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DATA MANAGEMENT & UNIQUE IDENTIFICATION SYSTEM BY USING NFC

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Abstract

NFC is short range communication technology which provides two-way interaction between devices. In a Health care sector, NFC is not only used to reduce the health care costs but also provide automatic and streamlining patient identification system. NFC technology can be available in any form such as NFC tags which stores short information in it as a unique identification system.

Keywords – NFC chip, smart phone, NFC reader, Medical record, Criminal Record,.

Introduction

Nowadays, life is too fast. Each and everyone of us is having some documents related that includes Aadhar Card, PAN Card, Ration Card, Driving License, Medical Reports and many more. It is very difficult to carry all these documents at everyplace which causes a lot of inconvenience. So, In this paper, having proposed a system with NFC chip mounted in a human body which will uniquely identify that person. There would be a centralized system, where all the documents are scanned and are uploaded on to the cloud after verification by the respected authority. Now, when the reader scans the chip, it will give unique value which will give the documents of that particular person in user's android application.

Objectives

1. To maintain digitized information of every person in India.
2. Provide easy access to database of Documents of the every citizen.
3. Provides a database for person's background and criminal offence (if any) which will be helpful for the law of enforcement.

Existing System

If the documents are urgently needed and in case those particular documents are not already carried by the person, then, that person will face different problems.

In the proposed system, this card will be very useful for whenever the documents are needed, only scanning the card will verify the documents and needs will be fulfilled.

1] NFC based Secure Healthcare Monitoring System:-

It 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. System propose that the patient should retain only primary part of the record in HER electronically. A Health-card retained on a mobile device can retain the entire EHR including reports and tests. An authorized medical provider can access securely the permitted portion by a simple tap of mobiledevice.

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 Aadhar no. of user. The id when scanned with our mobile application will provide the data about the user according to the scenario it is being scanned in. 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 form Admin.

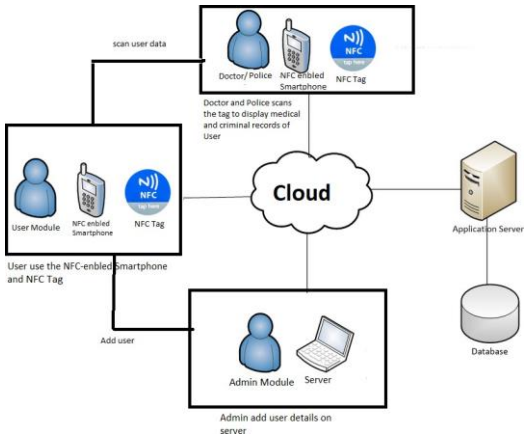


Fig -1: Architecture of Proposed System

1. AdminModule:

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 perdemand.

2. UserModule:

User will be able to**:**Scan the NFC tag of any person to get the basic info of his/her. Request for registration to Admin if new to system. Will be provided unique ID and NFC tag embedded into the body.

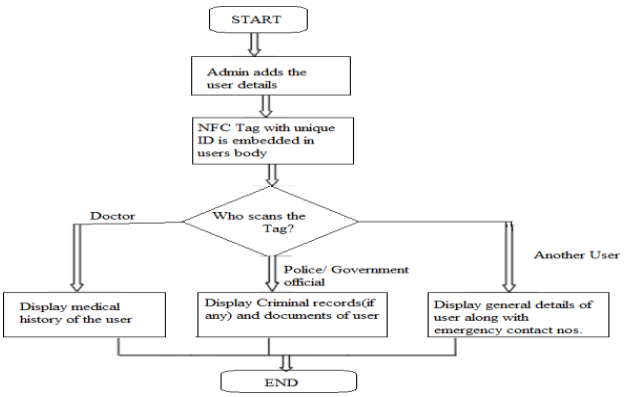


Fig -2: Flowchart Of Proposed System

Server & Database: Database, MySQL Programming language: Android Type: 3 Tier Architecture

Data: Medical History Important Documents Police Record.

3. Security:

NFC id will be linked with our Aadhar number NFC id is unique per tag so if someone tries to clone the tag it would not be possible due to Aadhar number linked with the NFC tag assigned to the person. Data at the server will be encrypted. Data communication between the user app and the database will be encrypted, which will avoid the cloning of data. The AES Algorithm will be used for data security purpose.

Technologies Used

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

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

II) The sender then authenticates the receiver with the received ID which should be stored prior to start of data transmission.

III) If the receiver ID is stored in sender mobile then the data communication will begin which provides security and

authentication of receiver.

Feasibility Study

A. Software Feasibility:

1. Android Studio IDE.
2. JDK1.8
3. PHP

B. Hardware Feasibility:

1. Android mobile.
2 .NFC Cards.
3. NFC Reader.
4. Server storage

Algorithms

A. NFC Read:

1. Read the Data from NFC Tag.
2. This data is in bytes format. NFC Reader Converts it to NDEF Formatting.
3. This NDEF Data is converted MIME formatted and is given to appearance.
4. This MIME data is converted to String and given to the user.

B. NFC Write:

1. This String data is converted to MIME and given to the Writer.
2. This data is in bytes format. NFC Writer converts it to NDEF Formatting.
3. This NDEF Data is converted byte formatted and is given to writer.
4. Write this byte Data to NFC Tag.

C. JSON Parsing:

1. Retrieve all the data from MySQL Databases.
2. Encode this data into a JSON Object.
3. This data is now converted to bytes and transferred across the Network using HTTP Protocol.
4. At Android Application this data is received in form of bytes and converted to String.
5. This String is converted to JSON Object Array as it contains multiple JSON Objects.
6. Retrieve these array objects one by one using index.
7. Compare the values using getter method.

SCOPE:

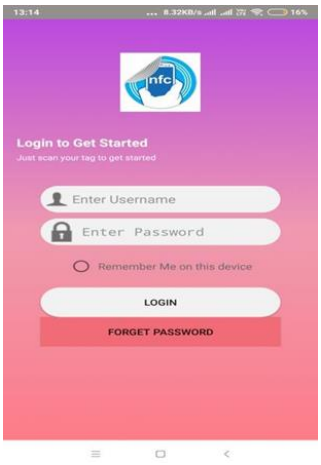
The scope of the project is:

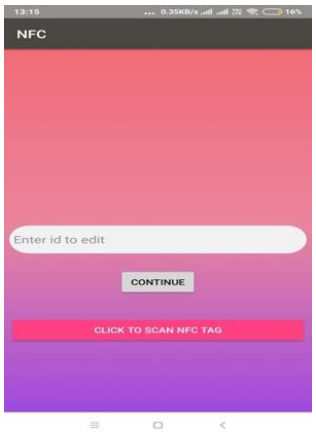
1. The system will provide complete security to the user's data.
2. The data will be authenticated and validated by the admin.
3. The admin will add the user and other authorities such as doctors and police officials.
4. The unnecessary exposure of data is avoided to all and only the data required by the person will be provided.
5. NFC provides high level of security to data.

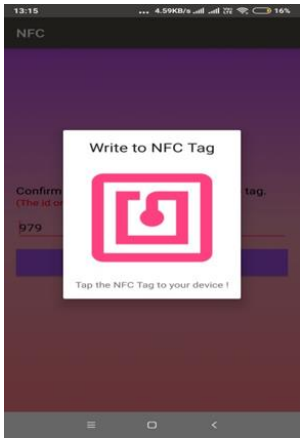
ADVANTAGES

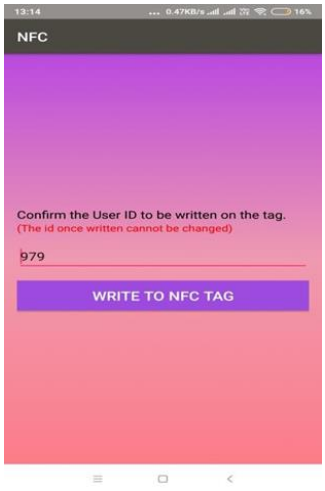
1. NFC provides high level of security to data.
2. The unnecessary exposure of data is avoided to all and only the data required by the person will be provided.

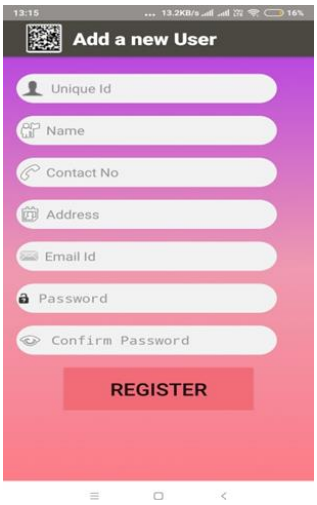
SNAPSHOTS OF WORK DONE











Conclusion

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 overwrite.

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