iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** V **Month of publication:** May 2021

DOI: https://doi.org/10.22214/ijraset.2021.34264

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue V May 2021- Available at www.ijraset.com

Transfer of Data using Raspberry PI

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Abstract: ***Data sharing is not a new thing. Individuals, have been sharing the data between organizations and governments even before computers and networks were invented.***
However, advancements in digital literacy, skills, technology, and the adaptation of regulatory systems to the digital space over the last decade have allowed data to be exchanged more quickly and on a larger scale than ever before. We've started gathering examples of data sharing practice.
The process of making research data accessible to other researchers or organizations for the purposes of social science research is known as data sharing.
Informal data exchange among researchers and formal data exchange through data archives and repositories are both viable options for data sharing.
Data exchange was first discussed in the social science literature. The advancement of computational technology for handling machine readable data, as well as the increased use of sample surveys as a primary mode of data collection, shaped the literature in the early 1960s.
The Raspberry Pi is a simple embedded device with a small footprint and low cost that is used to minimize system complexity in terms of speed and area in real time applications.
Keywords: Low cost Computing, Data Sharing, Raspberry, Python, Wi-Fi,

I. INTRODUCTION

In this 21st generation everyone using the smartphone that has the smart Wi-Fi connection. By considering this as an advantage, we are going to use offline Wi-Fi media streamer which will be used by every user who can enjoy the different media that is stored on the server with no buffering at anytime and anywhere the device is present.
We are going to use the raspberry pi, which has the inbuilt hotspot function to broadcast the media. In the raspberry pi it has only one static IP, in that there are some PHP files which will access the user end using theme browser and they can access the data whatever available on the PHP page.

II. LITERATURE REVIEW

Transfer of data from one remote device to another has taken in action way back from 1969, Since then many ways are developed to transfer the data. Many papers were published on the data transfer.

We referred 3 papers for transfer of data in many ways.

1) In paper [1] represented the technique of transferring the real time data of a particular region to the user by the use of raspberry pi, It involves the use of Fourier transform method where it proposed the plan by IPC (Inter Process Communication) and DCT (Discrete Cosine Transform).
2) In paper [2] this paper had a plan from where we got an idea of transferring the data from one remote user to another by the means of offline transfer. The paper had a use of raspberry pi zero so they needed a use of external hotspot.
3) In paper [3] represented the plan of transferring the data directly to the cloud storage which had a plan of transferring the data in online method. This paper Used the platform of HTTPS and MQTT.

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III. SYSTEM FLOW DIAGRAM

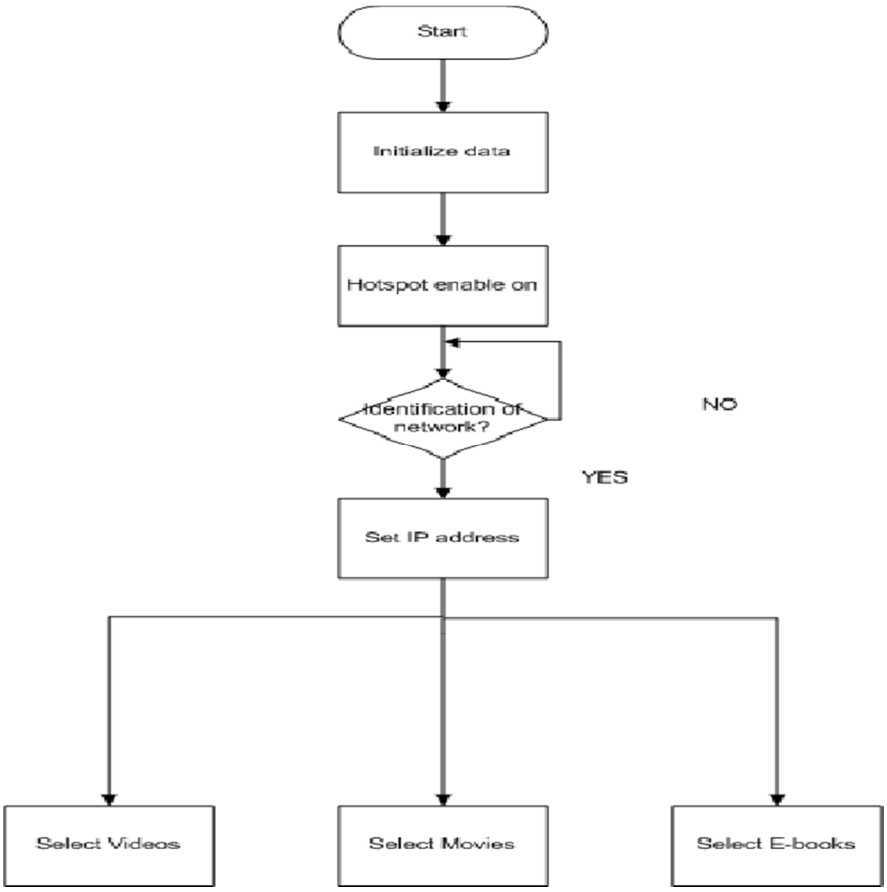

Figure 1- system operation

Any data which is transferred consist of: (1) Data (2) Transfer Medium (3) Destination
Talking about the Data, it can be in various forms such as videos, images, documents and many more forms. The size of the data varies with the type of data transferred. The Transfer medium is the way we transfer the data it also varies with the amount of data we are transferring. Destination of the data which is being shared varies with the destination of user but for maximum applications used the range is in few meters only.
The above diagram shows the way we transfer the data in offline and online method

IV. BLOCK DIAGRAM

The system block diagram consist of a raspberry pi, a micro SD card, Power bank, Wifi router and a pen drive for offline server and for online server we need an additional External hard drive to store the data and to share it.

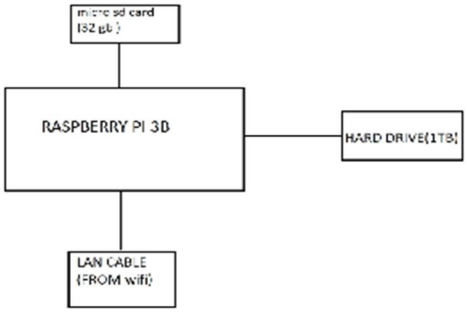

Figure 2: System Block Diagram (Offline)

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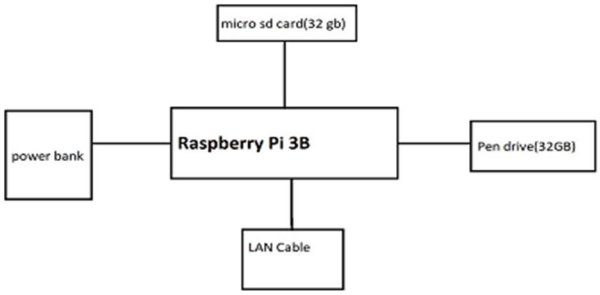


Figure 3: System Block Diagram (Online)

A. Raspberry Pi Model

The Raspberry Pi 3 Model B is the latest version of the low-cost Raspberry Pi computer. The Pi isn't like your typical device; in its cheapest form it doesn't have a case, and is simply a credit-card sized electronic board -- of the type you might find inside a PC or laptop, but much smaller. One thing to bear in mind is that in its cheapest form, the Pi is just a bare board. You'll also need a power supply, a monitor or TV, leads to connect to the monitor -- typically a micro HDMI cable -- and a mouse and keyboard.

Figure 3: Raspberry Pi 3 Board (Model B)

B. Micro SD card:

The micro SD card used in this project is a 32GB class 10 memory card. We are using the Class 10 SD card because it gives high performance and a better output. The micro SD card saves the raspberry pi image.

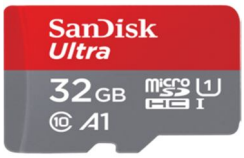
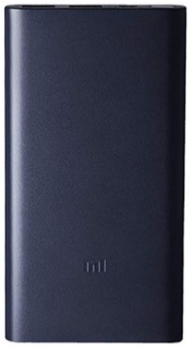


Figure 4: Micro SD card

C. Power Bank

The power bank used in this project is 10,000 MaH. The purpose of the use of power bank is that the raspberry pi needs to be powered every time we use raspberry pi.



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D. System Development(Offline)

To start with the offline server, we first need to format the SD card with the help of the application called SD card formatter. The reason we are using SD card formatter app because it gives a more space as compared to format with the help of disk formatter. After we format the Sd card the next step is to insert the SD card in the SD card reader.

After we insert the SD card reader in the CPU we copy the image of raspberry PI in to the SD card. After the insertion of image in the Sd card it is then inserted I to the raspberry Pi in the SD card slot.

1) Next step include

Open terminal for Windows and install Putty and telnet into the Pirate-Box.

telnet 192.168.1.1.

2) To start the set-up menu.

Box_init_setup.sh

3) To create the new password for the administrative root users. Choose Option 1 then entopt/er your password twice.

ssh root@192.168.1.1.

4) To activate your imageboard

\opt\pirateBox\bin\board-autoconf.sh.

5) Activate the UPnP Media Server by copying over the config file:

/cp /opt/piratebox/src/openwrt.example.minidlna /mnt/ext/etc/config/minidlna.

/etc/init.d/minidlna enable

vi /etc/config/minidlna

6) Start the UPnP Media Server with

/etc/init.d/minidlna start.

/etc/init.d/minidlna enable.

V. RESULT

When the users get connect to their respective IP address (for our case its 192.168.0.104), They are redirected to the Pirate box official page where users can upload files, folders, also chat freelyd with the uses connected to the Pirate box.

Figure:- Pirate Box

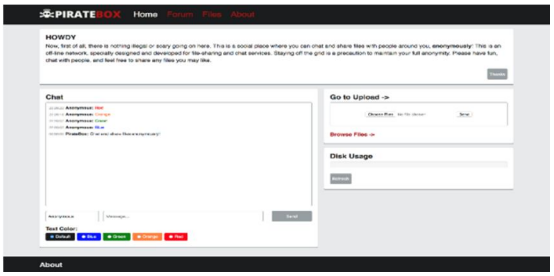

Figure- Pirate box official page

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VI. CONCLUSION

In this paper, we can use offline media server for data transmitting and sharing, for that Linux OS platform is used and it will greatly help to develop the server using the Raspberry pi. The offline media server has many advantages like it doesn't required internet connection, no need of router for data transmission. Due to this it can be used to access the videos, music, e-books etc.

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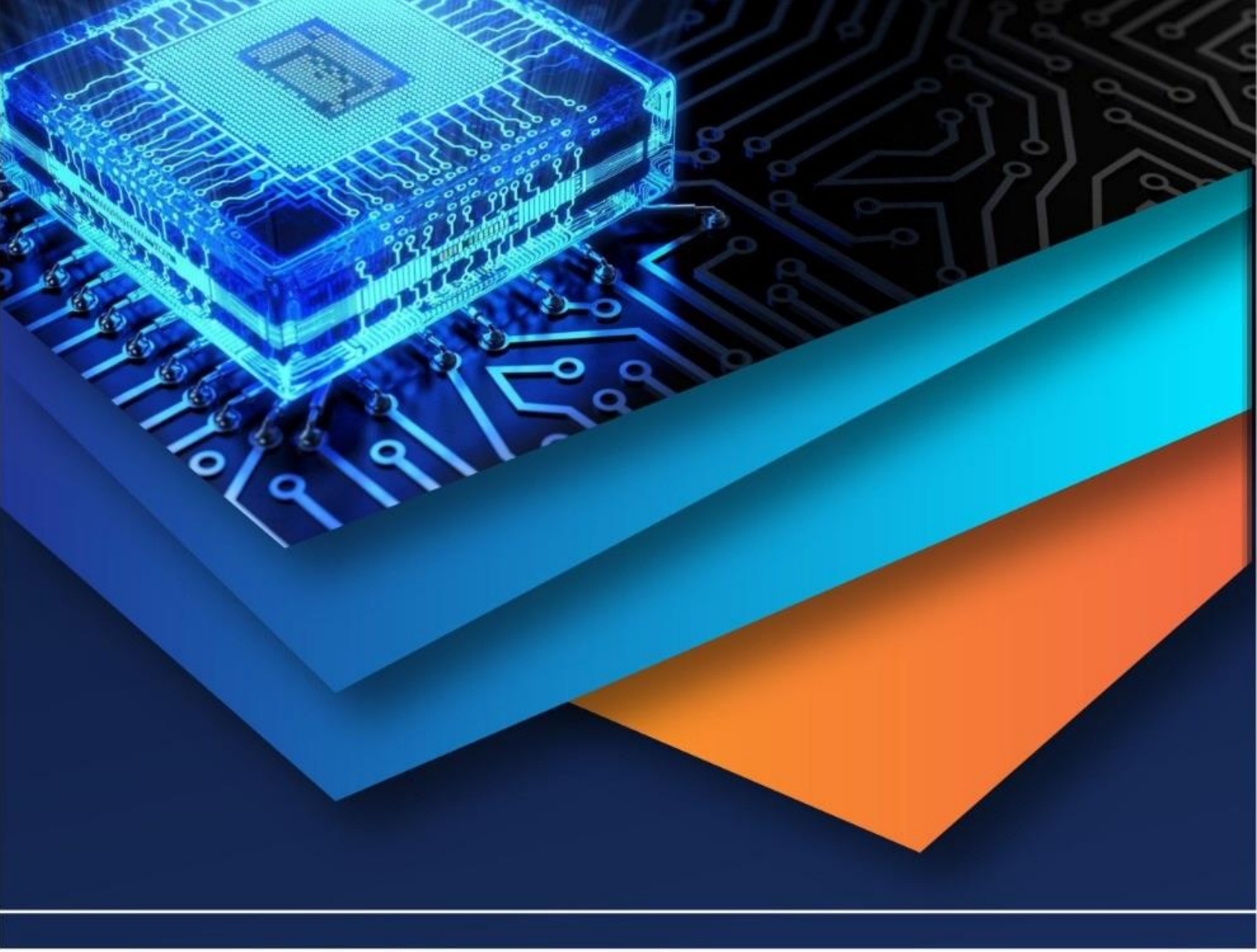

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