Abstract

Authors are designing a model for exchange of information or data between storage devices using embedded technique. Today everyone uses host computer for transfer of data between two pen drives. But when the laptop or desktop computer is not carried by the person then it is not possible to exchange important data or information. Carrying large systems like computers or laptops is not so easy. Because of such limited handling transferring important data whenever we want is not possible. There is no any proper channel for communications of two storage devices. So to eliminate this problem after looking current market conditions, we are supposed to design a model which is more compatible and compact to carry any place. Using this model it is possible to exchange the data and we can display the progress of transfer on display. The main aim of our topic is exchange of data between two storage devices like pen drive without using any host computer. The ARM processor is used as controlling unit.
1. Introduction
Transfer of information from one storage device to other is very time wasting and uneasy process because of the use of large desktop computers and laptops. It is not always possible to carry laptop or computer with us. While transferring data from one Pen drive to other user will find a computer, wait for it to booting up, then plug in his USB, and transfer the data. Various types of USB devices are used at present. But many of these devices are not supported by the computer or the operating system and device drivers are available and installed. Handling a desktops or notepad simply for the purpose of data transfer is unfeasible these days in the age when all users want all devices to be more compact. Also there is lots of power and time wastage. Also, these electronic devices also can be affected by viruses and malware. Thus, we are designing a more compact and handy device to transfer information (Text, Picture, Audio, Video) from one USB device to another. Designing a system which exchange information without using computer is need of fast running world.

2. Hardware Implementation

![Proposed block diagram of system](image)

Insert first pen drive in USB 1 (Master) slot and second pen drive in USB 2 (Slave) slot. This both USB port is interface with Arm processor using host controller IC VNC2. The type of information or data which is to be transferred from one pen drive to other is selected by using keyboard and this information is transferred in other pen drive. The whole process can be monitored in display interfaced with ARM.

3. Important components

**ARM 7**: It is the main highlight of the system. It is important part of the system because it reads information which we programmed and stored into its ROM, and then it runs it and controls the Display as well as Vinculum VNC1L Embedded Host controller. When key is tap it read the data from source pen drive and writes to destination pen drive.

**LCD Display**: Frequently, a C program...
must interact with the outside world using input and output devices that communicate directly with a human being. One of the most common devices attached to an ARM7 is an LCD display. Some of the most common LCDs connected to the ARM7 are 16x2 and 20x4 displays. This means 16 characters per line by 2 lines and 20 characters per line.

**Host Controller(IC VNC2):** This is a microcontroller which has an interface to connect a USB device. It has a Central Processing Unit of its own. The requirement here is of 2 USB ports. It is the important device that handles the USB protocol and does the jobs of the USB host. It may contain an Operating System and also device drivers to interact with the device.

**LCD:** LCD (Liquid Crystal Display) screen is an electronic display device. It shows events taken into microcontroller step wise alphanumerically. So it is easy us to know what is presently running in the system. It displays the start and finish of the data transfer process.

**USB drives:** These are source and target system. They will be connected to the Host Controller IC with the USB interface. Both the devices can be accessed at same time. The memory on them is in the form of Flash which is accessed by an on board hardware. Before making the devices available for use, the Operating system formats the device with a file format types. FAT-8, FAT-16, FAT-32, NTFS, are some file systems available in Microsoft Operating Systems. Most of USB Flash devices are formatted in FAT-32 file system.

### 3. Conclusion
Transferring the data information through USB in present scenario is the common task. But the limitation is that for transferring the data to a pc or laptop is very difficult if u don’t have any of the devices. It is cheaper to purchase a USB data drive than purchasing a laptop or PC. Therefore we came up with a battery operated affordable device which can use to transfer the data between two USB data drives without the need of PC or laptop. The highlight of this device is that it is battery operated so there is no need of power supply connection and data transfer can take place at any place and time. Currently we have design the system for transfer of data up to 4GB but it can be increased by proper selection of the bus.

### 4. Future scope
While working on the up gradation of the device and innovating the peripherals that can be interfaced with the ARM 7 we found that with small change in the project several new features can be added. Following are the things that can be done with few changes.

A) Add USB host capability to embedded products.

B) Interface USB Flash drive to MCU/PLD/FPGA.

C) Using Bluetooth in our device, we can connect with any Bluetooth enable devices making the data transfer wireless system device.

D) Keypad and Graphical LCD could be replaced by touch screens which could make human work easier.
References


[10] www.usb.org