

ENHANCING DOCUMENT VERIFICATION WITH DIGITAL SIGNATURE AND OCR ALGORITHM

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ABSTRACT

The ministries of the Indian government periodically devise various government initiatives known as schemes for the welfare and development of the people of India. These programs need a wide range of identity papers. When these documents are presented to government authorities for verification, they are thoroughly scrutinized for legitimacy. This method takes a large amount of time and may work. Sometimes documents need to be secured from different threats such as counterfeiting, tempering, etc., and these forged documents are easily used to get benefits from those schemes. That's why it is necessary to check that the document is indeed authorized, and it takes a lot of time to do verification manually. Also, user authentication, data integrity, and data generation secrecy are all aspects of tranquility. To fulfill all of these standards, sensitive material must be digitally signed by the original sender and authenticated by the intended recipient. Our proposed system will verify documents automatically using digital signature verification and OCR technology.

Keywords: OCR, Document Verification, Digital Signature, Image Processing, Fraud Document Dictation.

I. INTRODUCTION

The Government of Maharashtra provides scholarships to nearly 2.5 million students every year. Although the process is fully digital, the process of application by the student, verification by the institution, and verification by the state government is a time-consuming process that requires manual verification of the required documents. This process takes him three to six months and prevents students from accessing financial aid in a timely manner. Innovative technologies must be developed to optimize the verification process so that verification occurs in real time when students apply for scholarships. While there is still time to win or take advantage of these scholarships, we will build a system that will not only reduce the time spent on manual verification, but will also be able to detect forged and counterfeit documents. To do this, we use digital signature verification, which verifies the digital signature of a document. It also utilizes OCR technology to extract important features of documents and automatically verify them using the original document. The objectives of the project are wide-ranging. The purpose of this project is to reduce the time it takes to review documents and process scholarships and admissions procedures. Users will be notified as soon as possible after reviewing the document. There are requirements for document validation processes in all areas. The system retrieves the document and matches it to the original document. The system also helps detect forged or forged documents in use. This system helps reduce the use of fake documents. In order to reduce the time spent on manual verification and prevent fraud, we are also developing a state-of-the-art system that not only speeds up the verification process but also detects forged and forged documents. Use the electronic signature verification function to authenticate the electronic signature of submitted documents. Additionally, it integrates OCR technology to extract important features from documents and automatically match them with the original document. This comprehensive approach ensures efficient and secure distribution of scholarships that benefits the right students in a timely manner.

II. METHODOLOGY

The methodology section describes the methodical approach used in the creation of Document Verification, a cutting-edge tool that uses optical character recognition (OCR) and digital signatures to simplify and automate

the complex process of document verification. This creative solution has been painstakingly designed to improve the efficacy and precision of document authentication, guaranteeing a smooth and safe verification process for a variety of papers, including contracts and significant legal documents in addition to ID cards and passports. Document Verification provides a strong and dependable way to guarantee document authenticity and integrity by fusing state-of-the-art digital signature technology with OCR capabilities. This process saves important time and money while lowering the possibility of mistakes and fraud. Consumer Price Index (CPI) is used as a proxy in this study for inflation rate. CPI is a wide basic measure to compute usual variation in prices of goods and services throughout a particular time period. It is assumed that arise in inflation is inversely associated to security prices because Inflation is at last turned into nominal interest rate and change in nominal interest rates caused change in discount rate so discount rate increase due to increase in inflation rate and increase in discount rate leads to decrease the cash flow's present value (Jecheche, 2010). The purchasing power of money decreased due to inflation, and due to which the investors demand high rate of return, and the prices decreased with increase in required rate of return (Iqbal et al, 2010).

III. MODELING AND ANALYSIS

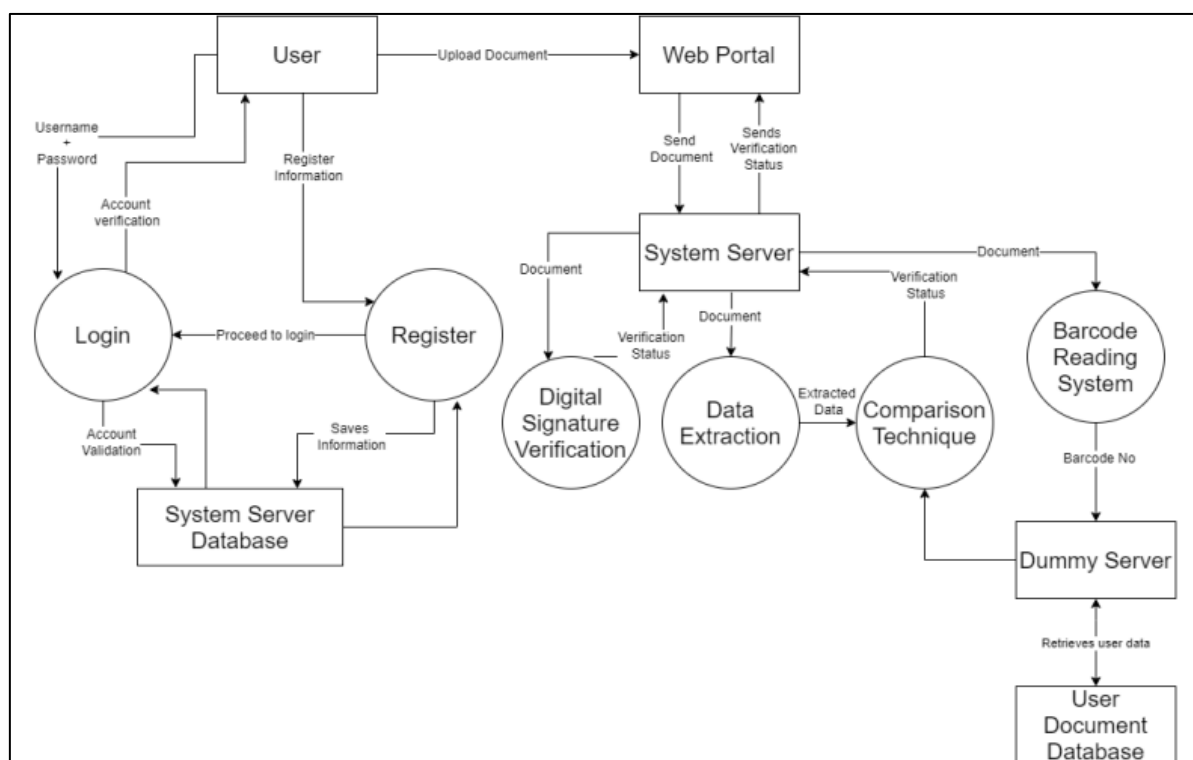


Figure 1: System Architecture

IV. RESULTS AND DISCUSSION

Time taken by the process of verification of caste certificate:

Table 1: Result 1

Task	Time Taken in sec
Document upload	15
Digital signature verification	60
Read the barcode	60
Content Extraction	240
Parameter Matching	20

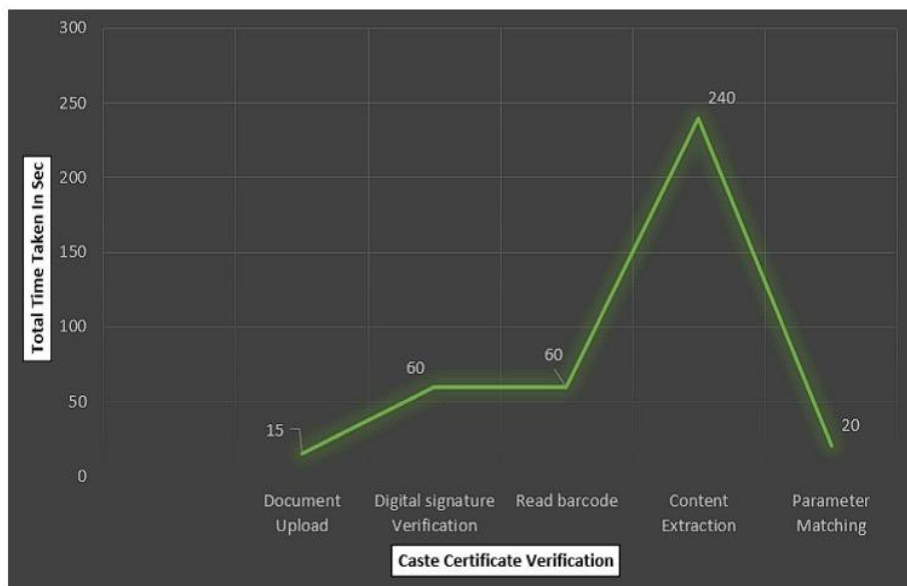


Figure 2: Result 1

Time taken by the process of verification of Domicile certificate:

Table 2: Result 2

Task	Time Taken in sec
Document Upload	15
Digital Signature Verification	60
Read the barcode	60
Content Extraction	180
Parameter Matching	20



Figure 3: Result 2

V. CONCLUSION

Document or certificate verification is an important step in which the legitimacy of a document or certificate issued by an authority is confirmed. In a normal system, manual verification will be used; this is a time-consuming procedure that is not reliable due to human interaction. Although a government identity document is required to identify in the country. These documents might contain false information. It can have an influence on a person's identity. As a result, government initiatives are vulnerable to exploitation. To address the

aforementioned issue, we are developing an automated system that uses digital signature verification and the OCR extraction technique as the implementation method to recognize the data of the documents and verify it against the government dataset, thereby speeding up and simplifying the document verification process.

VI. REFERENCES

- [1] Rashmi Kasodhan, Neetesh Gupta, A New Approach of Digital Signature Verification based on BioGamal Algorithm Proceedings of the Third International Conference on Computing Methodologies and Communication (ICCMC 2019) IEEE Xplore Part Number: CFP19K25-ART: ISBN: 978-1-7386-7808-1
- [2] Mrs. G. Chandra Praba, A. Shahini, E. Jeevitha, A. Ahitha, B. Swetha, Fake Education Document Detection using Image Processing and Deep Learning, International Journal of Engineering Research Technology (IJERT) ISSN: 2278-0181 Published by, www.ijert.org ICRADL 2021 Conference Proceedings
- [3] Saurabh Dome, Saurabh Dome, Optical Character Recognition using Tesseract and Classification 2021 International Conference on Emerging Smart Computing and Informatics (ESCI) AISSMS Institute of Information Technology, Pune, India. Mar 5-7, 2021
- [4] Nasim Adnan, Mohammed Akbar Kabir, Mohammad Rifat Ahmmad Rashid. An Innovative Approach of Verification Mechanism for both Electronic and Printed Documents (JACSA) International Journal of Advanced Computer Science and Applications, Vol. 11, No. 8, 2020
- [5] Larry Arjomandi, Garishna Khadka, Zixiang Xiong, Nimal Karmarkar. Document Verification: A Cloud-Based Computing Pattern Recognition Approach to Chipless RFID, IEEE Access VOLUME 6, 2018
- [6] Spoorti Kulkarni, Shreya Madge, Tejaswi Madhave, Automatic Document Verification and Government Policy Recommendation System, International Journal of Computer Applications, 2014
- [7] Tayan, O. Kabir, M. N., Alginahi, Y. M. (2014). A Hybrid Digital-Signature and Zero-Watermarking. Approach for Authentication and Protection of Sensitive Electronic Documents. The Scientific World Journal, 2014, 1-1471
- [8] Now Fast Content-Based Skew Detection Algorithm for Document Images, Mohd Amir and Abhishek Jindal, Newgen Software Technologies Ltd., A-6 Satsang Vihar Marg, Qutab Institutional Area, New Delhi, 110067, India
- [9] Kadek Dwi Budi Utama. M. Rizqia Al-Ghazali Q. Leonardus Irfan Bayu Mahendra. Guruh Fajar Shidik. "Digital Signature using MAC Address based AES128 and SHA-2 256-bit", International Seminar on Application for Technology of Information and Communication (iSemantic). IEEE, Oct. 2017, pp. 72-78
- [10] Serge G. Chernyi, Aslamin A. Ali, Vyacheslav V. Veselkov. Ivan L. Titov. Vlad Yn Budnik, "Security of Electronic Digital Signature in Maritime Industry", IEEE Conference of Russian Young Researchers in Electrical and Electronic Engineering (LEIConRus), Feb 2017, pp. 29-32.