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WI-FI enabled Mobile and USB data transfer.

Shruti Ramani

Diploma, Computer Engineering, K. J. Somaiya Polytechnic, MUMBAI, India

ABSTRACT: In the age, where people want their devices to be convenient and easy to use, it is not advisable to carry bulky devices just for the purpose of data transfer. So, to cope up with these difficulties, we have developed a small, portable and wireless device to access the contents of a pen drive (any USB enabled device) in a mobile phone using Wi-Fi (wireless-fidelity). The device is simple to use. The user just needs to attach the pen drive to the device i.e. "USB SHAREBOX" and pair their mobile phones with the Wi-Fi of this device in order to view the contents of pen drive. Once the connection is established, it will be easy to access the data of the pen drive in your mobile phones.

KEYWORDS: Wi-Fi (wireless-fidelity); USB (Universal Serial Bus); LAN (local Area Network); DHCP (Dynamic Host Configuration Protocol)

I. INTRODUCTION

The basic idea behind this project is, to view the content of pen drive in a mobile phone wirelessly using wi-fi. Using a computer just with the intention of data transfer is not feasible these days, since the computer has to be entirely functional. Moreover, there is always a threat of trojans or virus been exchanged during the process of data transfer. These trojans are copied in the system and work as a background process which indeed is dangerous for our systems. A solution to the above faced problems can be provided by our project. We have built a handy and portable device to display data from the pen-drive to mobile phones using Wi-Fi. As the device is portable, it can be used anywhere, anytime. Multiple users can connect and can view the data of the pen drive as well as modify it through their cell phone. These modifications will be affected in the pen drive as well. Also, user can attach multiple pendrive and perform data transfer between them.

PROBLEM STATEMENT

- **PORTABILITY:** Carrying a computer or laptop is not feasible these days as they are little bulky.
- **COST:** Using entirely functional system such as computer just for the purpose of data transfer is not possible.
- **ACCESSING DATA:** While using laptops or computers, more than one person cannot access the contents of flash drive at the same time.

II. LITERATURE SURVEY

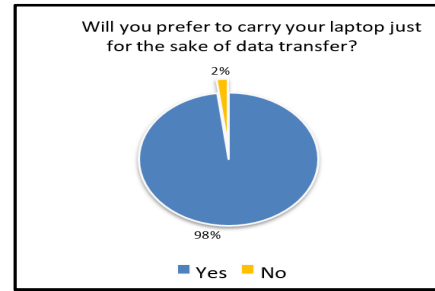
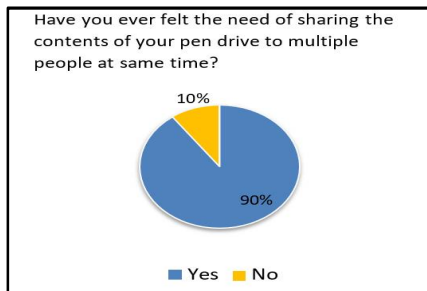
Before starting with the project, we conducted a small survey among the students and staff members of various universities. On the basis of the survey conducted we came across the problems faced by various students and staff members. The resultant result is shown below using a pie chart for various problems. Thus, moving forward on the same problem, we came over the idea of USB SHAREBOX.

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III. COMPONENTS REQUIRED

i Software:

a. File manager app:

A file manager or file browser is a application that provides a user to manage his/her files and folders. The most basic operations performed on files include creating, viewing, editing, printing, deleting and searching for files.

ii Hardware:

a. Raspberry pi:

The Raspberry Pi is a single-board computer developed by the Raspberry Pi Foundation.

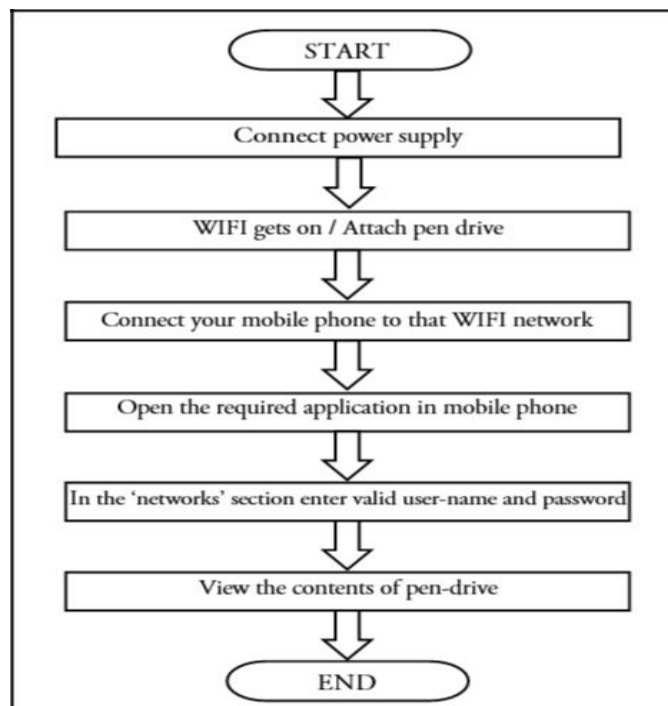
b. WI-FI adapter:

A device that adds wireless connectivity to laptop or desktop computer. It is typically an external module that plugs into USB port. WI-FI adapter provide wireless connectivity to the local area network (LAN) in home or office.

IV. PROPOSED METHODOLOGY

1. FLOW CHART:

The given flow chart shows the basic flow of this project.



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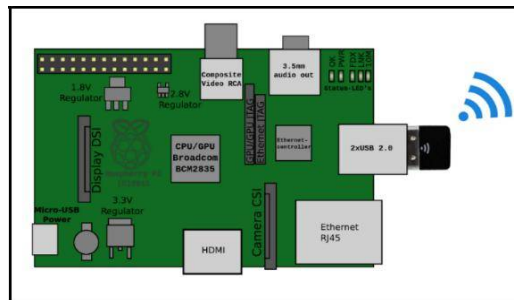
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2. Hardware Circuit Diagram:

The hardware used in our project are Raspberry pi (B+) and Nano Wi-Fi adapter. The basic connection is shown in the fig. below. The Wi-Fi adapter is attached to the USB port of raspberry pi to create a wireless network.



3. User Flow:

User flow of the system is shown below (fig. A). Initially the user will need to supply power to the USB SHAREBOX. Then connect the pen drive to the USB SHAREBOX, after that a wireless network gets created and the user needs to connect to that network. Later user will be able to read as well as write data of pen drive through their mobile phones.

4. System Flow:

The system flow goes as show below (fig. B). When a user connects a pen drive to the device, pen drive will be mounted at a particular directory in the system. After that, the user connects to the wireless network created by USB SHAREBOX. Later using an application on mobile phone, a valid username and password must be entered in order to get the access to the device.

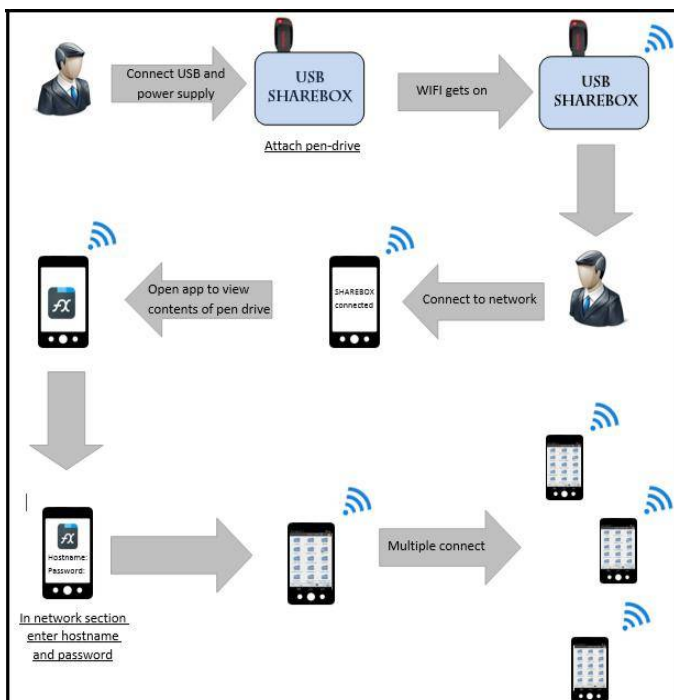


Fig. A-USERFLOW

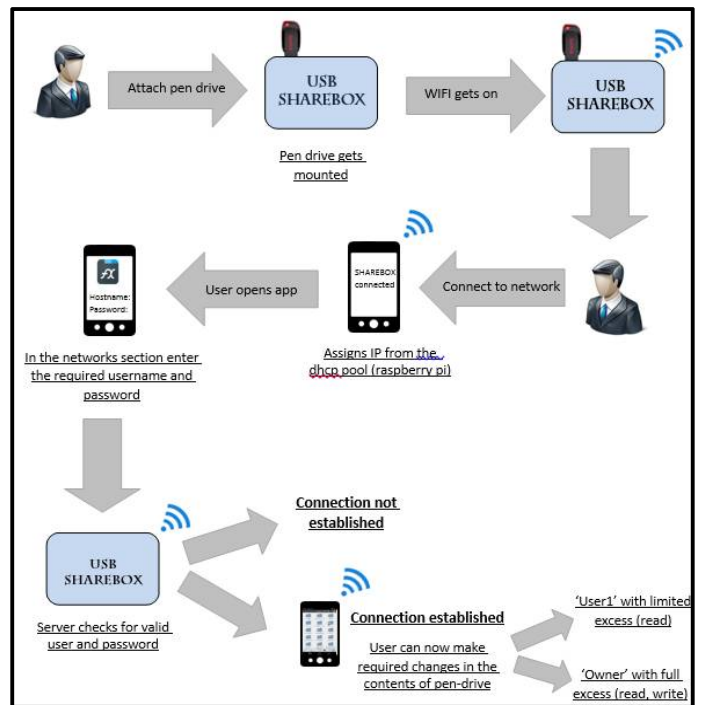


Fig. B – SYSTEM FLOW

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V. WORKING

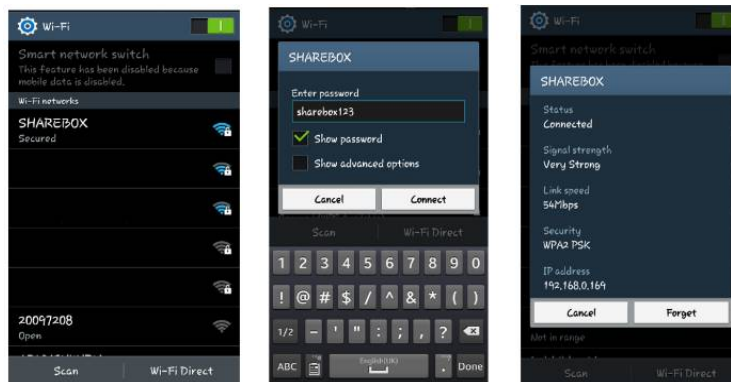
Initially when the user attaches a pen drive (i.e. any USB storage device) to the device (i.e. USB SHAREBOX) the pen drive is mounted on the device. As the pen drive gets attached to the device, pen drive is mounted to a specific location. The Wi-Fi of the device gets on in the device the users need to connect to wireless network (i.e. SHAREBOX) by providing the password of the Wi-Fi. The client connected to the SHAREBOX will receive a dynamic IP address from the DHCP pool in the device. Later, the user needs to open an any File Explorer application to get the access of the pen drive.

There are two users provided for access control:

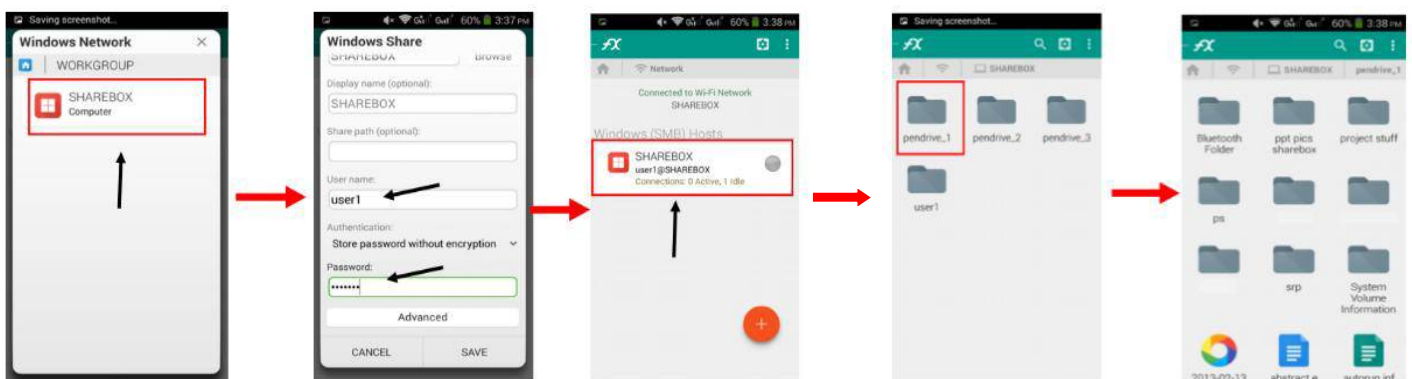
- User1: Only read permissions.
- Owner: Full access (read, write, download, edit, add, and delete)

VI. EXPERIMENTAL RESULTS

1. CONNECT TO WI-FI NETWORK



2. OPEN THE FX FILE EXPLORER



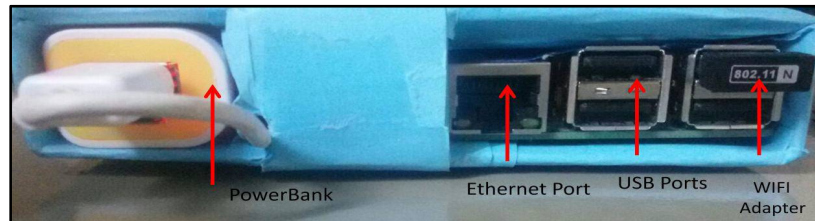
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VII. DEVICE LAYOUT



VIII. FEATURES OF PROJECT

1. **MULTI-USERACCESS:** Since we are Wi-Fi in our project as the communication medium so multiple users will be able to pair with SB and view the content of pen drive simultaneously.
2. **PORTABLE:** As the device is small in size, it is easy to carry anywhere and it provides the feature of portability.
3. **WIRELESS:** As Wi-Fi is a wireless medium for communication, our device provides wireless functionality.
4. **LESSEXPENSIVE:** As compared to any other devices such as computers and laptops for data transfer, USB SHAREBOX is less expensive.
5. **EASYTOUSE:** As there is no need to configure the USB SHAREBOX, before using it, even a non-technical person can use it easily.

IX. CONCLUSION

Initially before developing this project, the idea was using Bluetooth as the communicating medium between the device and the mobile phones. But before implementation of this project, a survey was conducted which gave the idea of using WIFI for communication since the speed of Bluetooth is comparatively slow as compared to WIFI. Thus, by creating a wireless network we were able to exchange the data between the users by maintaining the authentication and security.

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