A Proposal for Portable Data Transfer

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Abstract: The project aims to develop a device that allows file transfers between two USB memory devices without the need for a Personal Computer. Now a day's portability is most important. So to achieve this, we are designing such a system which can be carried out anywhere. Generally, we used to transfer data between two pen drives by using laptops or desktops. But it is not always possible to carry such a large size device to the particular location. So to solve this problem, we are designing a hardware which is more compact to carry anywhere. With the help of this project we can not only transfer the data but also we can see the transfer of the particular file which we want to send by using Touch display Interface. In our implementation, we are transferring the data between two pen drives without using any computers or laptops. We have designed a project which is known as pen drive to pen drive data transfer, in which we will be transferring the data between two pen drives using ARM processor [4]. In the block diagram we can observe, Whenever we insert the pen drive into the USB port then a signal will be sent to the ARM processor indicating that sender's pen drive is inserted so now ARM processor will start fetching the data from the sender's pen drive into the buffer and ARM processor waits for the signal from destination receiver's pen drive. When ARM processor gets the signal from the destination pen drive now ARM processor is ready to transfer the data between those. Thereafter the ARM processor should get the input from external hard key from the user, once the user press the hard key the ARM processor gets the information to transfer the data between two pen drives [2][4].

Keywords: USB, FAT, Flash disk, Touch Screen, ARM.

I. INTRODUCTION

Numerous applications are developed in the daily life of a common Computer user that he has to Transfer data from one Universal Serial Bus (USB) Flash device into another, that too very quickly and on the go. For this, he has to first find a computer, wait for it to boot up, then plug in his device and transfer the data [2]. Today the need for the portable devices such as pen drives is well known to us. We can easily find the USB and its applications everywhere around us and use it for very purpose. The applications of the USB are keyboard, pointing devices, digital cameras, printers, portable media players, disk drives and network adapter, both to communicate and to supply electric power. 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 requires a lot of power to be wasted. Also, the threat of viruses and malware has made the life of computer users more complicated [3].

These viruses always get ready to attack 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 makes it a better choice for the data transfer.
It is a portable low cost solution for the data transfer .This device will help the user to select a particular data file or any files depend on extension from the mass storage device connected to one of the ports and transfers it to the other mass storage device using some controls like list, copy provided on the front panel.
This device is also provide data security as before processing the copy of data transfer it use security password to start or to initialization of the data transfer so it is secure and very easy to use.

II. LITERATURE REVIEW

Various researches have been carried out in the field of embedded systems to eliminate the use of computer or laptop for the purpose of just copying data from one USB device to other. In the present world of electronics there are various ways are present for storage of any type of data electronically, today's most used and flexible is pen drives , but data transfer between them related with computer, and we are not able to share files between two USB flash drives when user is away from computer. So we wanted do a project which is complete blend of hardware and software. There is a need to develop a project which will directly transfer the data between USB flash drive to USB flash drive without connecting to computer.

This innovation was done which allows a user to transfer data without the need to fire up a PC. The innovative device is capable of transferring data. Since we don't have access to a PC at that moment of time, it may take long time to actually get the work done. So there must be an affordable portable device that can do this easily without using a PC. The popularity of Universal Serial Bus (USB) storage devices is an indication of the modern user's need for a fast, large capacity and easily accessible system for data storage. USB to USB Data Transfer Device is a gadget that can be used to do 'data communication' (i.e. data transfer) between two USB mass storage devices [2]. This means you can also transfer data between digital cameras, phone mass memory and other similar devices. The popularity of Universal Serial Bus (USB) storage devices is an indication of the computer user's need for a fast, large capacity and easily accessible system for data storage. As the development of USB enabled peripherals increases, the Universal Serial Bus (USB) has rapidly become a de facto standard in communication with the Personal Computer (PC) and has taken to new technologies for interfacing memory devices. These memory/storage devices connect to the USB ports and appear as removable storage device in personal computers, the most popular of which is the USB Flash Drive (pen drives) [2].

By taking this idea we are also adding wireless Bluetooth Technology to this module by which we can send/receive data to USB flash drive with Bluetooth enabled devices like PDAs, laptops etc. Bluetooth technology's intended basic purpose is to be a wire replacement technology in order to rapidly transfer voice and data. 'Bluetooth' is a proprietary open wireless technology standard for exchanging data over short distances (using short length radio waves) from fixed and mobile devices, creating personal area networks (PANs) with high levels of security.

III.PROPOSED SYSTEM

This system is a combination of hardware and software components. The hardware selection and implementation is very important. The main hardware of the system is the processor. As the system will be used by different users, so along with the processor the other user interfaces will be needed. Here, in the system, Touch Screen is used to provide menu driven system that will put the options on screen [5].
The two pen drives will go through verification which is connected to the device if the connected pen drives is not authenticated correctly then the data transmission will not occur. The connected pen drive on the device will show the file based on the extension which we are selected for transmission other file will not be shown on the device. So it will result more secure data transfer as the whole pen drive content will not be shown only the files which are needed for the transfer are shown. The data transfer as more efficient and it is low cost portable data transfer solution.
This enable firm based usage of this device as it support extension based PD to PD Transfer thus it provide more beneficial and efficient portable data transfer as compared to the existing devices [7].
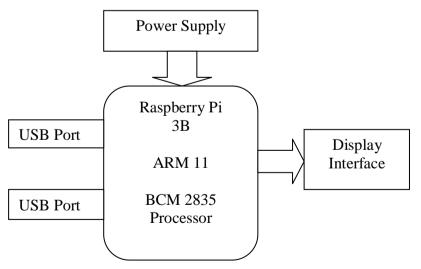

Fig. 1 System Block diagram

The above block diagram gives a general idea to design our project. The overview of our project for designing purpose is given in the block diagram. The important hardware part which are used in the system are ARM processor which is BCM 2835 / Raspberry Pi, Micro USB port gives 5v supply ,LCD Touch Panel display, and USB interface. The main part of our system is the ARM/ Raspberry Pi processor; this is the heart of our project which is used for interfacing. The ARM / Raspberry Pi processor provides the required functionality as per our requirement, so it is main intention to choice the/ Raspberry Pi ARM processor [1].

The 2.0-USB Connector are connected to the ARM/ Raspberry Pi processor this two USB port are used to connect the other device such as keyboard, mouse, and external hubs. So as the Raspberry pi has the two USB port and it has the central host controller. The host controller manages attachment and removal of USB devices, manages data flow between host and devices, provide and manage power to attached devices and monitors activity on the bus. For communication it's most important to connect the two pen drives into the USB ports of controller. Whenever it gets connect to the system, first it does the job of initialization and then we provide the option such as copy, paste, cut etc. by using switches for dealing with the data. After completing this procedure the particular file name in the pen drive are shown in LCD Touch display [5].

To facilitate the option such as cut, copy, paste is provided with the help of switching kit in the replacement of the normal keyboard. When we pressed the specific key it is sensed by the ARM/ Raspberry Pi processor as an interrupt, it provides the required operation as per we send the information, then the output our data on LCD and then actual data transfer. For LCD initialization and to make LCD in the working condition, the graphical LCD drives are installed on the ARM/ Raspberry Pi processor. LCD 20*4 display are connected which provide 20 characters per line by 4 lines [4][5]. We have used the Linux OS for system which is more secured, open source and easily available for users. Linux kernel is ported in ARM's memory which manages device drivers and system libraries.
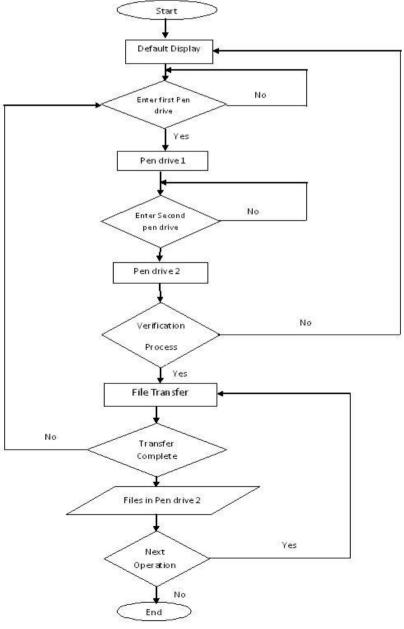

Fig. 2 System Flow Chart

IV.CONCLUSION

The project implemented thus satisfies the needs of the current generation that requires portable means of carrying data transfers. The important thing is data transfer is done without the involvement of PC. It also provides much security as Linux is a much secured Operating System. It has been developed by integrating the features of all hardware components.

Software being used, using highly advanced raspberry pi board & with the help of growing technology the project has been successfully implemented. The advantage of this device is that it is battery operated, so there is no need of connecting power supply& data transfer can be take place at any time.

ACKNOWLEDGMENT

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