



## International Journal of Innovative Research in Computer and Communication Engineering

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# Emergency Medical Response Management for on-site Attendants Using NFC

Sanika Vanjari, Shambhavi Patil, Jinesh Topiwala, Reena Lokare

B.E Student, Department of Information Technology, K.J. Somaiya Institute of Engineering and Information  
Technology, University of Mumbai, Maharashtra, India.

B.E Student, Department of Information Technology, K.J. Somaiya Institute of Engineering and Information  
Technology, University of Mumbai, Maharashtra, India.

B.E Student, Department of Information Technology, K.J. Somaiya Institute of Engineering and Information  
Technology, University of Mumbai, Maharashtra, India.

Assistant Professor, Department of Information Technology, K.J. Somaiya Institute of Engineering and Information  
Technology, University of Mumbai, Maharashtra, India.

**ABSTRACT:** With this project, we aim to provide a user -friendly medical Android application for patients to enter vital information like restrictions in food and drug administration, medications, allergies and sensitivities, current treatment, medical providers, and even emergency contact. This information will be available to the doctors and medical practitioners through an Android application, which they log in, and then scan the patients NFC tag to refer the patient's medical condition and contact the necessary people for the patient's health recover.

**KEYWORDS:** Alerts, Android, NFC tag, EMR, Medical records, Emergency, Firebase, Health care, Location.

### I. INTRODUCTION

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 [3]. The Emergency medical data access using NFC project aims at providing a digital environment for patients to interact with doctors efficiently at day-to-day bases and also in case of emergency.

This android application provides digital health capabilities that consumers want the most, that is, Access to electronic medical records (EMR), to provide location of the patient in case of emergency, prescription management and insurance management. The Medical records entered by the patient will give a good overview and will help doctors understand the necessary precautions to be taken with the patient. We aim to provide an application that helps reduce the time and resources required to attain these details that are otherwise time consuming to acquire.

Many senior citizens face the problem of not remembering to take their medications on time, thus hampering their recovery. Here by providing alerts of dosage along with its recommended requirements, we help them keep their health in check. Alerts about appointments and calculations for next medicine refill is also an important aspect of our project, as we aim to provide overall HealthCare services.

Many a times, in emergencies, medical information about the patient is not available. Diagnoses and testing for these information is time consuming and in many cases life threatening. To reduce time required, this application provides detailed medical history of the patient as entered by the patient and also send an alert to his/her next of kin with the patient's location for further processes.



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Insurance plays an important role in healthcare but many a times it can be a hassle, especially in case of emergency where the family of the patient are too disturbed to recall insurance details of the patient. This application aims to reduce this hassle by providing a separate section for insurance. This helps manage the details of the policy through alerts and appointments.

## II. PROPOSED ALGORITHM

### A. Proposed Methodology:

Patient will be equipped with NFC tag. The medical application (In-built NFC reader/writer) writes the link of the patient into the NFC tag from smart phone. To create patient application we are using ANDROID 2.0 studio.

#### *Module 1: Patient Identification using NFC Tags*

- When Smartphone are placed near the NFC tag, data will be accessed and this unique ID will be sent to server to select the appropriate record. This tag can be assigned to patient with a unique ID at the time of registration.
- NFC based Identification and health management system is developed for Android platform will run in all NFC enabled Android smartphones.
- For successful identification it opens up the patient records and display information coming from the backend server system. If not then the record application displays the message of unidentified ID.

#### *Module 2: Records*

- As soon as the patient gets the NFC tag, the information related to the medical will be stored in the database and can be used by the doctors in case of emergency issue. This record can be accessed by the patient, doctors and on site attendant (in case of emergency).
- In My Medical domain section, patient need to add their all previous medical information, which will be stored in database and in case of emergency can be accessed using their NFC tag.
- These medical details can be accessed by on-site attendant.

#### *Module 3: Prescription Reminder*

- The prescription module, information about the medication prescribed to the patient can be added and reminder can be set for it.
- These prescription details can be accessed by on-site attendant.

#### *Module 4: Setting an Appointment*

- The Appointment module, information about the patient's next appointment can be added and the remainder and be set for it.
- User will get notification reminder one hour before set time of appointment and other on the set time.

#### *Module 5: Emergency Contacts*

- We are providing patient to add his/her contacts whom the on site attendant (in case of emergency) can contact.

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- User's current location will be sent to this stored emergency contacts ,this could help if patient is in unconscious state.
- These contacts can be accessed by on-site attendant for further assistance.

## Module 6: Insurance Details

- The Insurance module, information about the insurance to the patient can be added and reminder can be set for the payment

## Module 7: Helpline

- Helpline module provides Ambulance, Child helpline, Blood bank, Casualty hospital number and website details in case of emergency.

## Module 8: Find Hospitals

- In this module user's current location is fetched and based on their location near by hospitals list is given, this will help on-site attendant for finding nearest hospital.

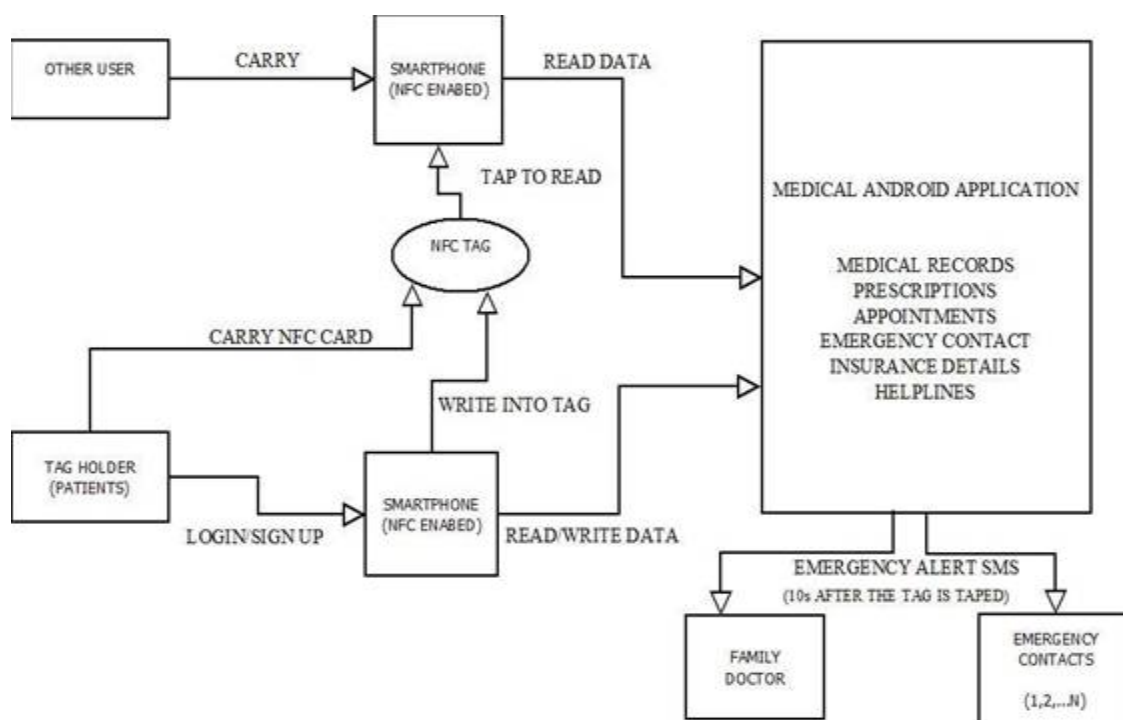


Figure 1:Block diagram of Emergency medical data access using NFC



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## III. PSEUDO CODE

Step 1: In initial step, the on-site attendant should Login.

Step 2: Scan the card of the patient.

Step 3: When others card is read, location can be sent to patients next of kin and patients account.

Step 4: On-site attendant can now view Records, Emergency contact details, Helplines and prescriptions of the patient.

Step 5: The on-site attendant can also use the helplines provided to contact authorities.

Step 6: If user clicks on logout button, user will get out of the system and login page will be displayed for new login.

## IV. RESULTS

Based on these concepts and advantages of eHealth, the Emergency medical data access using NFC project aims at providing a digital environment for patients to interact with doctors efficiently at day-to-day bases and also in case of emergency.

This Application provide medical aid in case of emergency. The health status of the patient will be known quickly. Thus reducing diagnosis time and retesting cost.

This android application provides digital health capabilities that consumers want the most, that is, Access to electronic medical records (EMR), to provide location of the patient in case of emergency, prescription management and insurance management.

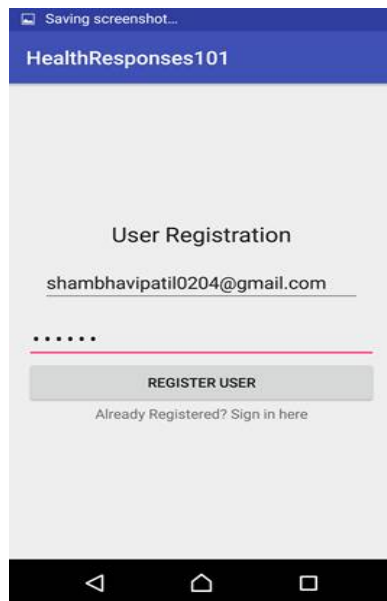


Figure 1: User Registration

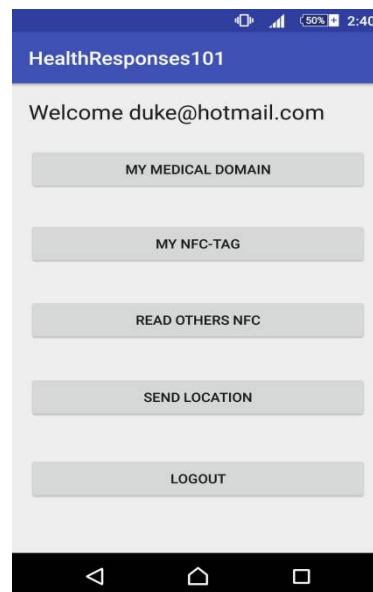


Figure 2: User Page

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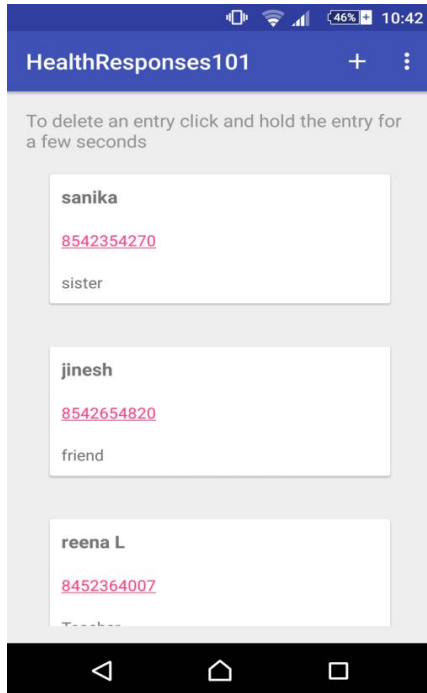


Figure 3: Emergency Contacts

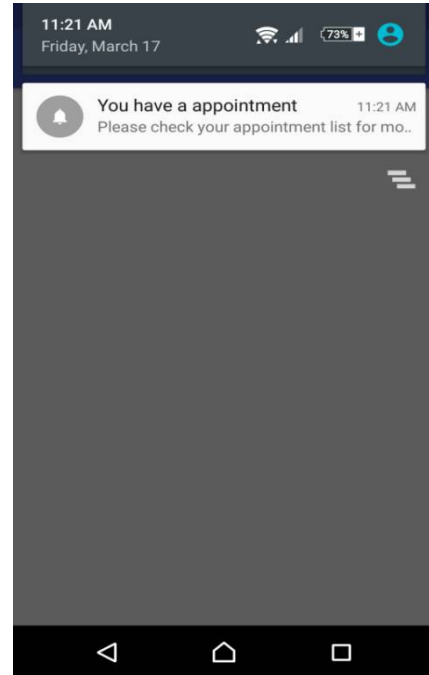


Figure4: Appointment Reminder

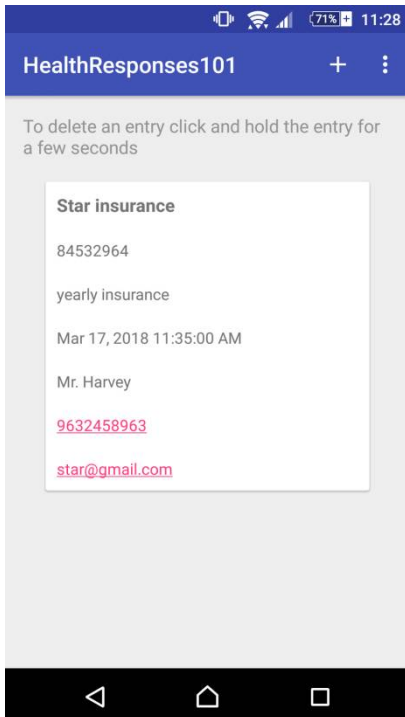


Figure 5: Insurance

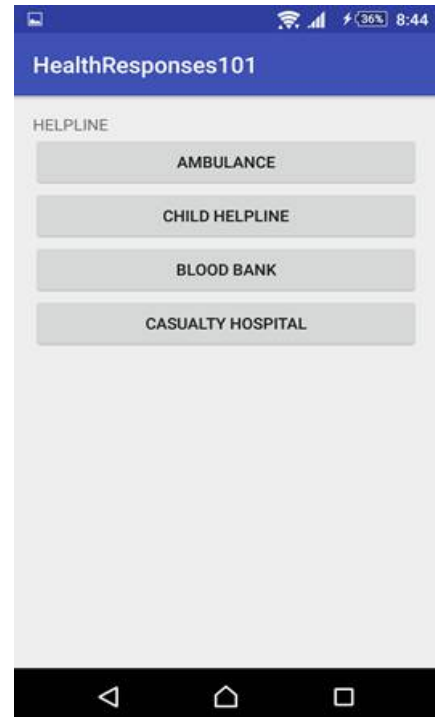


Figure 6: Helpline

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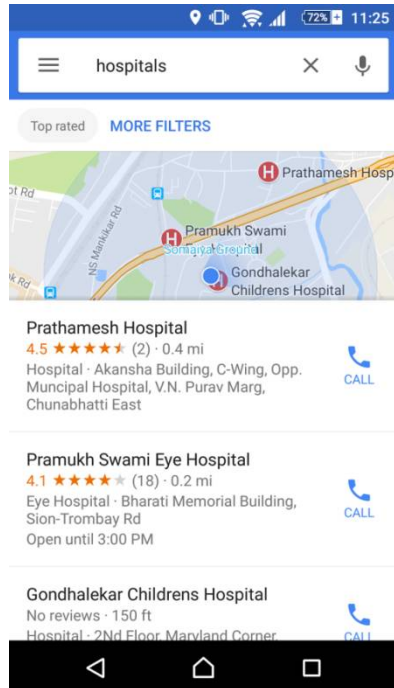


Figure 7: Find Hospitals

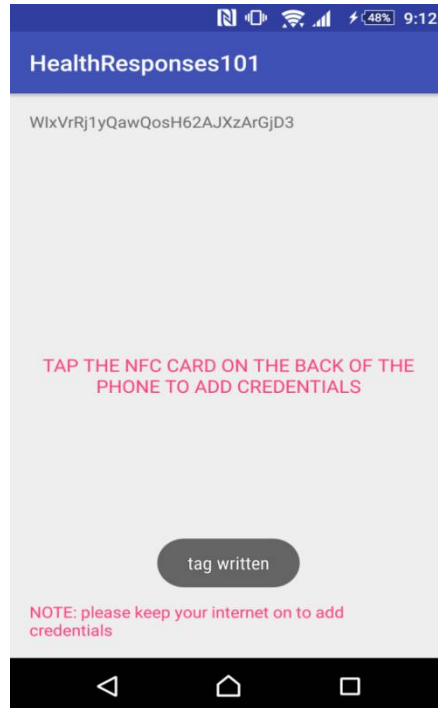


Figure 9: My NFC

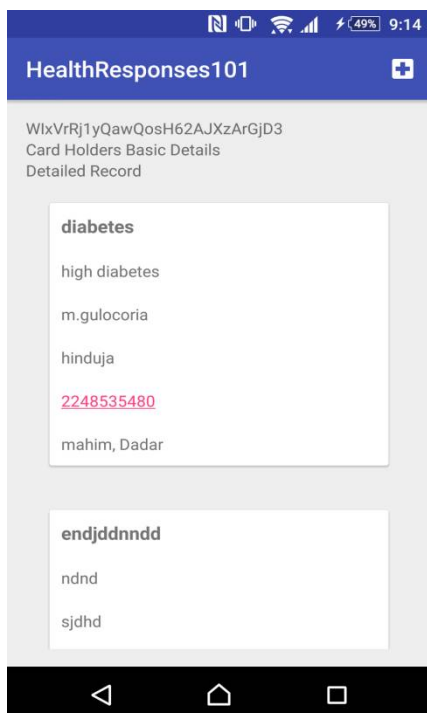


Figure 10: Others NFC

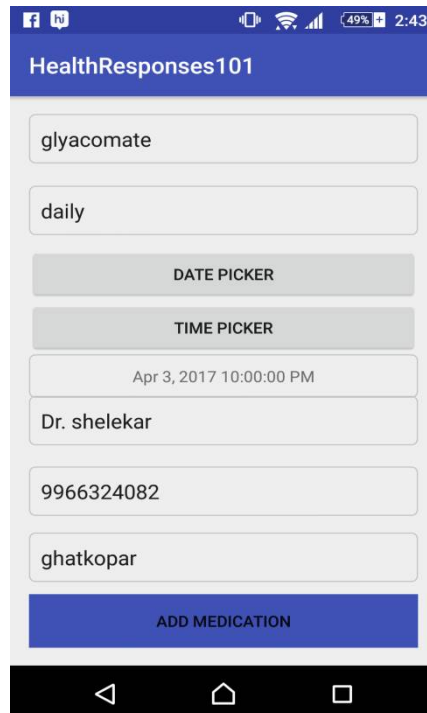


Figure 11: Prescription



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## V. BENEFITS

To design an android application to provide digital health capabilities like Access to electronic medical records (EMR), to provide location of the patient in case of emergency, prescription and insurance management, for quicker and efficient identity and HealthCare management.

- This system eliminates the issue of patient misidentification.
- In case the physical copy of the medical records is lost our system can act as a backup copy of the records.
- It is a patient-oriented application that provides the users the capability to control and organize their medical documentation.
- In case of emergency, the location of the patient is sent to its next of kin when the tag is taped on the on-site attendant's smartphone.
- For daily use, this application provides the user with prescription and insurance management facilities.
- In case of emergency, on-site attendant can find nearest hospital list.

## VI. CONCLUSION AND FUTURE WORK

### A. Conclusion:

This project is intended to provide a hassle free and smooth medical data access in case of emergency and for daily routine basis. This is provided using the concepts of eHealth and NFC technology. Thus giving rise to a mobile application that provides medical records as well as location of the patient in case of emergency. It bridges the gap between patients and doctors in terms of communication and provides a unique and secure platform to interact, thus providing to better healthcare services.

### B. Future Work:

With the availability of resources, further this system can be extended by making use of sensors and NFC stickers or bands. This application can be further integrated with hospitals and medical institutions to study and analyze the medical data and predict epidemics or to send alerts about healthcare.

## ACKNOWLEDGMENT

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## REFERENCES

1. Cosmin-Ionuț Imbrișcă, Alina-Maria Neațu, "The Implementation of E-Health Solutions. A Review of International Solutions and Their Relevance for Romania," International Journal of Economic Practices and Theories, vol. 5, No. 5, October 2015.
2. Cristina TURCU, Cornel TURCU, Valentin POPA, "An RFID-based System for Emergency Health Care Services" International Conference on Advanced Information Networking and Applications Workshops, 2009.
3. A. Devendran, R. Jayam and P. Sindhuja, "ELECTRONIC MEDICAL RECORDS USING NFC TECHNOLOGY", ARPN Journal of Engineering and Applied Sciences VOL. 10, NO. 3, March 2015.
4. Akanksha Sharma, "e-Health in India," Overview HTSM- April 2016.
5. About Near field communication [<http://nearfieldcommunication.org/about-nfc.html>]