

# NFC based Unique Identification System

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**Abstract-** Today, every nation wants to be fully digitalized that will empower society in a better manner. The motive behind the concept is to build participative, transparent and responsive system and to reduce the paperwork. Digital India will provide all services electronically and promote devices especially in developing countries, it will be helpful to use it in healthcare system, Criminal Records and public records to make the data easy to carry, accessible, manageable and will increase the efficiency. For this android based mobile device with NFC technology can be used for storing credentials and securing the data. To reduce paper work we have proposed a system which will make available any document at any time for any person with the help of NFC. This system can be a paperless system and it can benefit the patient, the police, the doctors and the public by providing a robust and secure data. In this system secure authentication can be obtained by means of anonymous credentials, implemented on a NFC chip to provide the functionality with minimal data disclosure.

**Keywords-** NFC chip, smart phone, NFC reader, Medical record, Criminal Record

## I. INTRODUCTION

In this project there will be cards which consist of a unique id. By using the NFC reader the doctor will be able to find the previous record of the patient which is stored in the cloud. Again if there is any new patient then the doctor will insert the data in that chip only and that data will be store in the cloud. So it will make easy for doctor to search any patient's record. Patient will be equipped with NFC cards. The medical application (In-built NFC reader/writer) writes the link of the patient into the NFC tag from smartphone. To create patient application we are using ANDROID studio. Although substantial progress was made in improving the sharing of patient medical information among healthcare providers, professionals still need to address the issue of efficient electronic medical records. In emergency situations, particularly with unconscious, incoherent and unaccompanied patients, providing emergency physicians with a patient's accurate medical history could be the difference between life and death.

The main objective of the project is:

- To maintain digitized information of every person in India.
- Provide easy access to database of Documents of the every citizen.
- Provide database for persons background and criminal activities which we be helpful for the police.

## II. LITERATURE SURVEY

NFC based secure healthcare monitoring system [1] present a system using NFC-enable mob phone for facilitating the patient in a low-source environment. The patient can use them for self-help. Doctor can use this for monitoring patient health. With the recent emerging technologies in mobile devices involving secure credential storage, larger storage capability, wireless communication interfaces they can be used in the healthcare for gathering health parameters and also for healthcare. The very important aspect of health care is Privacy and security . We propose that the pa-tient should retain only primary part of the record in EHR electronically.

Defining the Functional Requirements for NFC Based Medication Administration and Communication System [6] proposes to use a theoretical and practical sources to 1 form a clear picture of the BMA procedure. Identified the the essential methods used in nursing practice to ensure safend their limitation. Accordingly, they drew an initial Based Medication technical concept of the system functions that will help design the system. This paper only uses the Communication. This system not provides security to user System

Beside Patient Monitoring by NFC [7] proposes that health monitoring sensors are installed near the mattress on patient bed. By utilizing this application on Android smartphone and selecting the NFC mode from the setting menu, all information from sensors can be collected easily from the bedside by patients themselves or doctors. Limitations of this paper are in this paper only show the information of bedside patient with the help of NFC.

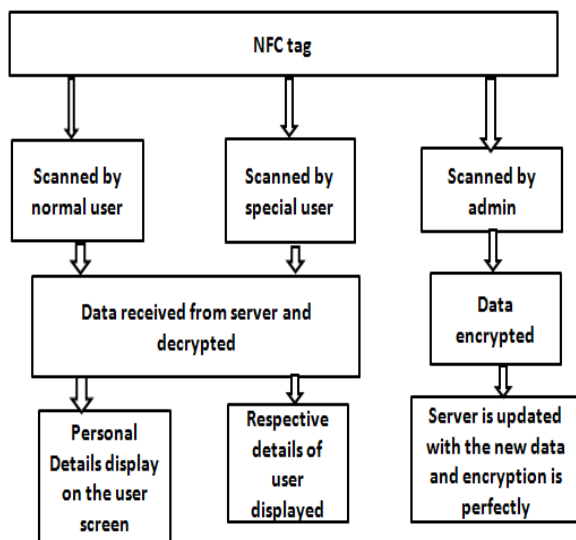
## III. PROPOSED SYSTEM

The objective of the project is to make a system which will provide the details of any user at any time. The

NFC tag will be implanted in the body of the user. This tag will contain the unique id of the user which is linked to the Adhaar no. of user. The id when scanned with our mobile application will provide the data about the user according to the user scanning it. Thus, the data security and confidentiality will be provided to user's data. NFC provides high level of security to data. The data will be authenticated and validated by the admin.

**Special User Module:**

Special user such as Doctors, Traffic Police, Government officials etc will be able to :  
Scan user NFC tag to get the info about user .User such as Doctors can even upload new medical records of the individual after verification from Admin.



**Fig -1: PROPOSED SYSTEM**

**Admin Module:**

Admin will be able to: Verify and add the new user's record. Add the user's with special privilege. e.g Doctors, Police officials etc. Validate the data provided and update the data of users as per demand.

Here in this process we going to see NFC (Near Field Communication) based mobile Health care system using NFC chip which we are going to implement in human body sending the details to monitor in android application. The key would be present only with the person; until and unless person does not tap the NFC chip nobody can access and view the person details regarding the medical reports, criminal records,

Personal information. We propose here each person will be provided with a NFC chip inside the human body and Doctors, Police and person can view the previous records by tapping the Smartphone that is enabled with a NFC reader over the NFC Chip. In the same way they can read/write the information. The NFC chip will be implemented in human body. We have discussed with the medical team so that there will be no any side effect of that chip inside the body. Whenever Android application can tap the chip, it can display only necessary data i.e. for a doctor needed a medical records only. It's doesn't necessary any criminal records.

Following will be the modules available:

1. User Module
2. Police Module
3. Doctor Module
4. Admin Module

Data goes through wireless sensors to NFC enabled machines.

Data from the sensor nodes can be transmitted to the base station node through piece of coding . Through the initialization of the sensor component and using the statement data can be sent to the base station frequently. Since sensor nodes broadcast the data, we need to have certain validation to verify that data received is from the right sensor node.

**Communication over NFC**

The NFC Data Exchange Format (NDEF) is a standardized format for storing formatted data on NFC tags and for transporting data across a peer-to-peer NFC link. The data

from the buffer can be incorporated into a NDEF format and can be written to NFC tags. An NDEF record consists of multiple header fields and a payload field. The header contains five flags Message Begin (MB), Message End (ME), Chunk Flag (CF), Short Record (SR) and ID Length Present (IL), as well as a type classification (Type Name Format, TNF), and length information for fields of variable length, a type identification (Type) and an optional record identifier (ID).

Authentication of NFC receiver devices:

1. At first the receiver will send a data transfer request a long with its International Mobile Equipment Identity (IMEI) and public key.

2. The sender then authenticates the receiver with the received ID which should be stored prior to start of data transmission.
3. If the receiver ID is stored in sender mobile then the data communication will begin which provides security and authentication of receiver.

**IV. Methodology**

**A) Admin Module :**

Admin will add the details and adhaar no. of each user, doctor and police official on the system. Admin will provide the Id and password to all the users of the system. Admin will validate the information available. Admin can also edit the information about users or other officials.

**B) Doctor Module:**

Doctor can Login to the system using Password provided by admin. Doctor will Scan the NFC tag of the user so as to get the info of it. When scanned any tag only the medical info of the user is displayed to doctor. The doctor can add any new medical record of the user along with the documents

**C) User Module:**

User can Login to the system using Password provided by admin. User will also Scan the NFC tag of other user so as to get the info. When scanned any tag only the contact and basic info of the user is displayed. No other records of user are disclosed. This is useful in case of accidents where immediate contact should be done to the users guardians.

**D) Police Module:**

Police can Login to the system using Password provided by admin. Police will Scan the NFC tag of the user so as to get the info of it. When scanned any tag only the criminal info of the user is displayed to police. The police officer can add any new criminal record of the user along with the documents.

**E) Security:**

Advance Encryption Standard(AES) is a symmetric encryption algorithm and one of the most secure. AES is a Symmetric key algorithm meaning the same key is used for both encryption and decryption the data.

The design and strength of all key length of the AES algorithm is 128,192 and 256 are sufficient to protect classified information up to the SECRET level. Top SECRET information will require use of either the 192 or 256 key lengths. The implementation of AES in product intended to protect national security system and information must be reviewed and certified by NSA Prior to their acquisition and use.

AES is implemented is secure file transfer protocol like FTPS, HTTPS, SFIP , AS2, WebDAVS, and OFTP.

Symmetric Key cipher like AES, On the other hand are more suitable for encryption the actual data because the required less resources and are also much faster than asymmetric cipher

AES has never been cracked yet and is safe against any brute force attacks contrary to belief and arguments.  
Results Analysis

**v. RESULTS ANALYSIS**

Near Field Communication is chip based service, in this technique we can share data by using NFC readable chip and Mobile device.

Digilocker is online service provided by Ministry of Electronics And IT(MeitY),Government Of India under its Digital India initiative.

Storage space of NFC are depends upon chip and mobile which is used to store data, and always it is greater than 1 GB.

Digilocker provides 1GB storage space to each account to upload scanned copies of legacy documents.

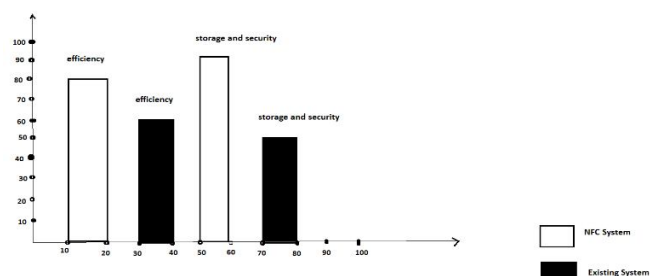


Fig. Comparing Proposed System with Existing using parameters Storage, Security and Efficiency.

From the above information Efficiency, Storage and Security of NFC system is always better than existings systems.

## V. CONCLUSION AND FUTURE SCOPE

A paperless system which will make the Identification of a person more easy and authentic. Use of NFC tags increase authenticity of data as they cannot be overwritten. NFC provides high level of security to data. The unnecessary exposure of data is avoided to all and only the data required by the person will be provided.

Medical apps are beneficial for both people i.e. for patients and doctors as well as they both have their different requirements on the app which they are using. Peoples love digital access. Here we developed the Digital Heath Care system where user can easily get details about the particular treatment and its cost for different hospitals. This will make him easy to decide where to go for treatment.

NFC reading algorithm can be enhanced more efficiently. Also the encryption algorithm can be developed so as to improve the performance of complete system. Also this system can be used to monitor the attendances of Government Officers and other employers.

Police module is also beneficial for government as well as peoples . They provided the security to the users documents. NFC chip are read by nfc reader as well as nfc smart phone which is provided to the special user i.e. Police, User. Police will Scan the NFC Tag of the user so as to get the info of it. When Scanned ant tag only the criminal info of the user is displayed to police officer can add any new criminal record of the user along with the document.

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