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# Raspberry PI Based OFFLINE MEDIA SERVER

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*Abstract*- **In this research paper, an economically low computing environment using Raspberry Pi zero W model based systems is very Well organized to use computing system in the developing environment. All this work will be done on Linux OS platform and it will help to develop the server using the Raspberry pi. A partition will be made on the SD card which is connected to the Raspberry pi that helps to store the media and work with them Offline. This accommodate up to 50 users to work offline.**

Keywords- ***low-cost computing, Raspberry Pi (zero W), Offline Streaming***

## I. INTRODUCTION

More number of entertaining devices are available, in which some of them are recordable player or broadcast media receiver player. But all devices have some problems, if there are 5 person or more crowds will exist and they all will enjoy the same track. Another problem of broadcast player is the range issue and much more problems will additionally exist [1].

In this 21st generation everyone were using the smart phone 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, where the device is present[2].

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[3].

All this work will be done on Linux OS platform and it will help to develop the server using the Raspberry pi. We are going to make partition on the SD card which is connected to the Raspberry pi to store the media and it will be easily accessed by the user [4].

Network Linked Storage helps to share a file to heterogeneous devices in a network. It is used to share a file or data like server.
This offline server works by providing a WIFI-signal from the pi adapter. By connecting to the WIFI from the pi, the connected phone, tablet or laptop will be able to access the memory from the pi micro SD card through an offline-server provided by the pi. Pictures, videos and music can be uploaded, downloaded and played from that. The whole system works automatically by simply powering the pi zero.

## II. SYSTEM DEVELOPMENT

In this project of Raspberry Pi (zero W) model, in this we need to be format the micro SD card. We decided to install image file, which is burnt on a new micro SD card. The file (ArOZ Alpha) is 1.45 GB big and is compressed.

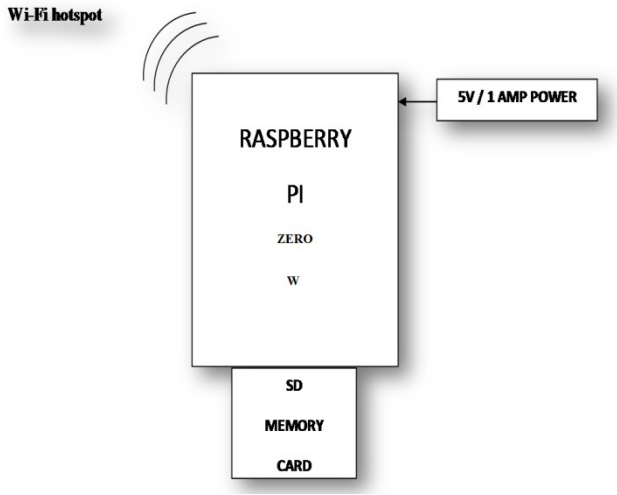


Fig.1. Block diagram of system

### 2.1 Testing the System

The micro SD card is now plugged in the slot of pi zero w, the power supply to the raspberry pi is given from the micro USB cable. After a few seconds later you are able to see 'ArOZ-online'.

It is to be connected with the help of Wi-Fi which is inbuilt on the raspberry pi, but there is no actual internet available. Navigate to your browser and type:
192.168.0.1(Default Static IP)

You should now be able to see the ArOZ-Online website if everything was done correctly. Now that it works, some files need to edited. To edit the files, download VNC Viewer from here on your Laptop/PC and connect to the ArOZ-Online systemin the Wi-Fi settings.

Open VNC Viewer and type this address in the address field:
192.168.0.1
It will prompt for a username and password.

### 2.3 Final Configuration

No matter what size your micro SD card has, the full extent of the memory cannot be simply used as-is. To use the full memory available by your micro SD card, open up LX Terminal, then type in:
*sudo raspi-config*(command for configure the memory of pi)

The next thing to do is changing the default password. This can be done by clicking the raspberry icon located at the bottom left corner, then selecting 'Preferences' and clicking on 'Raspberry Pi Configuration'. Click on 'Change password' and type in 'raspberry' as the current password. Type in a new password and retype it in the last field. Lastly, click on enter to apply the change. When connecting to VNC another time, use your specified password.

To change the Wi-Fi password from the ArOZ-Online system, a specific file has to be modified. Type this in the Terminal:
*sudo leafpad /etc./hostapd/hostapd.conf*

Make sure that the new password has at least 8 characters long and not easy to guess. Save the file by pressing 'Ctrl' and's' and after saving, quit the editor by pressing 'Alt' and 'F4'. To apply the changes, reboot the raspberry pi by typing:
*sudo reboot*

You'll realize that the password has been updated and no device is able to connect to it anymore. Either the device from which you're trying to connect to will tell you to retype the password or you might have to manually change the password for this network in the network settings. Once connected, type in 192.168.0.1 in your browser.

### 2.4 Adding Security

Security is important. Nobody would like it if some evil hacker is looking through someone's data. At the moment, your Pi is pretty much secure since it's not actually connected to the internet but local hackers could still gain access to your data from your cloud. By 'local' I mean people who can see the SSID of your cloud.

A few things can be done to improve the security of your cloud:
Forcing the 'sudo' user to enter your password:
On the Terminal, type 'sudo password'. It will ask you for a new password. Don't worry, the Terminal won't show you any characters you type but that's normal. Hit enter and retype your password. Now, the user 'sudo' has a password, but it won't ask for it so far. To force 'sudo' users to enter a password, type:
*sudo nano /etc/sudoers.d/010_pi-nopasswd*
and change 'no password' to 'password' (just remove the 'no'). press the Control button and the letter 'X' on your keyboard and hit enter. To save the file, simply press 'y' and hit enter.

Creating a password for the user 'root':
The user 'root' has more rights than any user. By default, the user 'root' will not ask for a password which is a security hole. Creating a password for the 'root' user will improve the security. To do so, enter 'sudo-su' in the terminal to switch to the user 'root'. Once there, type 'password' and add a password. Hit enter and retype your password. Hit enter again to finish. Now your cloud or server is more secure against hackers.

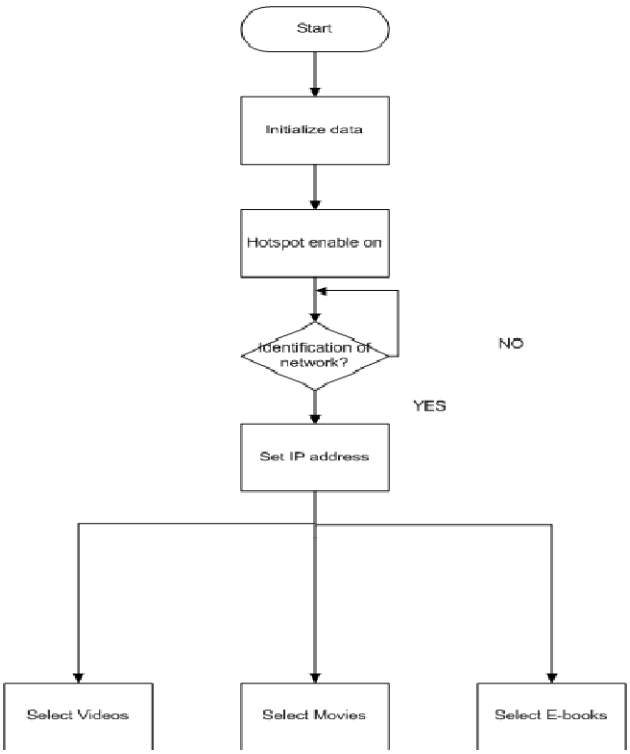


Fig.2. System operation

## III. RESULT & DISCUSSIONS

When following IP address is search in browser. 192.168.0.1(Default Static IP), Then it will display the

main login screen where you can login by using admin ID and password.

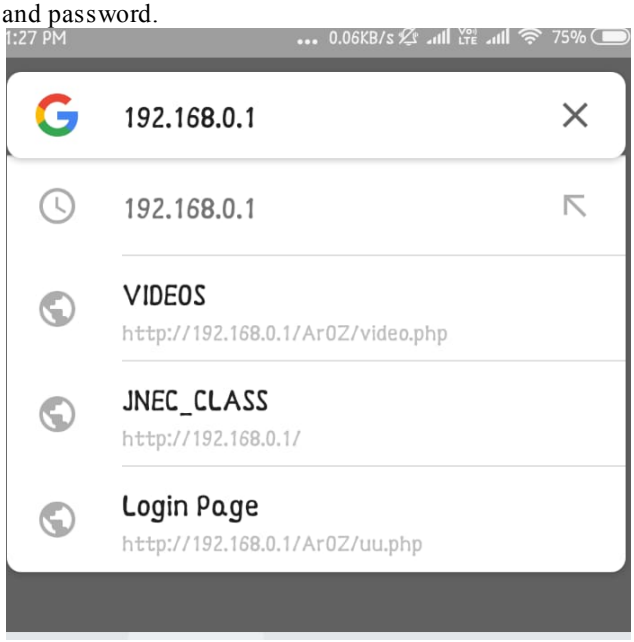


Fig.3. Set IP address

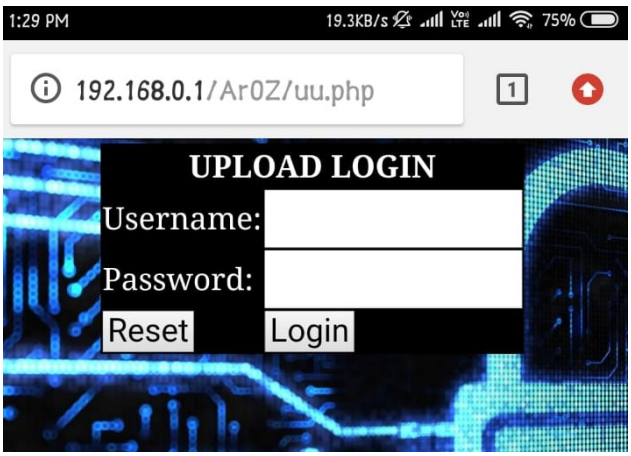


Fig.4. Login for uploading

We can access various E-book, Technical Video using the IP address, we can browse this IP on any PC, mobile without internet. Fig.5. show the welcome screen where E-book and technical videos are accessible.

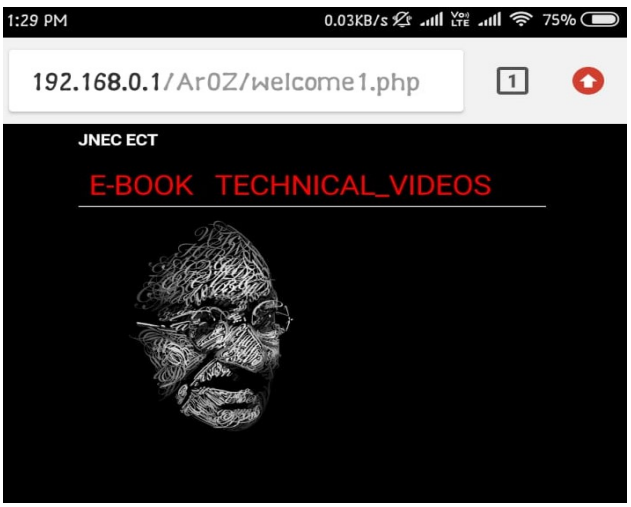


Fig.5. Content Folder

## IV.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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