

WIRELESS PRESENTATION MANAGEMENT SYSTEM

P. Priyanka¹, K.Dhanunjaya²

Dept. of Electronics and Communication Engineering, Audisankara college of engineering and Technology, priyanka.paddala@gmail.com¹.

Professor and Head of Dept.of ECE, Dept.of Electronics and Communication Engineering, Audisankara college of engineering and Technology, dhanu.karumanchi@gmail.com.²

ABSTRACT— *With the rapid advances of modern technology, projectors are widely being adopted in many fields, such as school education, modern business conference and domestic entertainment .This paper presents an Wireless presentation management system. Wireless projection technology has made a quantum leap forward in terms of portability, ease of use, performance and functionality Embedded system substitutes for the personal computer system, the latter usually plays role of player for projector nowadays. The player system solves the problem of cable complex layout of projector by using the wireless network. In our proposed method we are projecting videos ,audio and any data remotely to the ARM board which is connected to the projector from a laptop where the ARM processor and our system is connected through Wi-Fi , so that we can communicate with the projector from remote locations by typing the IP address of the corresponding ARM board , and we can transfer the audio, video through Wi-Fi module at the receiving end router connected to ARM board will receive signals and send to the projector , here we are using a low cost system . It has advantages of low cost, low power consumption, and high convenient.*

Keywords— **Raspberry Pi, Projector, Wi-Fi Router, SD card, HDMI Cable.**

1, INTRODUCTION

The main task of the projection device is to project videos or images on a local screen for the usage of many people. Recently, it has widespread usage at different the places to intended to reach the crowd such as education and training environments and stages or squares in addition to conference rooms. Users who are going to present their project or demos, they have to connect their laptops to the projection device by using cables like Digital Visual interface (DVI), High Definition Multimedia Interface (HDMI), Visual Graphic Array (VGA). However that brings some of disadvantages and challenges .By linking cables not only time consuming but also complexity. .Also, some computer's output and projection device's input standards may be discrete. Also, some users who doesn't have own laptops and intends to make presentation over flash discs request to use USB ports on projection device. In that situation some problems reveals such as inadequate software support to play or maybe device has no USB ports as integrated .Secondly it damages the cables obstruct to carry out the presentation. Even more, some of the computer's output and projection device's input standards may be different. Wireless projectors give you the flexibility to move around the room while giving a presentation or stand to one side of the screen while the projector sits in the middle of the room .When the term 'wireless' is used in conjunction with a projector, it refers to the way the projector

accepts images from a source. Wireless projectors are different to non wireless projectors because they use 802.11b (11 megabits per second) or 802.11g (54 megabits per second) wireless protocols to receive data from a computer or other source that has the same wireless capabilities. Remember that although these projectors are called “wireless” projectors, they do still need at least one wire. No projector is capable of ever being entirely wireless as all projectors need to be powered by a mains cable plugged into a power source. Still, removing the wires needed for connections to the network or to image sources has many benefits which are described in more detail below.

2, SYSTEM ANALYSIS

2.1 Existing System

In existing method, in which wired projector is used to project videos or images on a local screen for the use of many people. Nowadays, it has widespread usage at the places intended to reach crowd such as education and training environments, stages or squares in addition to conference rooms. Users who are going to present, connect their own laptops to the projection device respectively by cables in some standards such as DVI, HDMI, and VGA. However that brings some constraints and challenges.

Secondly, damages on the cables obstruct to carry out the presentation, to solve the problems, advanced projection devices with built-in full supported operating system and USB ports should be used in stages. But this orientation will be expensive. There is a 5 times difference in price.



Figure.1 Block Diagram of Existing System

2.2 Proposed System

In proposed method we are projecting videos ,audio and any data remotely to the ARM board which is connected to the projector from a laptop where the ARM processor

and our system is connected through Wi-Fi , so that we can communicate with the projector from remote locations by typing the IP address of the corresponding ARM board ,and we can transfer the audio, video through Wi-Fi module at the receiving side of the router connected to ARM board will receive signals and send to the projector , here we are using a low cost system to implement this project. My system is designed by using ARM 32-bit micro controller which will support different features and algorithms for the development of automotive systems.

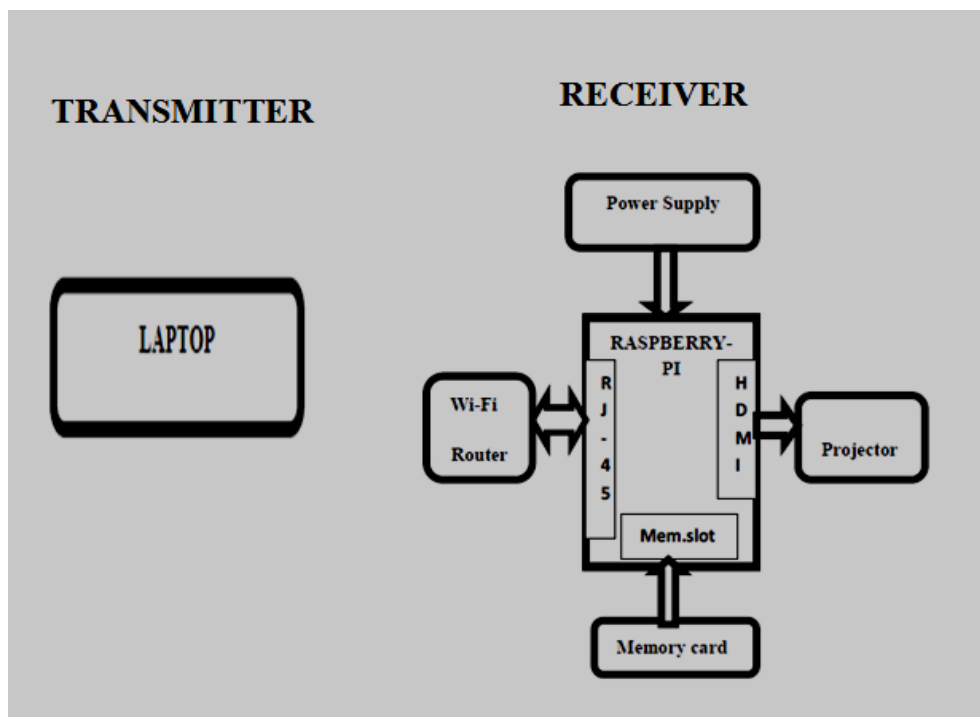


Figure.2 Block Diagram of Proposed System

3, HARDWARE MODULES

In this paper having the hardware components under this brief idea of Raspberry Pi, Power supply Projectors, HDMI Cable and ARM11 Architecture.

3.1 Raspberry Pi

The Raspberry Pi is a credit-card sized Board that plugs into your TV and a keyboard. It is a capable of a little computer which can be used in controlling, electronics projects and for many of the things that your desktop PC does, like spreadsheets, games. The Raspberry Pi is manufactured in three board configurations through licensed manufacturing deals with Premier Farnell, RS Components & Egoman. These companies sell the Raspberry Pi online. The Raspberry Pi has a BCM2835 system on a chip (SoC), which includes an ARM1176JZFS 700 MHz processor, Video Core IV General Processsing Unit, and was originally shipped with 256 megabytes of RAM & later upgraded (Model B & Model B+) to 512 MB. It does not include a built-in hard disk, but it

uses a Storage Device card for booting and persistent storage, with the Model B+ using a Micro SD .The below figure shows the Raspberry pi board.

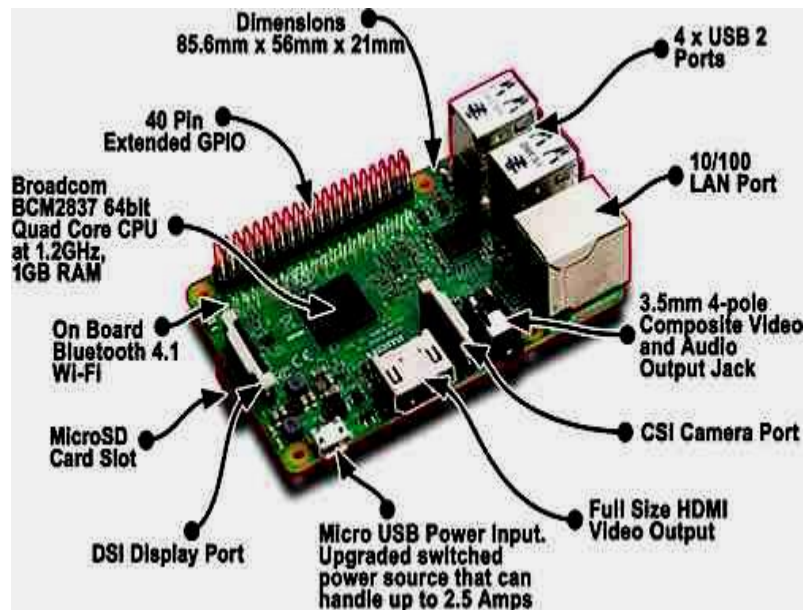


Figure.3 Raspberry Pi Board

Raspberry pi(model B) features:

- Broadcom BCM2835 with 700MHz ARM1176JZFS processor with Video core 4 GPU and FPU.
- 512Mega Bytes of RAM.
- Boots from Storage Device card, running a version of the Linux operating system.
- 10/100 Base T Ethernet socket.
- High-Definition Multimedia Interface video socket.
- 2 x USB 2.0 sockets.
- RCA composite video socket.
- SDHC Class 6 Card.
- Storage Device card socket.
- Powered with micro USB socket.
- 3.5mm audio out jack.
- Raspberry pi Size: 85.6 x 53.98 x 17mm.

The following essentials are necessary to start a Raspberry pi:

- SD card which contains Linux Operating system.
- USB cable and keyboard.
- TV or monitor (with HDMI, DVI, Composite or SCART input).
- Power supply (+5V).
- Video cable can be used to connect to TV or monitor.

Chip	Broadcom BCM2835 SOC
Core architecture	ARM11
CPU	700 MHz Low Power ARM1176JZFS Applications Processor
GPU	Dual Core Video Core IV Multimedia Co-Processor Provides Open GL ES 2.0, hardware-accelerated OpenVG, and 1080p30 H.264 high-profile decode Capable of 1Gpixel/s, 1.5Gtexel/s or 24GFLOPs with texture filtering and DMA infrastructure
Memory	512MB SDRAM
Operating System	Boots from SD card running a version of the Linux operating system
Dimensions	85.6 x 53.98 x 17mm
Power	Micro USB socket 5V, 1.2A

Table1.Raspberry Pi Specifications

3.2 Cables

You will need one or more cables to connect your Raspberry pi system.

- HDMI-A cable and DVI adapter.
- Composite video cable and SCART adapter.
- Audio cable (not needed if you use the HDMI video connection to a TV).
- Ethernet or LAN cable.
- HDMI cables deliver the uncompressed high definition audio and video.
- HDMI cable is a high-quality cable for featuring multi-stranded copper conductors for the highest possible signal strength and maximum frequency response.
- HDMI cable Featured is corrosion-resistant gold connector ensuring high conductivity for the best possible picture while when supporting the highest resolution standards.



Figure.4 HDMI Cable



3.3 Projector

LCD projectors are the systems that display or project information or video onto a surface. LCD stands for liquid crystal display and the technology is used to project images. They are technology descendants of overhead and slide projectors, older systems also serve the same purpose. They are also most commonly used for displaying images in presentations or lectures, but also used in home theaters. Video signals are comprised of three colors i.e., red, blue and green. LCD projectors contain a separate glass panel for each. Each panel consists of two plates of glass with a layer of liquid crystals between them. If when a charge is applied, the crystals open to allow light through or close to block it. This opening and closing of pixels then if forms the image.



Figure.5 Projector

3.4 Memory Card

The SD card is a key part of the Raspberry Pi and it provides the initial storage for the Operating System and files. Storage can be extended in Raspberry pi through many types of USB connected peripherals. When the Raspberry Pi is 'switched on', i.e. it is connected to a power supply, a special piece of code called the boot loader is executed, which reads code from the SD card and is used to start up the Raspberry Pi. If there is no SD card inserted in Raspberry Pi, it will not start. push in or pull out cannot be done when an SD card is inserted in the Raspberry Pi which connected to the power, which will be corrupted the SD card data in Raspberry pi. The SD card must be formatted, or written to, that means Raspberry Pi needs to read the data when it needs to start properly. If you are new to this check the instructions then buy a pre-formatted SD card.

One advantage of using an SD card like this is that you can have several SD cards, each with a different operating system (OS), or with a different purpose. Simply switch off the power, switch cards, and reconnect the power. When you have a different computer to play with. Please note the point in mind that the maximum throughput of card reader of the Raspberry Pi is 25 MB/s and that most likely read and write speed won't exceed 22MB/s. As the Raspberry Pi has no internal storage and no built-in operating system (OS) it

requires an SD card and it can be preloaded with a version of the Linux Operating System. The below figure shows the models of the SD card.

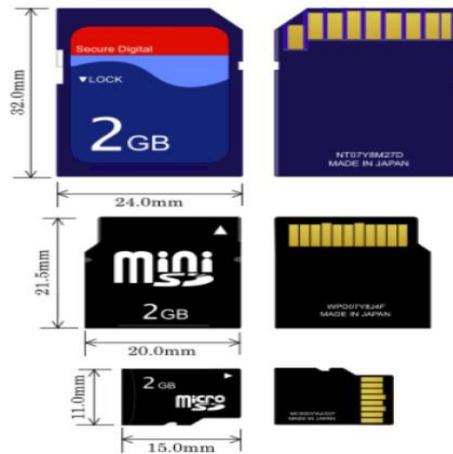


Figure.6 SD Card Models

4, SOFTWARE

4.1Linux OS

Linux is a free and open source programming working framework for Personal computers. The working framework is a gathering of the fundamental directions that tell the electronic parts of the PC what to do and how to function. Free and open source programming (FOSS) implies that everybody has the flexibility to utilize it, perceive how it works, and changes it. A Linux-based system is a modular Unix-like operating system. It derives much of its basic design from principles established in UNIX during the 1970s and 1980s. Such a system uses a monolithic kernel, the Linux kernel, which handles process control, networking, and peripheral and file system access. Device drivers are either integrated directly with the kernel or added as modules loaded while the system is running.

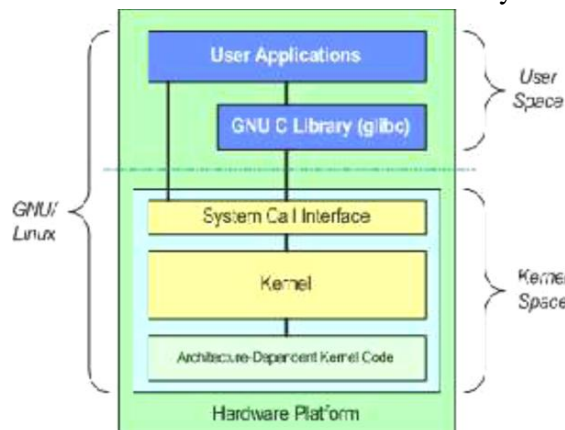


Figure.7Architecture of Linux Operating System

4.2Qt for Embedded Linux

Qt is a cross-stage application structure that is generally utilized for creating application programming with a graphical client interface (GUI) (in which cases Qt is named a widget toolbox), furthermore utilized for growing non-GUI projects. Qt utilizes standard C++ yet makes broad utilization of an uncommon code generator (called the Meta Object Compiler, or moc) together with a few macros to enhance the dialect. Qt can likewise be utilized as a part of a few other programming dialects by means of dialect ties. It keeps running on the real desktop stages and a portion of the versatile stages. It has broad internationalization support. Non-GUI elements incorporate SQL database access, XML parsing; String administration, system backing, and a bound together cross-stage application programming interface (API) for record taking care of.

5, IMPLEMENTATION RESULTS

This figure shows the how all the devices which are connected to the Raspberry Pi Board.



Figure.8Raspberry Pi is connected to all peripherals

This figure shows how projector is connected to Raspberry Pi

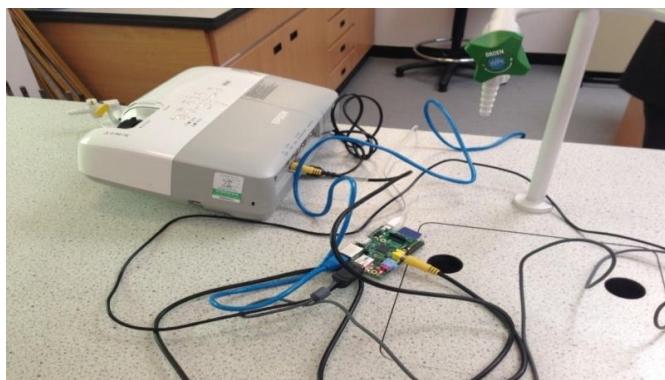


Figure.9Projector is connected to Raspberry Pi



This figure shows how it displays text in the image

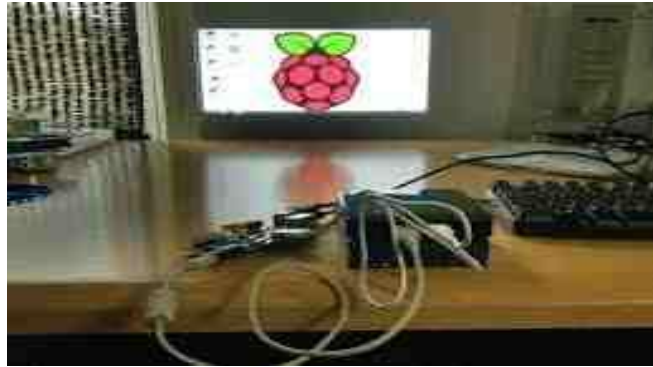


Figure.10 Displaying text by using Raspberry pi

6, CONCLUSION AND FUTUREWORK

6.1 Conclusion

The present education system depends a lot on technology-aided teaching. Hence there is a requirement of many laptops. But one realizes that most of the functionality of these laptops is under-utilized as the sole purpose of these laptops is storing and projecting slides. A user interface can be designed for this device for remote access, thus adding to professors' convenience. Moreover, Raspberry pi can also be controlled by using smart phone applications for easy navigation. This device can be used for presentations used in seminars, or for educational purposes in schools or colleges, or for entertainment purposes. Also, this device can be used to for storing data which has been sent from remote locations.

6.2 Future Work

1. Raspberry Pi using a battery. For now, the Raspberry Pi needs to be connected to the power supply via the USB power port. But in case the power goes off, it would turn off the Pi abruptly. So, it would be better if the Raspberry Pi is connected to a backup battery power supply.
2. Another future scope is powering that this paper uses Linux os, hence in future instead of using Linux os we use Windows os for user friendly.

REFERENCES

- [1] Xudong Li , Shuiqing Wang. Automatic embedded projector player system. IEEE Transactions on Consumer Electronics, 978-1-4244-7874-3/10/\$26.00 ©2010 IEEE.
- [2] In Gyu Park. Development of a network multimedia projector system. IEEE Transactions on Consumer Electronics, Val. 48, No. I, February 2002, pp90-98.
- [3] Kenji Tsunashima, Tetsuro Shida etc. Compact Programmable Network Display System for Portable Projectors. IEEE Transactions on Consumer Electronics, Vol. 55, No. 2, MAY 2009, pp312-315.

[4] Dhaval Chheda, Divyesh Darde, Shradha Chitalia, “Smart Projectors using Remote Controlled Raspberry Pi”, International Journal of Computer Applications (0975 – 8887) Volume 82 – No. 16, November 2013.

[5] Praneeth M S S R, Nikhilesh M, Tharun Reddy P, Priya B.K , “Up-gradation of Wired to Wireless Projector using WLAN”, Recent Researches in Electrical Engineering , Dept of Electronics and Communication Engineering, Amrita School of Engineering, Bangalore INDIA.

BIOGRAPHY



P.Priyanka received her B.Tech degree in Electronics and Communication Engineering from Audisankara College of Engineering For Women Gudur, Nellore District, affiliated to JNTU Anantapuram .She is currently pursuing M.Tech EMBEDDED SYSTEMS in Audisankara college of Engineering and Technology, Gudur(Autonomous), SPSR Nellore (Dist), affiliated to JNTU Anantapuram.



Mr.K.Dhanunjaya Received his B.Tech Degree in Electronics & Communication Engineering from G.Pulla Reddy Engineering College, Kurnool, AP in 1998, M.Tech. in ECE from Jawaharlal Nehru Technological University Kakinada in 2001. He is currently doing Perusing Ph.D in Low power VLSI design from Jawaharlal Nehru Technological University Anantapuram. He has 16 years teaching experience, presently working as Professor & Head of the department of ECE, Audisankara College of Engineering and Technology (Autonomous), Affiliated to JNTUA, Gudur. He is a life time member of IETE & ISTE and member of IEEE.