

An Implementation of Wireless Data Transfer Between Two Pen Drives Without PC Using Raspberry Pi

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Abstract: *The simple and advancement in the microcontroller Raspberry-Pi and RFID smart card technology provides a total security and automation in distribution of fuel [1]. It is interface with high speed fuel dispenser which is convenient for consumer to operate. In our system the password and IRIS detection will be provided to the user for secure transaction. The customer has to wave the smart card at the reader which has account details displayed on the LCD provided by the fuel station which will help the fuel company to create authentication for user also the distribution of the fuel, this fuel dispense is not possible until it gets verified by the database. In short we provide secure system for fuel distribution. The advancement of this project can help industry financially. In this paper, a data transfer between pen drive to pen drive without using a computer or laptop is discussed. A data transfer is done by using a computer or laptop means it consumes more power and it is not a handy device to carry to particular locations. To overcome this, a data transfer is done by using a Raspberry Pi processor (handy device). A pen drive is inserted into the USB hub then a signal will be sent to the processor. By using this signal processor identifies the host pen drive is detected. Now the processor will start fetching the data from the source pen drive into the buffer and the processor waits for the signal from the destination pen drive. When the processor gets the signal from the slave pen drive, the processor is ready to transfer the data. Before transferring a data the processor should get the input from an external touch panel from the user. Once the user press the button from TFT display unit, the arm processor gets the information to transfer the data between two pen drives.*

Keywords: *Raspberry-USB device; data transfer; portable; power saving*

I. INTRODUCTION

Several data and application are developed daily which common computer user has to transfer from one USB Flash device into another, with the minimum wastage of time. For this user has to first find a computer then wait for it to boot up, then plug in his device, and then transfer the data. Different types of USB ash 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 [1]. Carrying a computer or a laptop just for the sake of data transfer is not affordable these days in the age when people want all devices to be handy. More- over, 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 [12]. 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 person in above situations [13]. The main idea of this project is related to one such peripheral the USB. This user friendly device is actually recognized by its Connection type-the BUS; called the Universal Serial Bus. It comprises of just four connection wires between the Host (Computer) and the Device, governed by a set of rules called the Protocol through USB hub. The data which has to be transferred is placed in one pen drive. The USB hub is connected to ARM9 board through USB device [11] TFT display unit is also interfaced to the board. The file can be selected by pressing the select icon on the display. After selecting the file, processor board will read the file from the pen drive and store it to internal memory [14] after that the controller will transfer the selected file to another pen drive by pressing send option on display unit. The options are present on display unit like send, delete, refresh, and exit. By pressing the icon, particular action will be performed [3].

II. LITERATURE

This project describes the idea of sending the data from one mass storage to another wireless. By looking at the IEEE papers and international journals we came to know that we required a processor which is capable of these things. When we compare the raspberry pi and Arduino board, the raspberry pi have better performance such as fast and reliability. The popularity of an USB made us think that people need it fast, high storage and easily accessible. The main aim of the project is to build a handy device which is able to transfer data easily.

III. BLOCK DIAGRAM

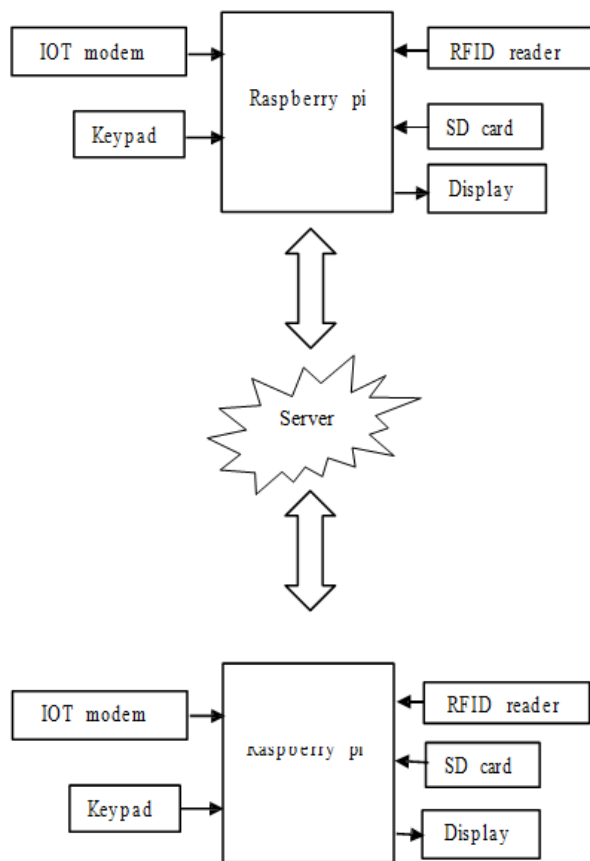


Fig 1. Architecture of the system

Data is stored in the database. There is server where the data transfer occurs and acknowledgment to both can be given at the time of every data transfer. If the two persons are near to each other and if they want to share the data then simply by using RFID reader required data can be transferred on the spot without connecting to PC.

If the two persons are far from each other and they want to have the data to be transferred then simply by entering the IP address of the recipient pen drive data can be transferred within no time. Basically pen drives are the portable devices having embedded

circuitry to give the user interface and a media to connect with the server with Wireless sensor technology. The cards are having the different Hardware according to our requirement. The cards are having centralized Microprocessor for controlling the peripherals connected to different peripherals. The receiver end there will be web based application installed into the pc which is having the data base of all the pen drives present in it. Whenever any person swipe the pen drive with another for transferring the data he need to enter his password in the keypad of the portable machine he has. Once after entering the password he need to select the data to be transferred, as and when he selects the data the GPRS of the device will be active and sends the request to the server regarding the transaction. In the server data verification and database verification is done data will be transferred instantly within no time, The database will be updated with the fresh data and both the pen drive holders get the acknowledgments to their mobile phones regarding the status of the data transferred or received at that time. In FFC instead of swiping the pen drives IP number of the destination pen drive who is far and for whom data to be transferred will be entered and the process of entering the password and selection of the data repeats. We have been designed software and hardware for our project. The software design in our project is about designing the web application in order to see the contents. The hardware design have interfacing of RFID reader and RFID tag. The hardware design also contain communication of software and hardware interface. In our system we have a web page to monitor the data exchange. We have used the html for designing the web page.

The project works in two technologies one is near field communication (NFC) and other is for field communication (FFC). Two users are provided with the smart pen drives and the data regarding pen drive number.

IV. FLOW CHART

The figure displays the functions at each time. It describes the flow of control of the proposed system. It shows where the control should go at each time.

V. RESULTS & ANALYSIS

The system is a prototype of wireless data transfer between two different mass storage. The prototype contain a raspberry pi processor and a RFID reader with a tag. The web application is the one which upload a file and similarly it is the one which help to download the desired file.

In our project both the raspberry pi is connected to the same network. In our system we get a url by showing the valid tag card to the appropriate reader. The user need to upload the file to the server by using that url. The web page will show a indication that

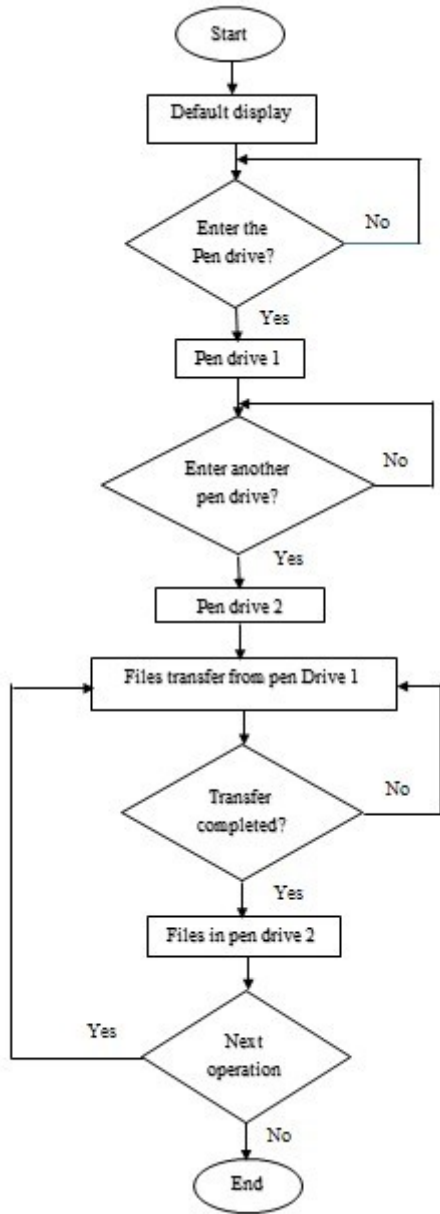


Fig 2. Flow chart of system

the file uploaded is successful or not. Similarly in another raspberry pi we need to show valid card of that raspberry pi and it gives a different URL. The user need to open that URL in that raspberry pi and download it from the server. The system was successfully build with checking the best and the worst cases and also the user gets clear idea of how the files are exchanged and was free to observe it. The system takes very less amount of time to transfer the files from one Flash drive to other flash drive. Basically the system is time individualistic as the Raspberry Pi boards are connected to the same server. In the testing stage various problems were tested. As mentioned above, we have to face so many problems on the going process to be successful and also there were several obstacles that we came across while

implementing the system. When we started with the system we knew that future modifications can be done if necessary. We analyzed that the system actually takes less amount of time depending upon the server quality.

The system was working properly and we observed the following. Output:-

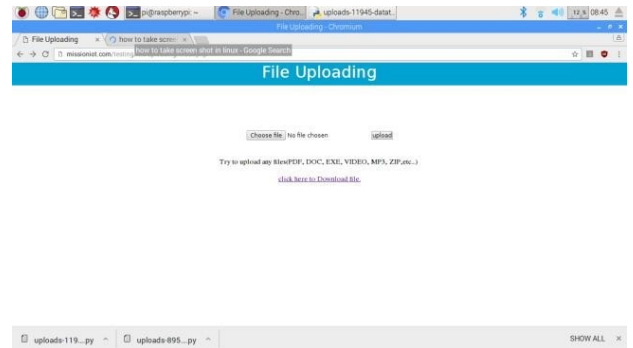


Fig 3. Index Page

Figure 3 shows file uploading page. This is the index page we have designed. Here the user can upload all the files the user want. Even the user can view the files if the user need. The user gets indication about the file upload successfully or not.

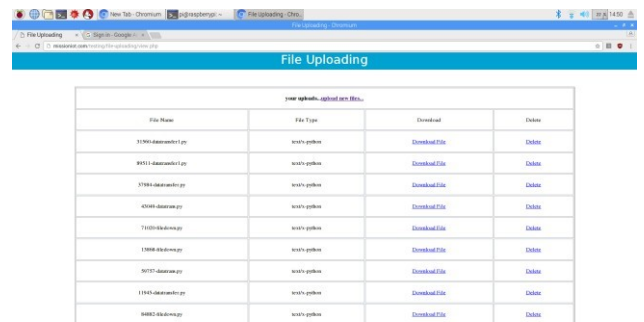


Fig 4. View Page

Figure 4 displays all the files which is uploaded to the server. The view page shows the file name, file type, download option and a delete button.

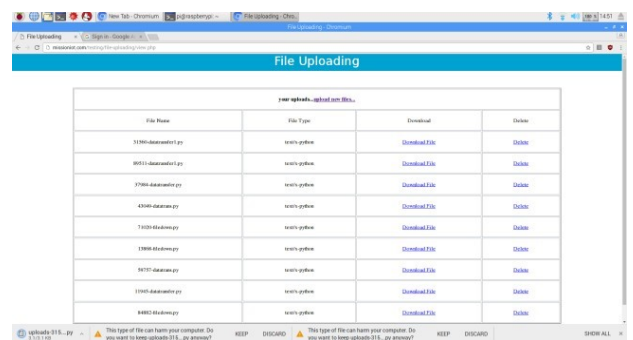


Fig 5. Download Page

Figure 5 shows the file is downloaded successfully. The user can view the same file in the download folder.

Curriculum Development, Lafayette, USA, October 2007, pp. 28–32.

VI. SCOPE FOR FUTURE WORK

As we were working on the development of the system and investigating the peripherals that can be consolidated with the Raspberry Pi boards as there is a chance of adding several new features to modify the project. The features that are added up to this is we can make human works easier by replacing the keypad and Graphical LCD by touch screens. It is possible to upload the data to the server and also download the data from the server automatically as the process done in the proposed system is manually. Another enhancement could be the use of an android app to manually select the files and transfer them and is possible to implement the system without giving the power supply as a portable device.

VII. CONCLUSIONS

In this project we develop a system of data transfer from one flash drive to another flash drive and its implementation. Therefore we suggest some techniques for implementing the flash drive to flash drive device and shows the grade in the results. When we compare data transfer with computer or laptop, the data transfer from one flash drive to another flash drive without computer or laptop shows the greater enhancement in the speed of the transfer. The project “wireless data exchange” has been prosperously designed and implemented. Several hardware and software components had to be integrated in order to develop the project and with the help of the technology and the Raspberry Pi boards the project has been successfully implemented. The proposed system use the WIFI technology for wireless data transfer. The advantage is that the system is high secured when we transfer data without the computer and laptop. Basically this is essential for the current generation as they always prefer for portable devices.

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