Wireless Prepaid Printer Using Raspberry Pi 3

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Abstract

In these days automation using wireless communication has made the system more smart and automated. This paper projects a design of a device which directly prints the data stored inside the mobile without the desktop computer. The common data printing procedure has to use desktop computer as first receiving the data from mobile and then in this system data is sending it to printer using printing method. The common unix printing system installed on Raspberry Pi do the print job[1].The inbuilt wi-fi of Raspberry pi accept file from paired mobile and gives to Raspberry pi. The system cover of a single master and multiple slaves with wireless mode of communication and Raspberry Pi system that can either operate on windows, linux or many other operating system[2]. In this project we are using Ubuntu as operating system.

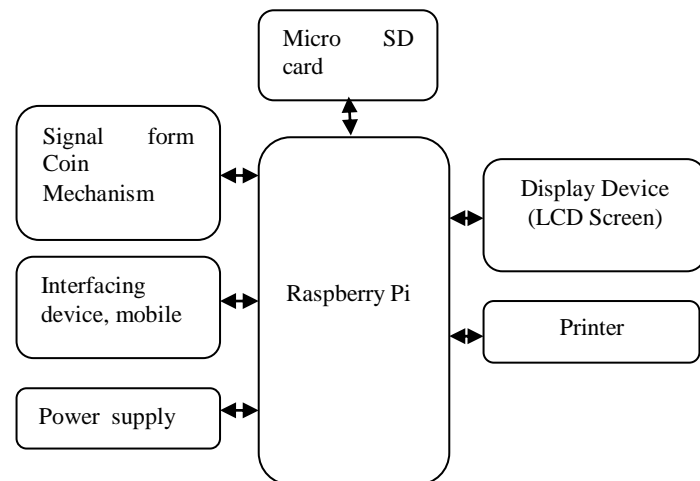*Keywords: Mobile, phone, Printer Raspberry Pi, USB Printer Drive, Coin mechanism*

1. Introduction

The use of wireless technology in industrial automation system offers a number of potential benefits, from the obvious cost reduction brought about by the elimination of wiring to the availability of better plant information. In previous days the printer is normally perform printing job but our printer will perform the printing job with the additional features like security, realiability, less human efforts. The main purpose of this project is that the customer will handle the prepaid printer and give print by inserting coin in coin mechanism. Also it reduces the time efforts of the customer. In addition there user friendly design and space requirement mean that prepaid printer can fit behind counter and any corner area. This system would make more simple and efficient than precious printer system. From this project we have to provide self service of printing to the customer.

The Wi-Fi adpater which helps the printer to print by receiving data from user like mobile or destop and gives it to raspberry pi and then selecting any of the first operation mode in which data from data supply devices received by wireless communication device, before receiving the data print job assigned to the printer by wired communication. In the second mode of operation in which data is received by wireless communication from the supply device, after the print job is issued to the printer by wired communication using USB 2.0.

2. Block Diagram

We can wirelessly print documents, bills and invoices (MS Office: Word, Excel, PowerPoint; PDF and text files) from device memory

Wi-Fi transmission module:
It is used to receive data transmitted from user such as mobile phones and laptops. And then send it to raspberry pi.

Raspberry Pi:
It is connected to the Wi-Fi transmission module and contains an extraction unit, a memory unit and a compiling unit. The memory unit temporarily stores the image data for subsequent uses. The extraction unit extracts the data information to be printed from thedata transmitted by the user[4].

USB transmission module:

USB 2.0 is connected between the microprocessor and printer. It can transmit the printing data provided by the raspberry pi to the printing device for printing. It has the capability of 480Mbps speed of serial data transmission[3].
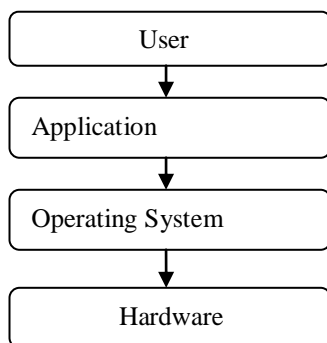
Drivers:

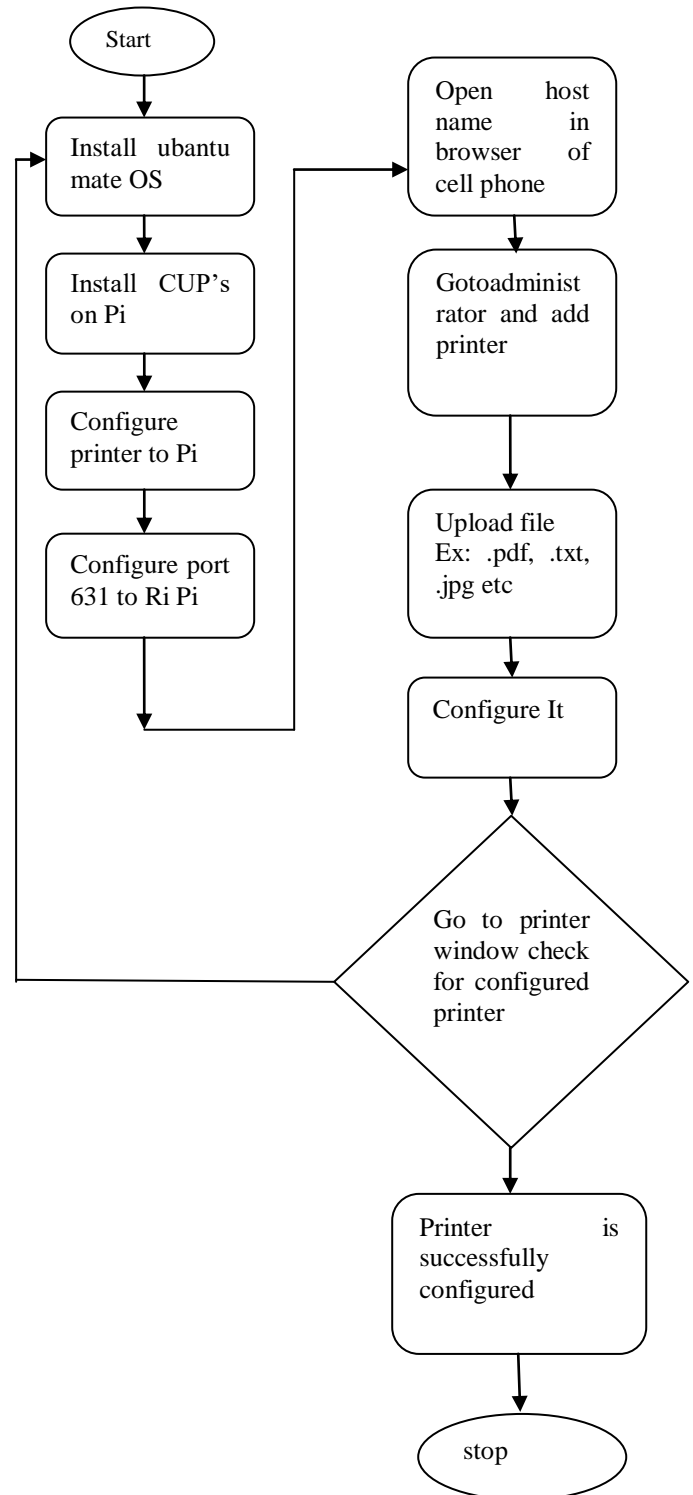Kernel Drivers: To detect the printer by using kernel driver module

CUPS Drivers: Adding files to add the printer to the user.

Between OS in raspberry pi and hardware (i.e printer) the required control action is done by kernel drivers. And in other hand between user and OS required controlling action to access printer using Wi-Fi is done by LINUX administration tools i.e CUPS (common UNIX printing system)[2]. A computer running CUPS is a host that can accept print jobs from client computers, process them, and send them to the appropriate printer[2].

The print-data goes to a scheduler which sends jobs to a filter system that converts the print job into a format the printer will understand.

3.Flow Chart Of Interfacing Between Raspberry Pi And Printer

Step1: Connect printer to Raspberry Pi.

Step2: Install ubantu operating system.

Step3: Adding a printer to Raspberry Pi
- Access the CUPS web interface through the printers panel in the server-manager.
- In the CUPS web interface, choose "Do Administration Tasks", then choose "Add a New Printer".
- Pick a name for your printer.
- Connect it.

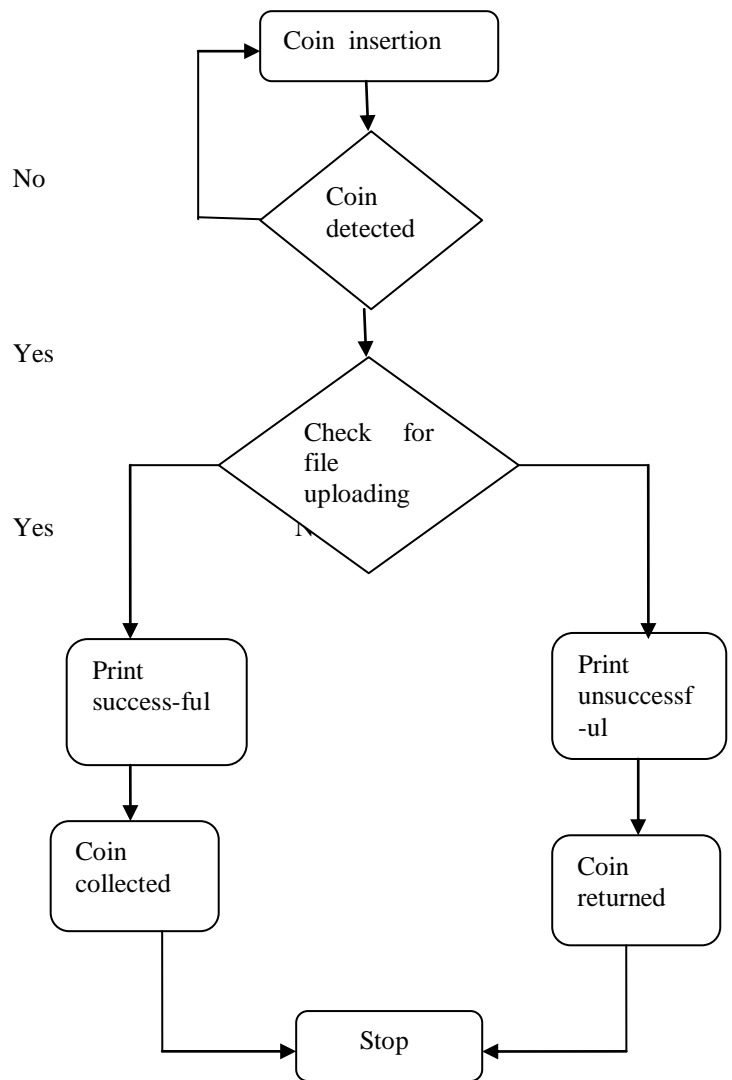**Step4: Get the IP Address of the Remote Printer**.

Step5: Create webpage to upload data

- Select the path of the file to be upload
- Select file (ex: .pdf , .txt ,.jpg etc)
- select no. of Quantity, Page no. ,Font Size.
- Press the Upload button to upload file .
- Click on the Print button.

Step6:Check if Printer successfully configured.
Step7: Stop

4. Flow chart of Coin Mechanisam

In this coin mechanism process we first insert coin. Then we check for coin is valid or not if not then user gets the instruction yo insert the coin again.

If coin is detected successfully then the raspberry pi check for file uploaded or not. If file uploaded successfully then user gets print of there document according to the inserted coin. And the end coin collected by the mechanism[3].

And if file is not uploaded then user gets the notification that print is unsuccessfu[5]l. Coin returned to the user.

5. Conclusions

In normal data printing method, one has to use laptop or desktop computer as a intermediate medium. Receiving the data from Mobile, Copying it on computer and then sending it to printer for printing. This is time consuming process. This paper gives the design of a low cost Wi-Fi to USB data converter, which is capable of receiving data and controlling Printer device via the Wi-Fi port of Mobile. This approach can be used for time saving and it is simple and practical. By using this approach we can more easily print data from mobile device

6. References

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