

Smart Card: E-Document

Prof. Sonali S. Patil¹, Swapnil A. Kotkar², Ashutosh H. Singh³

¹Assistant Professor, Dept. of Computer Engineering, SRTTC FOE, MH, India

²Student, Dept. of Computer Engineering, SRTTC FOE, MH, India

³Student, Dept. of Computer Engineering, SRTTC FOE, MH, India
(Savitribai Phule Pune University)

Abstract - RFID (Radio Frequency Identification) indicates the capability of identifying by means of radio frequency transmissions. The identification involves assigning a unique identity to an object that is distinguishable in an unambiguous way. Smart cards (RFID readers) are secure and handy storage device used for several applications. It provides integral value in the areas of authentication & security involving access to system's database online or offline. The influence of society on the use of security systems and technology enabled with smart card technology is rapidly accelerating in variety of industries like transportation, banking, telecommunications and public sector. The approach of this Smart card based documentation concept focuses in designing multi-application card with variety of functions like accessing important personal documents anytime anywhere with proper authentication & corresponding security access control. Documents may be Educational, Government photo IDs or any Insurance related documents. The intake of information is achieved by means of searching operations, identification, selection, spatial localization, and tracking. Identifier and identified communicate using radio frequency signals, hence no physical contact (unlike, for example, use of magnetic stripe cards) is needed.

Keywords – Smart Card, Digitization, Smart management, Security, Data acquisition, RFID card, RFID reader

1. INTRODUCTION

Smart Card (RFID) based File and Document Tracking System is intended to engage client by furnishing them with Identification Technology gadgets for quicker and exact ID and tracking the movement of the individual or different archive or records at vital areas. Smart cards are secure and handy storage device used for several applications. By using our smart card, one can completely digitalize the tracking and situating of physical records and archives, including approving access, recording registration/registration and all related detailing. Digitization with completely precision implies that the collaboration of individuals utilizing the records are no longer an issue. In the event if that smart card comes extremely close to a RFID reader, its report will be caught. Radio Frequency Identification (RFID – Radio Frequency Identification) is the most recent and most developed technique programmed information assortment innovation, increasing a wide acknowledgment as individuals comprehend and utilize this innovation. The primary components of a smart card (RFID framework) are

basically a transponder (tag), a reader, correspondence organizations and host PCs. In a RFID framework there are two sorts of reception apparatuses: one is in the tag while the other is associated with the reader. The data stream during the smart card (from straightforward tag to the host application) starts with have oversees Reader and issues orders. The reader and tag impart utilizing a radio-frequency (RF) signal. Reader produce transporter signal on demand from the host application and send it out from reader reception apparatus. This signal, hits the label which gets and adjusts it and reflects back the regulated sign. The reader catch modified signal and sent them to the reader which converts the signal into digital. The digitized information is shipped off the host application. For the authentication system, we proposed a way to smart card to access the documents with systems to increase their security, including 2-step authentication procedure that allows preventing unauthorized access to documents through our smart card. RFID is an innovation, which recognizes an object or individual naturally by utilizing radio waves through a RFID's unique number. RFID can be utilized in security, document digitization, transportation the executives, recognition of tracking, checking, warehousing, stock administration, surveillance, security, library store, credit only transactions and calculation for objects in different fields of industry, for example as IT organizations, medical services, library and assembling. Indian government started Digital India is a mission in 2015 to guarantee that all administration related administrations are made accessible to residents electronically or carefully by improved online foundation and by expanding network availability or by making the nation carefully enabled in the field of innovation[1]. The aim of Digital India program is comprehensive development in regions of electronic administrations and job openings and so on and it is centred on key territories Digital Infrastructure as a Governance Services on Demand, Utility to Every Citizen and Digital Empowerment of Citizens [1]. A few archives having legitimate worth must be recorded, kept and stocked in the paper design, and can't be totally supplanted by digital reports [2]. Techs, for example, scanner tags, can be utilized. It supports recording tasks, yet it isn't valuable for document tracking [2]. Radio Frequency Identification (RFID) innovation grants to defeat this restriction. At least two RFID labels can be read once and they can be distinguished without scanning each report on a scanner concerning the checking standardized barcode on that specific document [2]. Furthermore, a smart card can keep helpful data in its on-board memory and be utilized for tracking and detecting

the report. The mix of RFID and record the executives frameworks carries the accompanying new advantages to the associations:

- (a) Latest chances for smart card-based administrations and authoritative e-administrations [2],
- (b) Advancement of the worldwide visibility of an association, as an approved user can monitor,
- (c) Advancement of the association information with data acquired from the tracking of RFID labelled records.

The ultimate goal is that the ideas and planning demonstrated through this model system can then be easily upgraded to an actual document management in government sector [3]. As the system is to be implemented for government and such long or organizations, there are a number of performance speciation's that have to be met to ensure the system operates correctly and efficiently [3]. In particular, The Development of our framework interface must send and get the suitable data. Our solutions can tag the important files, such as legal documents, signed contracts, accounting documents, wills and deeds, etc [3]. Smart cards are accepted by people in whole world for multiple types of applications. Smart cards have been utilized as convenient, integrated devices that are fit for storing critical data and have certain data processing capacities.

"For document tracking, RFID framework is the greatest usage around the world."

2. LITERATURE REVIEW

The research done by us was focused on digital signature and digitization, and also focused on IoT implementation. We came across many research papers related to these fields. Radio Frequency Identification (RFID) is an affordable technology which can be used for applications such as security, tracking, and access control. Applications will give detailed required steps to program a RFID Card Reader to access control. This application will show and describe the programming which is needed to be successfully identifying the unique digital ID of RFID tag and either grant or deny its access. The digital signature was used to provide security to the data stored in the database. Cryptography was used to store the documents in the database in an encrypted format. These steps include the uses and programming of a micro controller [4]. Radio-frequency identification (RFID) uses electromagnetic fields to transfer data. RFID is not a single product but rather a system, which is composed of RFID tag (transponder), reader (Trans receiver) and back-end application system (or database), which require the support of a computer network [2]. For this system the transponder is a passive RFID tag. Passive tags are cheaper, lighter, and smaller than the other tag options. Unlike other RFID tag types, passive tags do not require batteries. Passive tags use radio energy which is transmitted by the reader as a power source. Since the RFID tag gains the power through RFID

Reader which must be within 2 to 5 inches from the RFID reader in order to be read. RFID reader must be active because the tag is passive. The RFID reader not only communicates with the RFID tag as well as micro controller. In this application the micro controller will serve as the middleman between the RFID reader and the database. The micro controller notifies the reader, if the serial identification code from the RFID tag has the clearance to gain access or not. For Public Sector and Government Agencies, with tens or hundreds of thousands of documents, a document management system is becoming a mandate to organize, index and control their documents in a hassle free manner. Public Sector and Government Agencies deal with Documents which range from Public View documents, Tenders, to the most Congenital and Secret Documents which are intended only for view of certain designated personnel. Storing all these documents as physical records not just consumes a lot of space but also is a tedious for these documents and manage them safely with restricted access. Advanced Encryption Standard (AES) algorithm was used to encryption and decryption purpose [8][9]. Documents which were stored were in image format, so modified version of the AES algorithm is used. Special image encryption-decryption AES algorithm was used [8]. Biometric fingerprints were used to identify the unique user in order to provide security to the documents of a respected person [7]. A smart card like RFID card was provided to users at the time of registration, and fingerprint of users was taken. RFID card contains a 32-bit unique number which was assigned to the respected person's fingerprint. RFID card and fingerprint were used for authentication and also to provide double security [5][6][7]. RFID reader was used to scanning the RFID card fingerprint scanner was used to scanning the fingerprint of the user [5][7]. Authentication data was stored in the database at the time of registration and these data was then used to authenticate the user [5]. Arduino was used for providing power supply to the RFID reader and fingerprint scanner, and also used to transfer data from the reader and scanner to the system [6].

3. METHODOLOGY

1. First thing, when new user wants to use our system, then user needs to do registration on our system. Admin is assigned to our system to upload the documents of newly registered users. Admin will check user's ID to verify new user and take mobile number.
2. For security, the mobile number will be linked to RFID card for 2-factor authentication system. It will send OTP including some numerical or alphabets. This OTP is only valid for short time for security. After the user's registration and identity verification, admin will provide RFID card to new user.
3. Then for the documents upload procedure, Admin will log into the system. Then user needs to scan the RFID card and needs to enter OTP from registered mobile number into the system. After OTP get verified, admin will check and verify original documents provided by

new user. After verification of documents, admin will scan it and documents will get converted into jpg format. For the documents security, these uploaded documents will be encrypted. These encrypted documents will be stored on the database. In this system, user can download the personal documents from the system using the RFID card. Admin can also checks all registered user's activities such log in/log out and further processes.

4. Below *Figure 1* shows representation of methodology.

4. DISCUSSION

Current business measure automation frameworks are centered on the activities of a business cycle instead of on the included business substances, for example, documents and people. These elements are not checked and the effect on the data arrangement of the far-reaching versatility and traceability of the endeavour assets isn't thought of. Data don't generally exist with respect to their causal relations, geographical confinement and development in the encompassing space. Subsequently, uncertainty exists with respect to business measures. Planning and decision-making capacity decreases and evaluation mistakes increases. Moreover, business measure agents devour more opportunity for playing out their undertakings and consumer satisfaction decreases. Document handling region is reasonable to these disadvantages. Regardless of whether associations have computerized their business measures, and given them a worldwide visibility, they keep on utilizing paper reports frequently speaking to focal business substances of the association. A significant control on their causal relations and circulations improves the association's business. Document digitization is rising as a significant IT issue for improving business measures. It speaks to an

Document digitization is the "Key" to these issues. The RFID innovation builds the capacity of an association of obtaining and putting away in an information base an immense range of information with respect to the area and properties of any substances truly tagged and remotely examined. It permits the tagged elements to become versatile, smart, imparting part of the association's data foundation. It understands the linkage between the actual world, and the Information Technology (IT) and empowers associations to automatically monitor, choose, and take actions. Our project will erase manual entry of same information at many locations. Also locates and finds files rapidly and efficiently with keeping a record of the holder. The most benefit of our system is that, RFID system can read multiple RFID tag at once with perfect accuracy. Because of the digitization of documents, time will be saved up to 90%. We can make the worldwide (global) cloud using Aurdino so that various administrations can go internationally. Our system has 2- step authentication security to access user's documents. For security to user's data, documents on the database are in encrypted form.

5. CONCLUSION

Smart card like a RFID tag in which many documents are stored which related to RTO, Medical and College so it is easy task to people to access this document anywhere anytime. The proposed authentication system supporting with mobile OTP verification as 2- step security for authentication. By using mobile OTP verification, which could be actively improve our system security. To overcome the problem of showing any document for particular government officer we are going to develop a system which will save time and hassle for the officer wanting to check the document of the particular user whose information is stored in the data base.

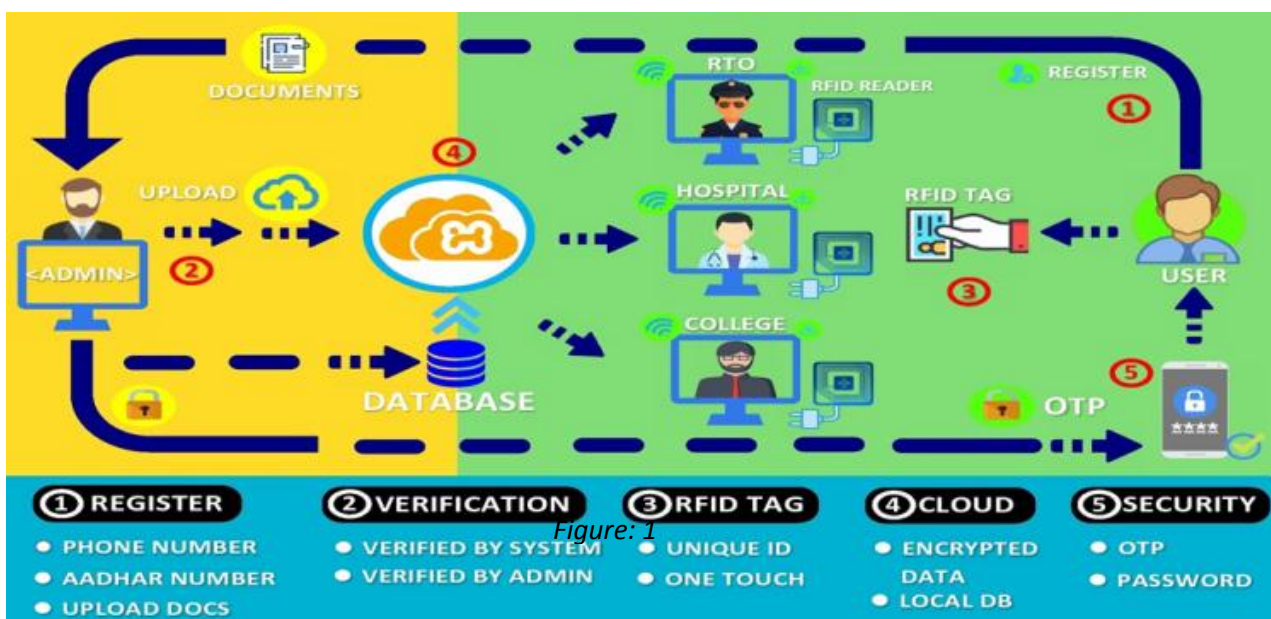


Figure: 1

essential piece of business continuity planning area and requires the integration and management of existing and new advancements in innovative solutions. In short

REFERENCES

- [1] (Ashishkumar Bansode). "DOCUMENT DIGITIZATION." Year 2019.
- [2] (Thierry Bodhuin, Rosa Preziosi, Maria Tortorella). "Using RFID Technology for Supporting Document Management."
- [3] (Pawar Akanksha , Borude Mohini , Hajare Dhanashri, Munot Monika Prof. D. H. Dewarde). "DIGITALIZATION IN INDIA USING RFID TECHNOLOGY WITH IoT." Year 2018.
- [4] (Aamir Nizam Ansari , Mohamed Sedkyl, Neelam Sharma and Anurag Tyagil). "RFID-Based Students Attendance Management System".
- [5] (Chun-Wei Tseng, Feng-Jung Liu* and Ting-yi Lin. (2016)). "Design and Implementation of an RFID based Authentication System by Using Keystroke Dynamics."
- [6] (Arijit Karati, SK Hafizul Islam and Marimuthu Karuppiah (2017)). "Provably Secure and Lightweight Certificateless Signature Scheme for IIoT Environments".
- [7] (Erika Rahmawati and Mariska Listyasari. (2017)). "Digital Signature on File Using Biometric Fingerprint With Fingerprint Sensor On Smartphone".
- [8] (M. Zeghid, M. Machhout, L. Khriji, A. Baganne, and R. Tourki). "A Modified AES Based Algorithm for Image Encryption".
- [9] (M.Pitchaiah, Philemon Daniel, Praveen). "Implementation of Advanced Encryption Standard Algorithm".