

# Pendrive to Pendrive Selective Data Transfer

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## ABSTRACT

In this modern era data is omnipresent, be it for business, medicine, entertainment or even education. This has resulted in the data sharing being one of the important task in our day to day life. For data sharing, most often used devices are pendrives. A desktop computer or a laptop is involved in the data sharing process, generally. This projects intends to bypass the need of a computer or a laptop for the sake of data transfer between pendrives by building a small, portable device using Raspberry Pi 3B and a display

**Keywords:** Pendrive, Raspberry Pi 3B, Display.

## I. INTRODUCTION

Computers and laptops has become an inseparable part of our busy life. For all the information we need for various purposes is in the form of data. Thus the need for data sharing is at its pinnacle. Generally, we transfer data between two pen drives by using laptops or desktops. For this user has to find a computer first then wait for it to boot up, then plug in his device, and then transfer the data. Different types of USB flash devices are used now-a-days. It is not necessary that all of these devices are supported by the computer and the operating system and their device drivers are available and installed. The USB disks are slave device which means that they cannot initiate data transfers on their own. These slave devices need a master controller (PC or Laptop) which commands them to do appropriate operations on the data. The master controller cannot be eliminated and the only thing which can be done is to reduce the size of master controller and make it portable, quick and user-friendly for access.

Carrying a computer or a laptop just for the sake of data transfer is not affordable in these days and age when people want all devices to be handy. 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.

The proposed design will be able to detect the pendrive when connected, will have a touch screen display to select the file that user wishes to transfer. It will also be able to display the actual transfer of the data. This system will use the Raspberry Pi module 3 B which is based on ARM v8 processor. As Linux OS is immune to the virus, this will help data to be protected from the malwares harm when implemented on the Raspberry Pi module. This credit card sized board will help to make the system compact as it consumes less space. Latest edition of Raspberry Pi module will make sure that it works faster for improved performance with relatively less power consumption. The system will also be able to

detect and transfer data to two destination pendrives from source pendrive.

## II. PROPOSED METHODOLOGY

The proposed system will allow the user to select any files or folders to be copied from the source drive to the user selected destination drive. In addition, the system will first check for sufficient amount of memory space for the operation, if not then system will generate the message to free some space of the destination drive so that data transfer takes place. It will also scans for the presence of any virus. On detecting a virus, it will not allow the transfer of the file unless the virus is deleted.

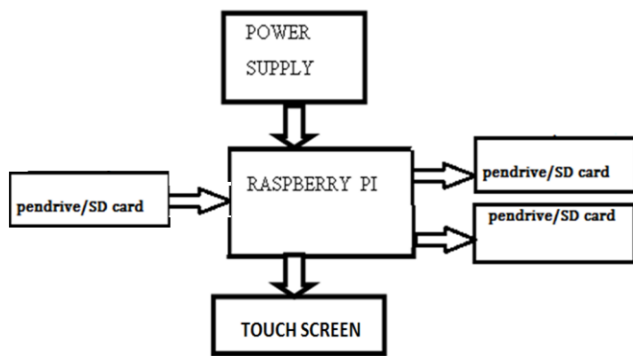


Figure 1. Block diagram of Proposed Design [6]

The block diagram of proposed system is shown in figure 1. It consists of Raspberry pi module in the centre of system. The system mainly consists of Raspberry Pi, USB ports, touch screen and power supply. On software front, Python is Pi's recommended programming language, but Linux is its recommended operating system. The touch screen will be used to select the file and display the Path. The inputs from the touch panel will be used to execute the operation to be performed. The processor will send a corresponding signal for each touch to the touch screen so that it will update the screen and send the corresponding commands. This system will allow the user to select any files or folders to be copied from the source drive to the user selected destination drive. In addition, the system will first check for sufficient amount of memory space for the operation, if not then system will generate the message to free some

space of the destination drive so that data transfer takes place. It will also scans for the presence of any virus. On detecting a virus, it will not allow the transfer of the file unless the virus is deleted. This is an added advantage of the proposed system.

## SYSTEM FLOW DIAGRAM

The system will operate in such a way as described in the following flow chart. The user will give command through the user interface provided in the display. Then the information that is to be transferred will be selected from the source pendrive and copied over the destination pendrive through series of protocols.

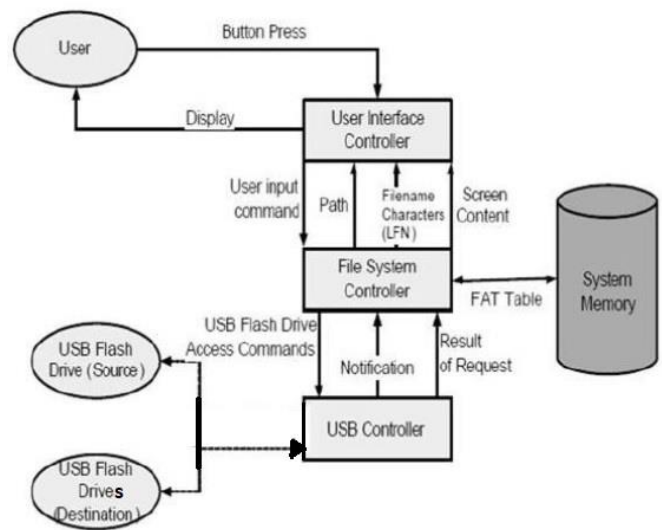
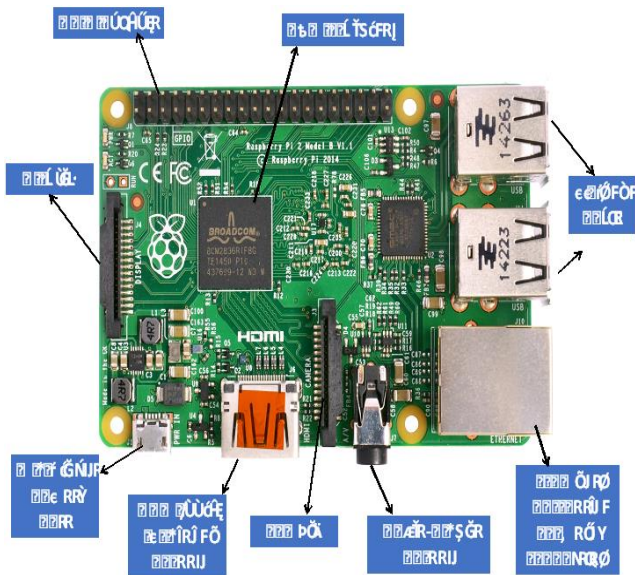


Figure 2. System flow diagram of Proposed Design [2]

## TOOLS / PLATFORM TO BE USED

### Raspberry Pi and Python

The Raspberry Pi is a low cost, **credit-card sized computer** that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high-definition video, to making spreadsheets, word-processing, and playing games.



**Figure 3.** Raspberry Pi Module [9]

What's more, the Raspberry Pi has the ability to interact with the outside world, and has been used in a wide array of digital maker projects, from music machines and parent detectors to weather stations and tweeting birdhouses with infra-red cameras. We want to see the Raspberry Pi being used by kids all over the world to learn to program and understand how computers work.

The Raspberry Pi board contains a processor and graphics chip, program memory (RAM) and various interfaces and connectors for external devices. Some of these devices are essential, others are optional. Raspberry Pi operates in the same way as a standard PC, requiring a keyboard for command entry, a display unit and a power supply. It also requires 'mass-storage', but a hard disk drive of the type found in a typical PC is not really in keeping with the miniature size of Raspberry Pi. Instead we will use an SD Flash memory card normally used in digital cameras, configured in such a way to 'look like' a hard drive to Raspberry Pi's processor. It will 'boot' (load the Operating System into RAM) from this card in the same way as a PC 'boots up' into Windows from its hard disk. As the Raspberry Pi has no internal mass storage or built-in operating system it requires an SD card preloaded with a version of the Linux Operating System.

The latest version, Raspberry Pi 3, was announced in February 2016. It comes with a 1.2GHz 64-bit quad-core ARMv8 CPU, 1GB RAM, built-in wireless/Bluetooth support and much more. This amount of computing power is more than sufficient to run your applications and to program them using a variety of programming tools/environments. In this article, let's get started with programming on the Raspberry Pi using one of the most popular languages in the world, Python.

Python, on the other hand, is one of the most popular languages in the world and has been around for more than two decades. It is heavily used in academic environments and is a widely supported platform in modern applications, especially utilities, and desktop and Web applications. Python is highly recommended as a language that is easy for newcomers to program. With its easy-to-read syntax, the introduction is gentle and the overall experience much better for a newbie.

The latest version of the Raspbian OS comes bundled with both Python 3.3 and Python 2.x tools. Python 3.x is the latest version of the Python language and is recommended by the Raspberry Pi Foundation too. [10]

### COMPARISION TABLE

**Table 1.** Comparison table of previous reported work

Papers	System	Technology	Data Selection	Copying	Speed	Power Supply
[1]	Hardware + Software	AVR ATMEGA 16	Not Available	Complete Pendrive	-	-
[2]	Hardware + Software	ARM11, Raspberry Pi	Available	Select File	480 mbps	9V
[3]	Hardware + Software	PIC24FJ64GB002	Not Available	Complete Pendrive	-	9V
[4]	Hardware + Software	ARM7	Not Available	Complete Pendrive	-	-
[5]	Hardware + Software	ARM11, Raspberry Pi	Available	Select File	600 kbps	-
[6]	Hardware + Software	ARM11, Raspberry Pi	Available	Select File	-	-
[7]	Hardware + Software	ARM11, Raspberry Pi	Available	Select File	10-90mbps	-
[8]	Hardware + Software	ARM11, Raspberry Pi	Available	Complete Pendrive	-	5V

### III. DISCUSSION AND RESULTS

Silently, data sharing has become part of our life. In this modern era data is omnipresent, be it for business, medicine, entertainment or even education. 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 as power requirement of these systems are considerably high. 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 device into another, so there's constant threat of exploitation in case of unprotected system. The conventional method for data transfer involves PC or laptop. Buying them just for the sake of data transfer doesn't make sense as they are costly.

The proposed system will allow the user to select any files or folders to be copied from the source drive to the user selected destination drive. In addition, the system will first check for sufficient amount of memory space for the operation, if not then system will generate the message to free some space of the destination drive so that data transfer takes place. It will also scans for the presence of any virus. On detecting a virus, it will not allow the transfer of the file unless the virus is deleted.

### IV. CONCLUSION

Since we are using raspberry pi, the size of this system will be reduced as compared to previous systems. As we are using the Linux OS, this system will be immune to viruses, malwares. The operating speed of the system will be fast as the clock frequency of the Pi

is higher. So, time required for complete operation will be less. Also this system will be cost effective.

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