1–4.