

WIRELESS IMAGE TRANSFER: A REVIEW

Miss. Raksha Dudhe¹, Miss. Sayma S Hussain² and Prof. Mrunali Vaidya³
^{1,2,3}CSE, BIT, Ballarpur

Abstract- The main objective of this project is to develop a device for Wireless image transfer .Wireless image transfer can make a remarkable change in the field of the computer engineering. The project is developed to transfer images within a small range. This project can be used for transferring images to those are physically not possible to be connected electrically. This project is designed to send images wirelessly for the purpose. Since sending the images is not possible to be demonstrated, we are providing a CC2500 that runs through wireless power .Thus the transfer of images is done by the primary (transmitter) to the secondary that is separated with a considerable distance (say 2 to 3km) for commercial devices and 200m for normal devices .Moreover this technique can be used in number of applications, like to advertising boards and wireless advertising. Wireless image transfer is among technology's biggest contributions to mankind. Wireless communication involves the transmission of information over a distance without the help of wires, cables or any other forms of electrical conductors. The transmitted distance can be anywhere between a few meters (for example, a television's remote control).

Keywords- image transmissions, cryptography, encryption, decryption, cipher text.

I. INTRODUCTION

The basic aim of the project is to create a wireless system which will be used to transfer any image from PC to a 128x64 GLCD via wireless communication. In this project we are taking a colored image and enhancing it by using FUZZY technique. After enhancement of image converting it into gray scale and then into bit map image. After conversion encryption is performed by using XORING technique. Then serialization is done for sending image. Here the same anatomy is applied for the transmission of the image for long distant communication. After transmission of image, the destination receiver will only able to receive the information regarding the image. If anyone tried to receive it, he will get an encrypted image through which no information can be acquired. Thus the basic aim of the project is to create a wireless system which will be used to transfer any image from PC to a 128x64 GLCD via wireless communication. The image to be taken either from computer or from a camera. In this we used the encryption and decryption technique.

II. CC2500

It is wireless transmitter receiver developed by Texas instruments which is used in 2400-2483.5 MHz. The CC2500 RF module is a low-cost 2.4 GHz transceiver used in very low power wireless applications. The RF transceiver is integrated with highly configurable baseband modem. It works in voltage range of 1.8 - 3.6V. Two AA batteries are enough to power it. It has 30m range with onboard antenna. It is always used with microcontroller which support for SPI communication.. It supports multiple rates (4800/9600/19200/38400). It work on ism band (2.4 GHz) which is reserved internationally so no need to apply for license. Support multiple frequencies within the same band rate thus avoiding data collision. it does not require external antenna. It works on 5-9v dc supply. It has standard quart interface.

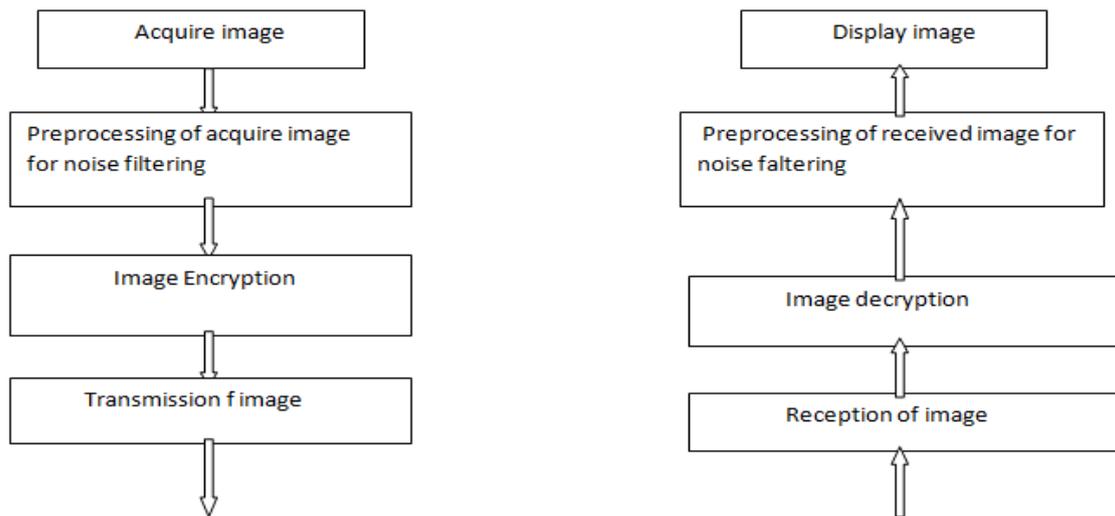


Fig :- Data Flow Diagram

III.Block Diagram:-

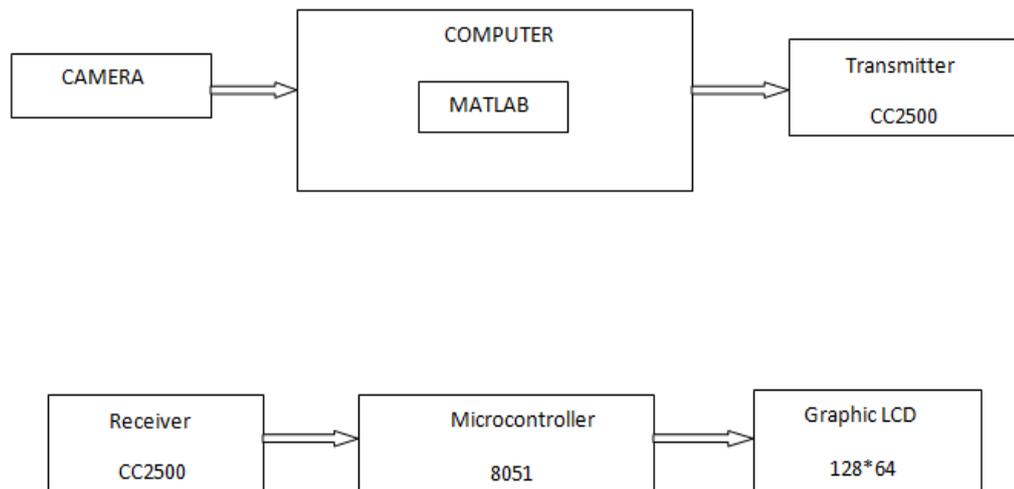


Fig :- Block Diagram

IV. LITERATURE SURVEY

When using wireless sensor network for real-time data transmission, some critical points should be considered. Restricted computational power, memory limitation, narrow bandwidth and energy supplied are present strong limits in sensor nodes. Therefore maximizing network lifetime and minimizing energy consumption are always optimization goals. Energy efficient image compression scheme is proposed to reduce the energy consumption of the sensor network during image compression. The image compression scheme reduces the required memory. To address the above mentioned concern ,in this paper we will describe an approach of image transmission in WSNs, taking advantage of JPEG2000 still image compression standard and using MATLAB and C from jasper . JPEG2000 provides a practical set of features , not necessarily available in the previous standard. These features are achieved using techniques: the discrete wavelet transforms (DWT), and in the embedded block coding with optimized truncation (EBCOT) . Performance of the proposed image compression scheme is investigated with respect to image quality and energy consumption. Simulation results are presented and show that the proposed scheme optimized network lifetime and reduce significantly the amount of required memory by analyzing the functional influence of each

parameter of this distributed image compression algorithm. Author Hasan, K.K Ngah, Salleh, M.F.M. (U.K), proposed a design and technology of integrated systems in Nanoscale Era (DTIS), 2010 5th international conference on. “The lifting wavelet transform and embedded hierarchical structures, control system and engineering (ICCSCE) based on low complexity image compression architecture”, in 2013 IEEE international conference on .

Author Pinar Sarisary Boluk present two techniques for robust image transmission over wireless sensor network. The first technique uses watermarking whereas second technique based on Reed Solomon coding which consider the distortion rate of while transmission for wireless sensor network in April 2011 . High quality image transmission provided with an input image that being sent should be energy efficient in order to be suitable for wireless sensor network. This principal is achieved using priority based packet technique which is based on energy efficient image transmission principal, suitable for wireless sensor networks.

V. PROPOSED WORKS

CC2500 is the wireless transmitter receiver developed by Texas instruments which is used in the 2400-2483.5 MHz's The CC2500 RF module is a low-cost 2.4 GHz transceiver used in very low power wireless applications. The RF transceiver is highly integrated with a configurable baseband modem. It works in voltage range from 1.8 - 3.6V. Two AA batteries are enough to power it. It has 30m range with an onboard antenna. It is always used with microcontroller which supports SPI communication. Our range of products includes Wireless Modules such as Low Cost Embedded Module and CC2500 Chip. CC2500 RF modem is a transceiver module which provides easy to use rf communication at 2.4 GHz. It can be used to transmit and receive data at multiple baud rates from any standard CMOS/TTL source. This module has a direct line in replacement for your serial communication it does not require extra hardware and coding to turn wired communication into wireless one. It works on half duplex mode i.e. It provides communication in both directions, but only one direction at same time (not simultaneously). This switching from receiver to transmitter mode is done automatically. In this project we use 8051 microcontroller at receiver side which transfer the image byte wise and break packet into 8 bits. While transferring an image the address of transmitter and receiver should be same. We use 128*64 monochrome (dot matrix) graphic LCD to represent the transmitted image . This LCD has display format of 128*64 dots and has yellow green color backlight. This LCD needs a controller to execute its internal operations.

VI. PROBLEM STATEMENT

Encryption is the process of converting ordinary information (plaintext) to unintelligible. Decryption is the reverse, in other words, moving from the unintelligible cipher text back to plain text. A cipher is a pair of algorithms that create the encryption and the reversing decryption. The detailed operation of a cipher is controlled both by the algorithm and in each instance by a key. This is a secret parameter (ideally known only to the communication) for a specific message exchange context. In cryptography, a key is a piece of information (a parameter) that determines the functional output of a cryptography algorithm or cipher. Without a key, the algorithm would have no result. In encryption, a key specifies the particular transformation of plain text into cipher text, or vice versa. Keys are also used in other cryptographic algorithms, such as digital signature schemes and message authentication codes. Here the same anatomy is applied for the transmission of the images for a long distant communication. After transmission of image, the destination receiver will only able to receive the information regarding the image. If anyone tried to receive it, he will get an encrypted image through which no information can be acquired.

The image to be transferred can be taken either from computer or from a camera. That image will be encrypted at the transmitter side with the help of some encryption technique and will transmit after encryption. Only after acknowledgement of the particular receiver, that image will be decrypted at receiver side and we get the original image.

VII. CONCLUSION

In this wireless image transfer project we transfer the image through wireless module cc2500 and we transfer the input image securely using cryptography technique because cryptography include encryption in which the image is transform in encrypted code . The basic reason behind choosing the topic is to secure and enhance the commercial advertisement agency. Through this project we will be able to create an advertisement system. Such application help highly secured transmission of various information. Satellite transmission is one of the biggest applications in this field of research & getting more & more enthusiasm for research of such secured methods.

REFERENCES

- [1] Hasan ,k.k.; Ngah, U.K ; Salleh, M.F.M.” low complexity image compression architecture based on lifting waved transform and embedded hierarchical structure,” control system, computing and engineering (ICCSCE).
- [2] Pinar Sarisary Boluk, Sebnem Baydere, A.Emre Harmanci, “Robust image transmission over wireless sensor networks”, mobile networks and applications, ACM April 2011, vol. 16.
- [3] 2013 IEEE international conference on, on page(s): 305-309 .
- [4] Gonzalez and Woods, Digital image processing . pearson education Inc, 2002 .