A Review Paper on QR Code Based Quick Printer System for NIT Polytechnic Institute

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Abstract

The growth of wireless technology has transformed traditional printing into more efficient and easy-to-use systems. This paper introduces a Quick Printer system that uses a QR code scanner and Wi-Fi to allow smooth and hassle- free document printing. Users can simply scan a QR code to connect to the printer, upload their documents, and select printing options without needing any physical cables or connections. The system offers two payment options: online payment through UPI and cash payment. This provides users with flexibility and convenience. Also, there's a Teacher-Student module that gives controlled access. Students can submit print requests, and teachers can check, approve, or reject them. This is especially helpful in schools and colleges to ensure transparency and prevent unauthorized use. The proposed system boosts printing efficiency, makes setup easier, and offers a secure, fast, and scalable solutional idea/ for places like colleges, libraries, and offices that need quick and managed printing services.

INTRODUCTION

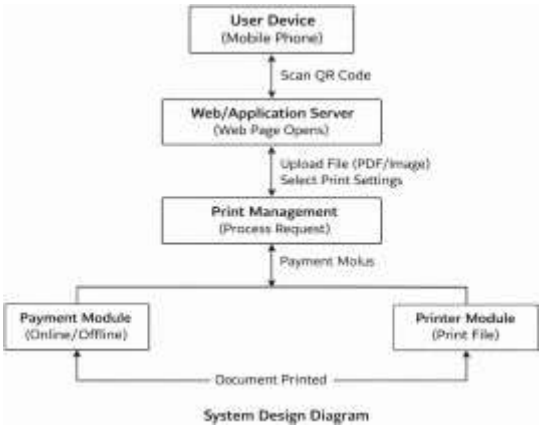
Smartphones and other digital communication and data storage tools have greatly changed the way we handle documents and information over the past few years. Most people now use their mobile devices along with cloud-based apps to manage their data digitally. This move to digital document management has made it easier and quicker for people to communicate with each other. However, even with these improvements, many people still rely on traditional printing methods, like using computers, USB drives, or regular printing techniques, to print their documents. Using these traditional methods has caused several problems for users. For instance, many people transfer files from their computers to USB drives manually, wait in long lines to print, or depend on someone else's help to print their documents. This makes the printing process slower and less productive. This issue is even more noticeable in educational and public library settings, such as colleges, universities, libraries, offices, and community print centres, where the need for printing is very high. Therefore, it is important to develop a better, faster, and easier solution for printing that helps connect digital document management with physical printing. Researchers and companies have created many advanced technologies, like Wi - Fi and Bluetooth, to help overcome some of the challenges in printing. The aim of these technologies is to make printing easier by allowing users to send print jobs directly from their smartphones or tablets without using physical cables. Wireless technologies help connect devices without wires, which increases the flexibility and convenience of printing. codes have become a popular way to access services quickly and easily. Users can access a service, such as a printer, by scanning a QR code to open a web - based interface or app. Web - based apps make the printing process more user - friendly because users don't need to down load or install extra software. Instead, they can simply use an online app to upload documents, choose print settings, and manage print jobs. Many companies have developed smart printing systems as the demand for mobile printing continues to grow. These solutions aim to make printing faster and more user friendly, offering a better experience than traditional methods. However, even with these advancements, there are still several limitations. Users often depend on specific apps, face connectivity issues, and struggle with compatibility across different technologies. This paper explores various types of existing mobile print systems that use technologies like QR codes, web-based document uploads, and wireless connections also discusses the strengths and weaknesses of each method and evaluates how effective they are in real-world scenarios. After reviewing current mobile printing technologies, we propose a new solution called Quick Print .

QuickPrint will use QR code technology, offer a simple mobile interface, and automatically connect with printers for a smooth and easy printing experience. The goal of the system is to provide users with instant access to printing information, eliminate e the need to manually set up a printer, and connect with other devices that help produce printed documents. This makes printing faster and easier to use in any setting.

SYSTEM DESIGN

Quick Printer is a mobile-based printing solution that uses QR code technology to make the printing process faster and It works with a client - server setup that easier.

includes a user's mobile phone, an internet connection, and a printer system. When the user scans a QR code on the printer using a QR scanner, it starts the printing process. Scanning the code automatically opens a we b application or webpage on the user's phone. From there, the user can upload different types of files, like PDFs or images, and choose various printing options, such as the number of pages, how many copies of each page to print, and whether to print on both sides of the paper. Once the user sets up the printing options through a web interface, they can pay for the service either online or offline. After the payment is confirmed, the printer processes the request and prints the selected files. The system includes several parts that handle QR code scanning, user interaction, file management, print control, and payment handling. These parts work together to make the printing process quicker and more convenient, and they remove the need for a computer to perform the printilng .



System Design Diagram

Flg. System Deslgn

BLOCK DIAGRAM

SYSTEM ARCHITECTURE (Quick *inter System)

The Quick Printer uses a client-server setup that lets users connect their mobile phone directly to the printer through a web-based interface. The system is designed to be easy to use, fast, and

1. Client Side (User Device) The user's phone is the client side. They can scan a QR code using a QR scanning app or by taking a photo with their phone's camera. Once the code is scanned, a web application opens automatically in the phone's browser. This lets the user upload files and choose printing settings, such as which pages to print, how many copies, and whether to print front and back

2.Web/Application Server The web server acts as a middleman between the user and the printer. It handles user requests, processes uploaded files like PDFs or images, manages the printing options selected, and controls the printing process. It also handles both online and offline payment methods for the user.

3.Printer System Once the user finishes submitting their print request, the printer connects to the web server and receives print commands from it. The printer then processes the document and prints it according to the user's selected settings.

4. Payment Module The payment module is part of the printing system that manages the user's payment. It accepts both online payments, like through electronic means, and offline payment options.

5.Data Movement

1. User scans QR code.
2. Website opens on the user's mobile phone.
3. User uploads the document.
4. User sets printing preferences.
5. Payment is received.
6. Command is sent to the printer through the server
7. The document is printed out.

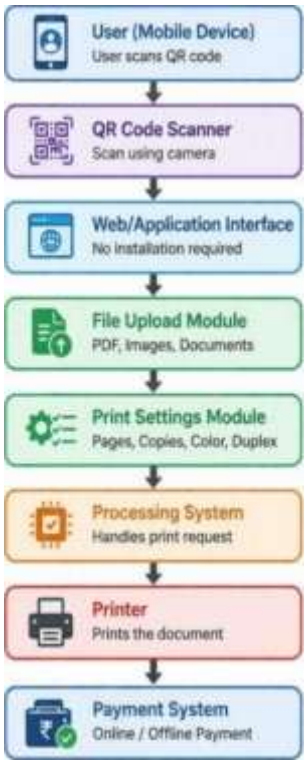


Fig. System Architecture

BENEFITS OF SOCIETY

Personal printers are designed mainly to keep the purchase cost low. Even though the cost of ink cartridges is high and the cost per page is also high, it balances out the initial cost of buying a personal printer. On the other hand, users don't want to spend more money on cheap printers just to save a little. Recently, most students and professionals are submitting their work and assignments in PDF format, which needs to be printed and filled in by hand. Because of this, the need for printers, especially small - scale ones, has gone up a lot. Given the issues with small -scale printers and the growing need for printing single pages, our device serves as a good solution between these two factors.

It is expected that this device will reduce the use of personal printers. The convenience it offers will encourage a large number of people to switch from commercial printers, which will help reduce e-waste generated from manufacturing home - use printers.

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CONCLUSION

The system allows users to print documents over a network using a wired printer also converts a wired printer into a wireless one by using RFID technology, making it easier for end users. The system ensures full document security by automatically taking away the printed document from the printer once it's done. The setup of the system encourages users to print without touching anything, which makes it convenient and private. Large number of people to switch from commercial printers, which will help reduce e- waste generated from manufacturing home use printers.

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