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Web-based enhancement in document digitization using AES

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Abstract -To develop a web-based system, which will save time and hassle free process of submission of supporting documents to the different service sectors. The system overcomes the problem of carrying and showing hard document to particular sector's official. There has been increasing request for secure system which must be dependable and fast approachable for every individual. Web-based document digitization is one of the reliable and quicker identification of objects. Performance and efficiency are the two main goals of our document digitalization systems. Technologies are being increasingly used by us in everyday lives from retail stores, showrooms to government offices. They enable us to connect with one another as well as share information about issues and concerns that we encounter. Our project allows an individual to save online and digitally share the documents issued by any government department, educational institute, transport department and other agencies. It is one of the ambitious aspects of Digitization. It is a system which secures the insecurities regarding losing the crucial documents. Further this paper explains about our project i.e. document digitization with features, objectives of our website. If a person wants to create his/ her account, he/ she are required aadhaar no. along with a mobile no. which is linked to his/ her aadhaar no. This facility is a step to eliminate the use of physical documents and making it paperless.

Keywords- digitization, documents, document encryption, etc.

1.INTRODUCTION

Almost all government-issued documents in India are currently available in physical form. This means that every time a resident has to give the document to an agency for a service to be available, there will be a certified photocopy in physical or scanned. The use of physical copies of documents creates a lot of overhead in terms of manual review, paper storage, manual audits, etc., which causes high costs and inconvenience, which creates a problem for multiple agencies in verifying the authenticity of these documents, which creates problems Loopholes for the use of forged documents[1]. Because of the nature of these documents, which do not have a strong identity associated with them, anyone with the same name can abuse someone else's document[1]. Hence, India needs to add technology in everything from government offices to corporations, schools, and universities to healthcare, etc. Private companies are also moving towards information technology because they know this change is necessary. The Indian government's Digital India project aims to make government services available to individuals electronically while eliminating paperwork. The development of a two-way stage will profit both the specialist co-op and the user. This initiative depends on the inter-ministerial department where all ministries and departments offer their services to the public. Our web-based system provides a free platform for citizens to save and retrieve vital papers. It helps citizens digitally save their important documents such as PAN cards, RTOs, and mark sheets, certificates on-site. It provides secure access to government-issued documents and personal documents of authenticity provided by the aadhaar card. The goal is to eliminate the need for physical documents by allowing government agencies to exchange authenticated electronic papers. Three major stakeholders are citizens, issuers, and the applicant[5]. Publishing a digital document on the internet is of limited use unless it can be safely restored from the database. Unlike traditional cloud storage solutions like Google Drive or Dropbox, It consists of two parts: one part stores link to documents that are issued to citizens by a government agency that has registered with our system, and the other part can be used to upload old or older documents that citizens wish. One of the most important aspects of our system is that the aadhaar integration provides citizens with a secure platform to store electronic documents[9].

2. RELATED WORK

A document management system is becoming a mandate for Public Sector and Government Agencies with tens or hundreds of thousands of documents to organize, index, and handle their papers in a hassle-free manner. Public Sector and Government Agencies deal with a wide range of documents, from public view documents like Tenders to the most sensitive and secret documents that are only meant to be seen by a select group of people. Storing all of these documents as physical records not only takes up a lot of space but also puts them in danger of being lost. Instead, manage them safely with limited access[4]. Paper documents can take up a lot of space, and the amount of paper used is growing every day. In particular, documents have to keep with us. It is critical for any firm, regardless of size, to preserve its data and other valuable assets[4]. Paper is one of the most significant information security threats for businesses, as printed papers are readily lost, mistreated, or damaged, but digital data may be protected and safely stored on hard discs or electronic devices. Damage, loss, misplacing, or theft of manual documents is a common occurrence. A fire or natural calamity could result in the loss of critical data. If you don't have any backups, you won't be able to recover the information once the files have been deleted. In a paper-based system, transporting documents is difficult, sluggish, and inefficient. You can simply attach files to our system and transfer information promptly if you have a digital document management system in place. You'll have to rewrite all of the

text in a paper-based document if you wish to make changes. If you wish to make further corrections, you'll have to repeat the process. You will have to make a copy of the original document to keep track of all the changes you've made. The accompanying costs are one of the most significant disadvantages of paper-based document management systems. You'll need extra printers, photocopiers, stationery, and other office supplies in addition to tones of paper. These expenditures build up quickly and can quickly become a considerable expense for many businesses.

To replace the traditional paper-based method, which was designed to reduce paper waste due to minor issues. We established a global database in the concept of the digital document so that users can access various sorts of papers from anywhere in the world. Document digitization allows users to access documents in digital form from any location, breaking down geographical, time, and simultaneous access constraints. Document digitization allows a business to eliminate physical papers, which use resources such as office space, security employees, and a decay-free atmosphere. We can optimize these resources for cost reduction once the data has been digitized. Data accessibility promotes data flow throughout a company, which leads to increased productivity. This technology has the potential to be used in a variety of government services, including RTOs, hospitals, and education. With a focus on the public sector, this system was designed to be a first step toward digitizing our country's paper-based system and transforming it into an electronic paper-based system.

3. METHODOLOGY

1. When a new user wants to use our system, then the user needs to do registration on our system. The user must have an aadhaar number and mobile number which is linked to an aadhaar for registration. Admin of our system will upload the documents of newly registered users.
2. Then for the documents upload procedure, Admin will log into the system. Admin will check and verify original documents provided by a new user. After verification of documents, the admin will scan them and documents will get converted into jpg format. For document security, these uploaded documents will be encrypted. These encrypted documents will be stored in the database.

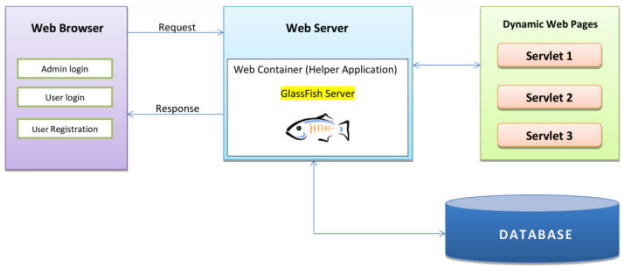


Figure 1

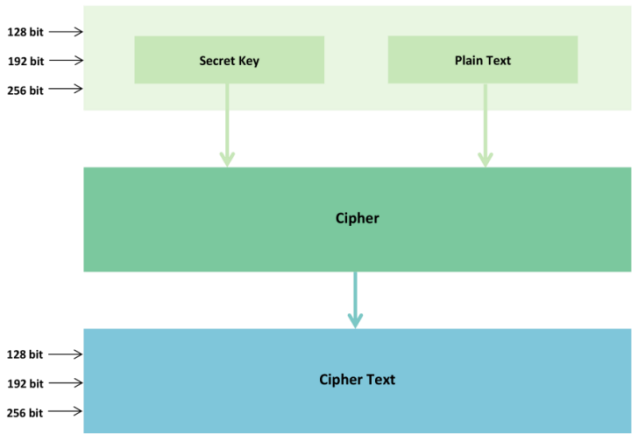


Figure 2

AES Algorithm for File Encryption:

For encryption of data:-

START

Step 1:- U=Upload(file), he input is consider as Text, is being converted to 128 bit plain text.

Step 2:- R= Read(input file),

Step 3:- K=Key generation(file) e.g.= key=123456;

Step 4:- E=Encrypt(file, key), encode the upcoming file

Step 5:- C=Convert(file), If(encrypt), then file convert plain to cipher text Split(file1, file2); Stored(file) Else, file not encrypted

Step 6:- D=Decrypt(file), decode the file if (decode), then file convert cipher text to plain Combine (file1, file2); Else, file not decoded

Step 7:- Download file

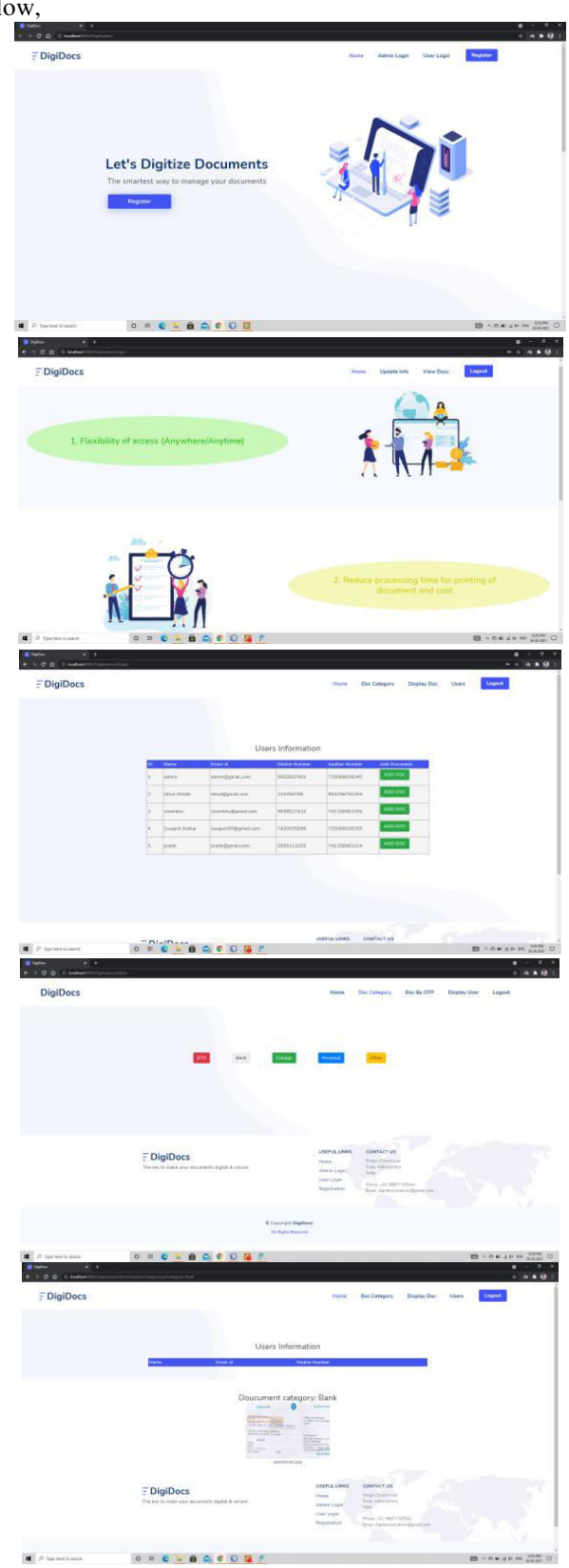
END

4. IMPLEMENTATION

We have created web application is java based. And for the web pages JSP/Servlet used in this project. All these webpages are using glassfish server for hosting on web-browsers. For the database connectivity, MYSQL is used in our web-application. When new users will register to our system, their data automatically will be saved to MYSQL database. And also when admin will upload users' documents to their account, it will be saved to MYSQL database. For the security of users' documents, our system has provided document encryption. For the Encryption of users' documents, we have used AES (Advanced Encryption Standard) algorithm. The AES algorithm that takes plain text in blocks of 128 bits and converts them to cipher-text using keys of 128, 192 and 256 bits. We have also mentioned the algorithm steps

of AES in section III. The architecture of AES algorithm is as shown in figure 2.

Here are the implementation pictures of our system as given below,



5. FUTURE ENHANCEMENT

We can offer "Login with Google" practicality to users for fast registration. From taking feedbacks from users we are going to enhance our web site to a lot of user-friendly within the future. We will use Artificial Intelligence to verify users' documents[15]. We can develop a mobile application for instant access to users' documents. So user can access their documents within seconds. We can expand our platform by partnering with the government and we can establish a central portal system for easy and convenient access. We can use AWS for the best connectivity and security of their services[13]. In the future, we can give door-to-door services of document verifying & uploading to users.

6. CONCLUSION

This facility has been provided to users to help them digitally store their documents like RC, DL, medical reports, certificates, etc. electronically. Our system has reduced paperwork and eliminated the use of Xerox copies of original documents. Users can rapidly access documents anywhere/anytime. And because of the document encryption provided by our system, users' documents are totally secured on our website. To conquer the issue of showing any printed version of an archive to a specific government official, we have fostered a framework that will save time and bother for the official needing to watch that printed copy of a record of that specific client.

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