

Smart Document Management and Capture Platform

Aditya Vikram Singh¹, Tanushree Srivastava², Vandana³, Aditee Mattoo⁴

¹ Computer Science and Engineering(M.Tech Int.)

Noida Institute of Engineering and Technology

² Computer Science and Engineering(M.Tech Int.)

Noida Institute of Engineering and Technology

³ Computer Science and Engineering(M.Tech Int.)

Noida Institute of Engineering and Technology

⁴ Deputy HOD of Computer Science and Engineering(M.Tech Int.)

Noida Institute of Engineering and Technology

Abstract - With the increasing volume of digital documents generated every day, effectively storing and organizing them has become an essential task. Smart Document Management and Capture Platform (SDCP) has evolved as a vital technology that enables organizations to efficiently gather, process, and manage their documents. This study aims to provide an understanding of document management practices in a college setting. Specifically, the study discusses the importance of documents, document management programs, their benefits, and how these records are managed in the college. A thesis submitted by Tijjani Aliyu on Records Management in Federal College of Education, found that colleges keep their paper-based records primarily in files and on wooden shelves, which increases the risk of data loss. The use of document management platforms can reduce this risk, as well as eliminate the need for physical storage. Additionally, these platforms can make all documents readily available and easily retrievable in one location. Furthermore, SDCP can benefit academic staff by assessing teachers' overall work performance.[5]

Key Words: Smart Document management and capture Platform (SDCP), Document Management platform, paper-based records, college, storing.

1.INTRODUCTION

In today's digital age, the volume of documents generated by organizations is increasing at an unprecedented rate. Effective management of these documents is critical to ensuring smooth operations and compliance with legal and C including difficulties in organizing, searching, and accessing documents. Paper documents are often stored in physical locations such as filing cabinets, which can be prone to theft, loss, or damage due to natural disasters or accidents. In addition, accessing paper documents requires physical presence, which can be a challenge for remote or off-site staff or faculty. These issues can lead to inefficiencies, delays, and errors in decision-making processes.

To address these challenges, smart document capture and management platforms (SDCPs) have emerged as an effective solution. SDCPs offer a digital approach to document management, which involves scanning, digitizing, and storing

paper documents in a central repository. This allows for easy retrieval, sharing, and collaboration on documents, from anywhere and at any time, as long as there is an internet connection. SDCPs also offer several benefits, including improved searchability, security, and compliance, as well as cost savings and environmental sustainability.

In this paper, we present a case study of the implementation and adoption of an SDCP in a college setting. By presenting this case study, we aim to provide insights into the potential of SDCPs as a transformative technology for document management in the college setting.

2. OBJECTIVES

- The capacity to capture data from a variety of documents, such as Certificates, Marksheet, Research Paper, etc.
- Classification of documents based on their titles and formats.
- Secure storage of documents in secure digital manner.
- Easy availability of documents from anywhere and to higher authorities in different formats if required.
- The capacity to manage document access, including who has access and to what extent, depending on roles and permissions.

3. PROBLEM STATEMENT

Due to the rapid advancement of digital technologies, the volume of information generated and held by organizations has increased exponentially. As a result, document management has become a major concern for organizations. It is a challenge that is most encountered by teachers, students, and administrators when they need records to make accurate and timely decisions. Most of these issues come when educational institutions like schools, colleges, and universities must set up a lot of office space to manually maintain records each year. Based on the issues raised above, the need to maintain adequate records cannot be overstated. As a result, it was deemed necessary to look into document management system [2].

4. PROPOSED METHODOLOGY

This platform is primarily intended for storing and retrieving documents via the internet at any time and from any location. The diagram shows in Fig. 1 The platform's users include administrators, faculty, and students. It enables an Admin to establish accounts and provide privileges to Faculty and students. This platform is used by faculty and students to upload their documents like marksheets, certificates, research papers, awards or achievements and information about seminars attended, guest lectures and participation in other activities.

The platform should provide efficient and intuitive search capabilities to enable users to find documents easily. Students' profiles or documentation can be inspected by both faculty and admin. Also, administration can look over faculty profile, documentations, or paperwork. Furthermore, it provides a secure platform to store the papers, making it easy for the department to collect them [3].

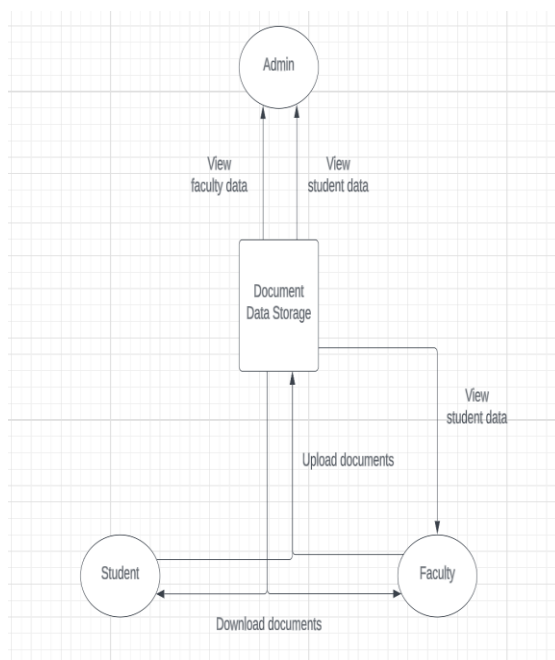


Fig -1: Data flow diagram of the proposed system

5. LITERATURE REVIEW

Smart document management and capture platforms are software systems aimed to simplify document management by capturing documents, storing them, retrieving them, and distributing them. These platforms have grown in popularity in recent years as businesses attempt to optimize their document management processes, decrease expenses, and increase productivity.

The traditional document management system was the first and most established method of document upkeep. Small and medium-sized enterprises used this sort of filing to organize their internal documents at the time. Examples include pigeon-hole filing, cardboard, box, and wire filing systems [3].

The modern document filing system was designed to compensate for the conventional file system, which fell short of expectations in terms of maintaining files and papers for a commercial setting.

We shall investigate the present state of the literature in this review of research on smart document management and capture technologies, including its benefits, problems, and future directions.

Smart document management and capture technologies have the potential to significantly reduce document processing costs and improve processing times. These platforms also offer benefits such as improved quality and consistency of document processing, minimized risk of errors and fraud, and faster decision-making. In addition, a smart document management system can be particularly helpful for academic faculty in managing literature relevant to their research topics. It enables efficient searching and organizing of literature, thereby expediting the research process.

The initial setup and configuration of a document management system is one of the most difficult aspects of its implementation. This can be time-consuming and costly, and it may need extensive IT assistance. Document management systems rely on constant and accurate data entry. If the data is of low quality or inconsistent, it might lead to system faults and inefficiencies. Systems for managing documents must be secure to protect sensitive or confidential data. It can be necessary to take additional security precautions, like access limits, encryption, and backup and recovery methods.

SDCP eliminates the need for costly hardware and software deployments. Document management solutions will need to be accessible on mobile devices such as smartphones and tablets as more individuals operate remotely or on the go. Employees will be able to access and collaborate on documents from anywhere, at any time.

SDCP is a crucial tool for organizations that deal with a significant volume of documents. A SDCP facilitates the effective storage, organization, and management of documents in a centralized and secure way, making it easier for admins to access and exchange information. With an SDCP, organizations may increase efficiency, reduce the risk of data loss, and assure regulatory compliance.

6. IMPLEMENTATION

To implement this solution, an open-source software with an integrated development environment (IDE) called Spring Boot Tool Suite 4 was utilized. This program provides the necessary coding environment for creating advanced Java, JavaScript, HTML, and CSS programs. The backend of the system was developed using the MySQL database tool, chosen for its capability to handle large amounts of data and compatibility with various programming languages, including advanced Java.

The website acts as the interface for the middleware and data access layer, which are responsible for executing and displaying the solution in web browsers. The program was implemented on a machine with the following specifications:

8GB RAM, Intel Core (TM) i5-10210U processor running at 1.60GHz, 64-bit Operating system and a 512GB solid state drive.

The suggested web-based document management system is platform-independent and can handle the distribution and processing of various document types within an organization [3].

Login page

A login page is a web page that needs a user to provide login information, such as a username and password, before being able to access a website or application. A login page may be discussed in a research paper in the context of web security and user authentication.

A login page can be used to verify a user's identity, ensuring that only authorised individuals have access to documents.

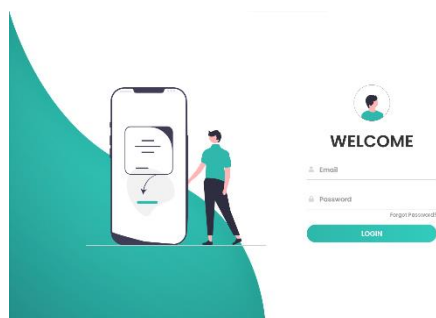


Fig -2: Login page of the proposed system

Home page

In a smart document management system, the term "home page" usually refers to the primary page that users arrive at after logging in. Users may access the different features and capabilities of the smart document management system from the home page, which acts as a central hub.

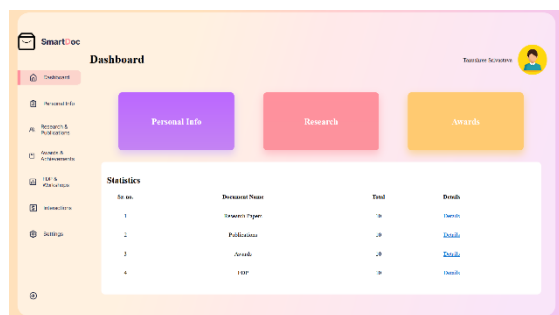


Fig 3: Home page of the proposed system

The home page is divided into 5 sections in a layout that is separated into five unique regions each with its own function and content.

Personal Information

In this section, users upload their personal information like name, ERP Id, email, phone number, address, and department, as well as official information like industrial and academic experience, date of joining and leaving, Google Scholar ID, and Scopus ID.

Award and achievement

In this section, users upload their achievements in different fields like academic awards, professional awards, sports awards, and community awards.

Research paper and publication

In this section, users upload their research papers, conducted by individuals or groups in any field of study, like scientific research papers, social science papers, or engineering research papers.

FDP & Workshops

Faculty Development Program (FDP), Short Term Training Program (STTP), and Quality Improvement Program (QIP) are essential for the professional development of academic faculty. In this section, users can upload details of their participation in FDP, STTP, and QIP programs, including the program's title, duration, institute/organization, and a brief description of the program's content. This section provides a comprehensive overview of the user's commitment to continuing professional development and demonstrates their willingness to stay up to date with the latest advancements in their field.

Interaction

The interaction section allows users to upload details of their interactions as a guest speaker or an attendee. Interaction within universities is a crucial aspect of developing relationships, enhancing social and professional skills, and enriching the overall educational experience.

7. RESULT AND DISCUSSION

Initially, documents are handled manually, and in order to manage them, organizations must create a file system that categorizes records by department, category, and date. Paper documents are stored in file folders or binders with clearly labelled tabs. However, this method is time-consuming because it requires staff to manually manage, retrieve, and organize the documents. It can be challenging to quickly find specific information because employees have to manually search through the files, which is both time-consuming and frustrating. Furthermore, there is a risk of human error in the process, which may lead to a document being misplaced or entirely lost. Consequently, this could result in additional time, costs, and labour in searching for or recreating the document [1].

This can be seen as a continuation of the editing problem mentioned above. When using paper and your team's inevitable editing process, it can be difficult to know whether the document you are holding represents the most recent or final version. Finding out that the paper you spent the longest time working on is an outdated version can be incredibly aggravating.

Due to the challenges and difficulties highlighted in the traditional document management systems, we have developed a smart document management system that caters to the specific needs and requirements of educational institutions. This system has been designed to address the issues of time-consuming paper-based processes, the risk of human error, and difficulties in locating specific documents. By implementing this system, we aim to provide a more efficient, secure, and streamlined approach to document management for colleges, ultimately leading to improved productivity and enhanced educational experiences for students and faculty [1].

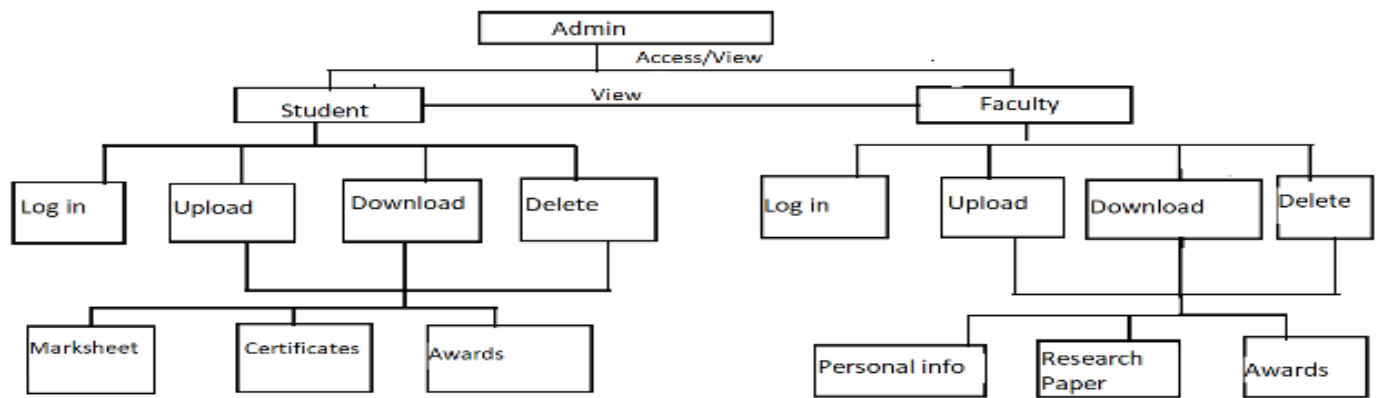


Fig -4: Proposed design of the system

After identifying the problems with traditional document management systems, we analysed the requirements for an effective and efficient system. Our team conducted a thorough analysis of the needs and challenges of document management, and based on the findings, we developed a comprehensive system design for a smart document management platform. The design incorporates features such as easy document upload, secure access, search capabilities, and customizable user profiles. By creating a system that addresses the specific needs of colleges, we aim to improve the efficiency of document management, reduce the risk of human error and data loss, and ultimately enhance the overall productivity of the college [1].

Proposed design of the system

SDCP may capture documents from a variety of sources, such as scanners or mobile devices. This removes the need for manual entry, saving time and eliminating mistakes. SDCP helps to ensure that your documents are secure and only accessible to authorised users. SDCP enables you to organise your papers in a logical and consistent manner, making it simple to find what you need.

Smart Document Capture and Management Platform (SDCP) supports most used document formats, such as PDF, PNG, and JPG. This ensures that documents can be properly managed and secured without risking compatibility issues or data loss associated with less common file types.

A Smart Document Capture and Management Platform (SDCP) can make use of encryption and other cutting-edge security mechanisms to guarantee the confidentiality and privacy of documents. By utilizing such techniques, SDCP offers a secure and dependable method to manage and retain sensitive data, giving users the assurance that their papers are protected.

With its versatile architecture, a Smart Document Capture and Management Platform (SDCP) can seamlessly integrate with various systems and applications, regardless of the version or platform. This level of flexibility ensures that SDCP can work with existing workflows, making it easy for organizations to transition to a more efficient document management solution.

8. CONCLUSION

In conclusion, the adoption of a smart document management platform such as SDCP can have a transformative impact on organizations of all types and sizes. By centralizing document storage and management, SDCP makes it easier and more efficient for employees to access the information they need to make informed decisions. Moreover, the platform's advanced features, including encryption and security mechanisms, help safeguard sensitive data against cyber threats and unauthorized access.

In addition to enhancing organizational decision-making and data security, SDCP can also streamline document management procedures, employees can more easily determine which records should be maintained or thrown away thanks to SDCP [4], leading to increased productivity and reduced workloads. The platform's flexibility and compatibility with various systems and applications make it easy to integrate with existing IT infrastructure, further enhancing its usefulness and value.

Another significant benefit of SDCP is its ability to reduce costs associated with paper usage, physical storage, and manual document processing tasks. By enabling remote access and management of documents via mobile devices, SDCP also increases flexibility and accessibility for users, allowing them to stay connected and productive from anywhere at any time.

Overall, the adoption of a smart document management platform such as SDCP represents a wise investment for any organization looking to optimize its document management practices, increase efficiency, and drive cost savings.

9. FUTURE ENHANCEMENT

There are several potential enhancements for a smart document management system. One potential enhancement is to move the system to the cloud, which would allow for even greater accessibility and flexibility. With a cloud-based system, users can access documents from anywhere with an internet connection, without the need for on-premises hardware or software.

Additionally, integration with other systems and applications could be explored to create a more seamless and integrated experience for users.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to my Mini project guide "Ms. Aditee Mattoo" for giving us the opportunity to work on this topic. It would never be possible for us to take this project to this level without her innovative ideas and her relentless support and encouragement.

REFERENCES

1. P. J. M. Estrera, "Electronic Document Management System for Higher," International Journal of Innovative Science and Research Technology, vol. 2, no. 5, pp. 1-2, 2017.
2. A. O. Eguono Tadaferua, "Assessment of Records Management Practices of Administrative Staff of the Delta State College of Health Technology Ofuoma-Ughelli," p. 8, 2022.
3. S. M. Alade, "Design and Implementation of a Web-based Document Management System," p. 19, 2023.
4. Z. M. Y. W. A. A.-M. U. A. M. B. H. Muaadh Mukred, "Electronic records management systems and the competency of educational institutions: Evidence from Yemen," Information Development, vol. 38(1), 2022.
5. T. ALIYU, "Records management in Federal College of Education," p. 12, 2013.