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Device - to - Device communication (Pen drive) without PC

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Abstract: In present days, computers and laptops have become an inseparable part of our busy lives. One of the commonly used devices for data transfers is Universal Serial Bus (USB) flash drives. Due to emerging technology, USB devices are shrinking in size day by day, but not the equipment's which is required to access them. Data transfer using portable devices is the most important factor in today's scenario. Data transfer between two pen drives is generally done using laptops or desktops. But it is not always possible to carry such a large size device to the particular location. So, to overcome this problem, we are designing a hardware which is more compact to carry anywhere. With the help of this project we cannot only transfer the data between devices but also, we can see the transfer of the particular file which we want to send by using LCD display. This system pen drive to pen drive data transfer without PC is done by using Raspberry Pi. The pen drives are connected to USB module through USB hub, the communication between two pen drives is done by using Raspberry Pi. Using this System, the data transfer can be done from any place in the world.

Keywords: USB, Raspberry PI, Display LCD.

1. INTRODUCTION

Today the need for the portable devices is well known to us. We can easily find the USB and its applications everywhere around us. The applications of the USB are computer peripherals such as a keyboard, pointing devices, digital cameras, printers, portable media players, disk drives and network adapter, both to communicate and to supply electric power. It has become commonplace on other devices, such as smartphones, PDAs, and video game consoles. USB has effectively replaced a variety of earlier interfaces, such as serial and parallel ports, as well as separate power chargers for portable devices.

But the main disadvantage of USB devices is that it requires the use of PC for their operation. Carrying a PC just for the sake of data transfer is not affordable these days in the age when people want all devices to be handy. Moreover, transferring data via a computer involves a lot of power to be wasted. Also, the threat of viruses and malware has made the life of computer users more complicated. These viruses get activated as soon as the device is plugged into the system and get copied along with other data from one ash device into another. So, a solution is provided by means of implementation of a small device that carries out the required task. The small footprint and ease of portability make it a choice for the data transfer. This device will help the user to select a particular data file from the mass storage device connected to one of the ports and transfers it to the other mass storage device using some controls like the list, copy provided on the front panel.

2. PROPOSED METHODOLOGY

Nowadays the transfer of data between two pcs can be done with either net accesses or LAN network. But the transfer of data between PC's is not secured and for transferring data between pen drives in general we require PCs. In the existing method, we can transfer the data from one place to another place by using net access, but if we transfer the data between PC's the data is not secured and also it requires two PC's to communicate. Moreover, transferring data via a computer involves a lot of power to be wasted, since the computer has to be entirely functional before it can transfer data.

Also, the threat of viruses and malware has made the life of computer users more complicated. These viruses get activated as soon as the device is plugged into the system and get copied along with other data from one ash device into another. Our project here can provide a valuable solution to all problems faced by a person in above situations. Our aim is to build a small and handy device to transfer data from one USB device to another. This system pen drive to pen drive data transfer without PC is done by using Raspberry Pi. The pen drives are connected to USB module through USB hub, the communication between two pen drives is done by using Raspberry Pi.

To transfer the data between these pen drives, the data which has to be transferred is placed in one pen drive, by pressing send icon on the touch screen, we can send data to another pen drive through USB Hub. We can send data in pen drive as well as we can create a new document with the QWERTY keypad present on the touch screen and can send it to another pen drive. The Block Diagram of Proposed system is shown in Fig.1

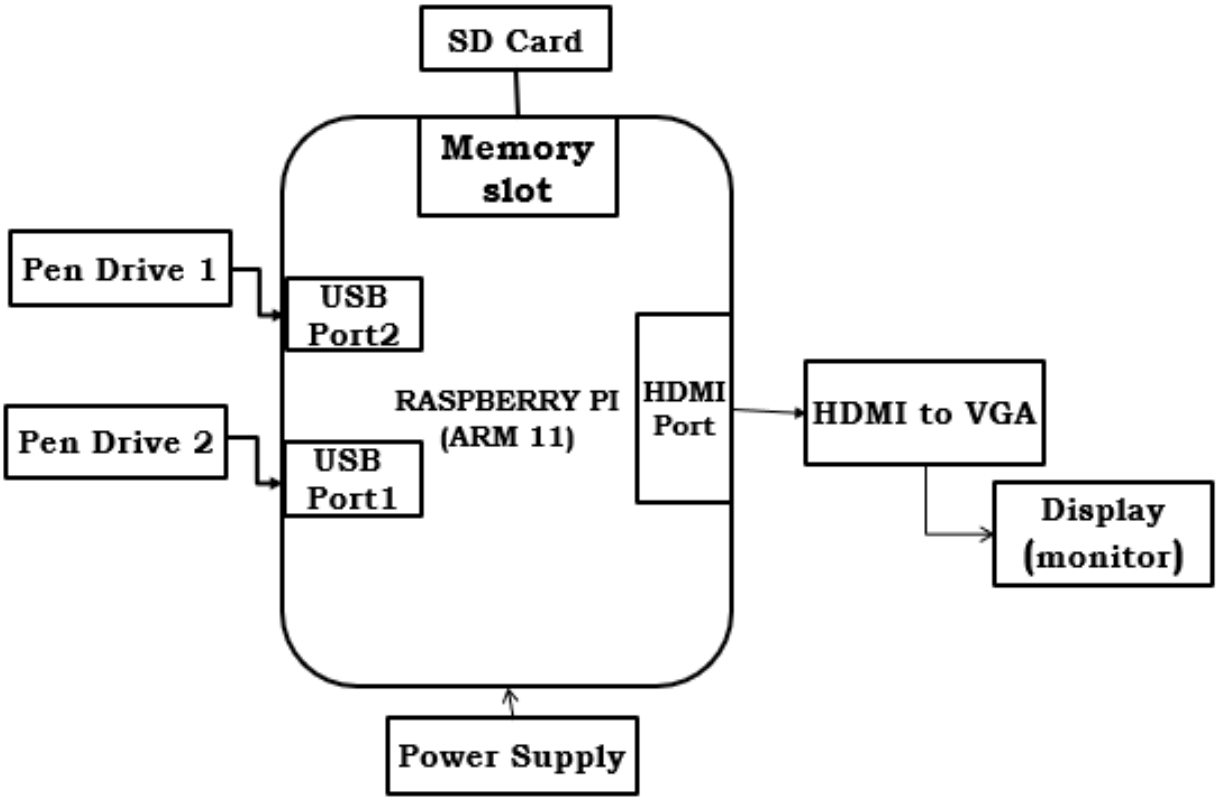

Fig. 1 Block Diagram of Proposed Method

3. COMPONENTS USED IN PROPOSED METHOD

3.1 Hardware Components

For implementing this project, we are using the following:

1. Raspberry Pi 3 Model B
2. USB
3. Display unit

3.1.1 Raspberry Pi 3 Model B

A Raspberry Pi board contains BCM2837 controller which supports ARM11 processing unit which has BCM2837. It contains the following peripherals which may safely be accessed by the ARM. As the RPi has no internal mass storage or built-in operating system it requires an SD card preloaded with a version of the Linux Operating System. You can create your own preloaded card using any suitable SD card (4GBytes or above) you have to hand. We suggest you use a new blank card to avoid arguments over lost pictures.

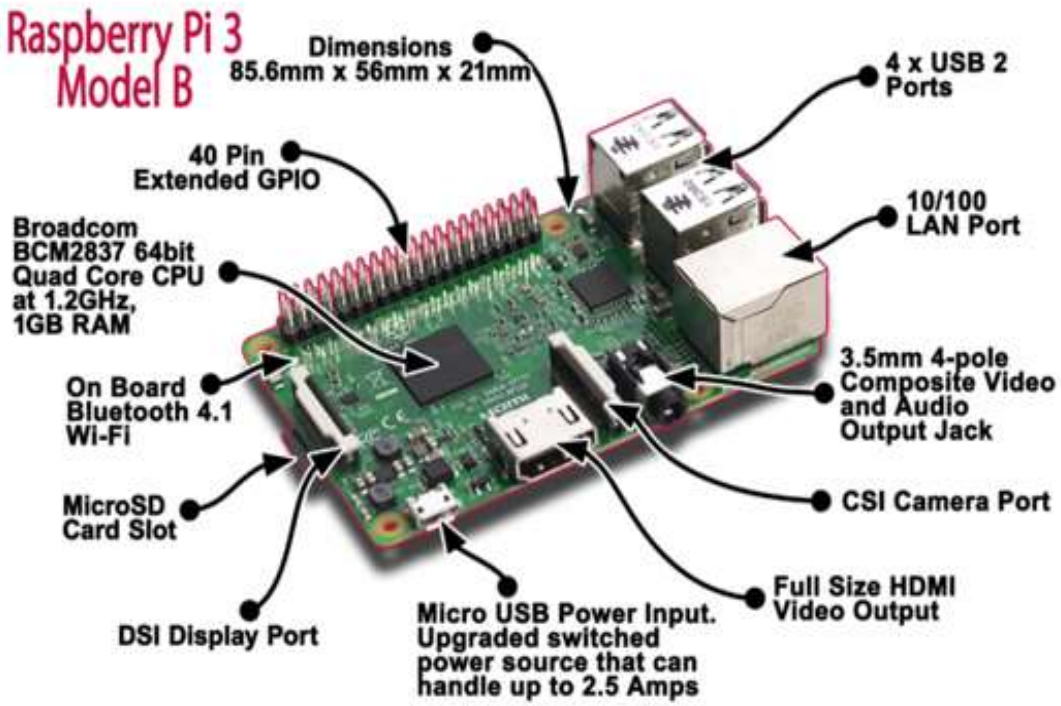

Fig. 2 Raspberry Pi 3 Model B

3.1.2 USB (Universal Serial Bus)

Universal Serial Bus (USB) is an industry standard developed in the mid-1990s that defines the cables, connectors and communications protocols used in a bus for connection, communication, and power supply between computers and electronic devices. USB's are Source and Target Devices.

There will connect to the USB Host controller via, the USB interface. Before making the devices available for use, the Operating system formats the device with a file format like FAT-8, FAT-16, FAT-32, and NTFS. Data encrypted with all above formats can be accessed with an efficient Firmware on the USB Host Controller. USB connections also come in four data transfer speeds: Low Speed, Full Speed, High Speed and SuperSpeed. USB 1.0 – 1.1 for a Maximum transfer rate of 12 mbps (First appeared on market in 1995 and 1998), Hi-Speed USB or USB 2.0 released with speeds of 480 mbps (Released in 2000), Super-Speed USB or USB 3.0 predicted speeds of 5 Gbps (Soon to be released).

High Speed is only supported by specifically designed USB 2.0 High-Speed interfaces (that is, USB 2.0 controllers without the High-Speed designation do not support it), as well as by USB 3.0 interfaces. SuperSpeed is supported only by USB 3.0 interfaces.

3.1.3 Display Unit

HD TVs and many LCD monitors can be connected using a full-size 'male' HDMI cable, and with an inexpensive adaptor if DVI is used. HDMI versions 1.3 and 1.4 are supported and a version 1.4 cable is recommended. The RPi outputs audio and video via HMDI, but does not support HDMI input.

3.2 Software Tools

QT for Embedded Linux was used for this project. QT for Embedded Linux is very similar to the regular QT version. The differences are its performance, small footprint design and the support for its own windowing system. This means that it can write directly to the Linux framebuffer device removing the need for any X11 window manager.

The QT framework was originally written in C++ but now has several bindings to other languages. QT for Embedded Linux, however, h as to use C++ but this suit due to C++'s efficiency. Trolltech, the makers of QT do not release binary versions of their QT Embedded solution. This makes sense as it is impossible to have cross-compiled binaries ready for every platform.

4. FLOW CHART OF PROPOSED SYSTEM

The following figure shows the working of the proposed method of Device to Device communication without using PC.

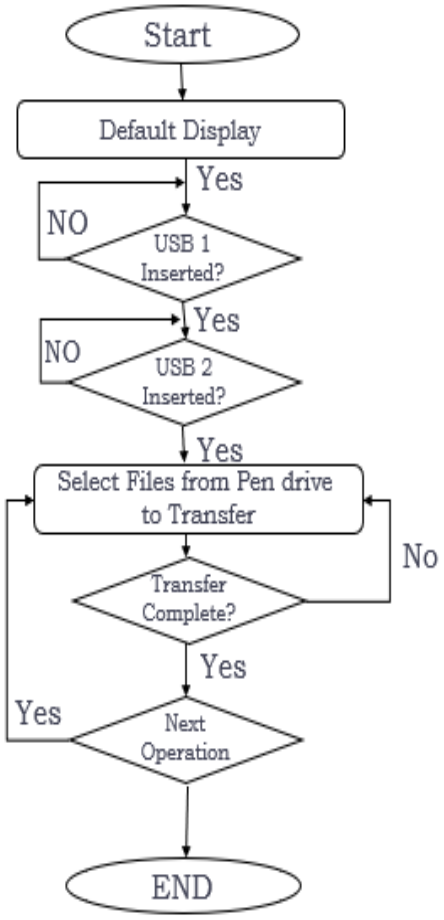

Fig. 3 Flow Chart: Working of Proposed System

The uses of the proposed system, to Secure Data Transfer with Low Power Consumption and Easy to Implement, Simple and Easy to Adapt with No Loss of Data and also it Avoids Potential Human Errors and Can be Used Public Places without the use of PC.

CONCLUSIONS

Transferring the data through USB in today's scenario is the most common task. But the problem is that for transferring the data to a personal computer or laptop is difficult if you don't have any of them. Therefore, we came up with an easy and affordable device which can transfer the data between two USB data drives without the help of PC or laptops. As it is Battery operated Device, so data transfer can take place at any place.

REFERENCES

[1] Beginning of Linux Programming by Neil Matthew, Richard Stones.
[2] www.Slideshare.com/D2D communication
[3] Subhash Suman, "Data Transfer Between Two USB Disk Without Use Of Computer", International Journal Of Emerging Technology And Advanced Engineering, ISO9001:2008, Volume 3, Issue 5, May 2013
[4] Mr. V. S. Gawali, Mr. A. M. Agarkar "Pen Drive to Pen Drive and Mobile Data Transfer Using ARM", IOSR Journal of Electronics and Communication Engineering (IOSR-JECE) ISSN: 2278-2834, ISBN: 2278-8735, PP: 43-47
[5] USB Implementers Forum Inc., www.usb.org/ introductions-2.0papers
[6] Singh Harpreet, Kaur Kamal deep, "Flash Drive Communication Using Embedded System", International Journal Of Engineering And Computer Science ISSN:2319-7242 Volume 3 Issue 2 February 2014 Page No. 3947-3950
[7] Ranganath N. P., Shilpashree P. S. "Data Transfer using Pendrives", International Journal of Computer Applications (0975 – 8887) National Conference on "Recent Trends in Information Technology" (NCRTIT-2016)
[8] Ieeeexplore.ieee.org
[9] www.engineergarage.com

