

# Smart Medicine Box for Patient Using NFC

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## ABSTRACT

**Internet-of-Things (IoT) have great business potential in home healthcare services however, a comprehensive platform is still missing. An intelligent home-based platform, the I-Home Health-IoT, is proposed and implemented in this project. It involves platform for an open-platform-based intelligent medicine box (I-Medi-Box) with enhanced connectivity and interchange ability for the integration of devices and services. Intelligent pharmaceutical packaging (I-Medi pack) with communication capability enabled by functional materials. The proposed platform seamlessly fuses an android application and NFC tags with medical services for improved user experience and service efficiency.**

**Key Words: IoT, NFC Tags, Android device.**

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## I. INTRODUCTION

Lately, global ageing and the prevalence of chronic disease have become a common concern. Many countries are increasing the proportion of home healthcare. It is a promising trend in healthcare to move routine medical checkup and other health services from hospital to the home environment. By doing so, firstly the patients will get healthcare anytime, secondly the financial burden on society could be reduced by remote treatment, thirdly remote hospital could be released for people in need of emergency care. Smart Medicine Box is a simple device that reminds users to take their medicines on a specified dosage cycle and amount. If not reminded by family members or caretakers, patients often forget to take doses of medicine. This application addresses the need, by reminding the user to take medications as per loaded into the device. This allows users to live more independently and instills confidence that the proper medications are being taken.

## II. OVERVIEW OF THE TITLE

In this project we are using NFC technology. Near Field Communication [NFC] is a set of communication protocols that enable two electronic devices, which is usually a portable device such as a mobilephones, and then establish the communication between them by bringing within 4cm of each other. The NFC tag will be attached to an item, and so it will read and identify the object. This is targeted especially

for users who regularly take drugs or vitamin supplements, or nurses who take care of the patients. NFC tags is programmable which allows nurses or users to specify the pill quantity as per their dosage to take pills for each day. Smart medicine will be containing separate sub boxes, and so the nurses or users can set information for different pills by using NFC tags. When the pill quantity and time have been set, user will touch the NFC tag which will be attached in medicine box ,it will remind users or patients to take pills using sound. This will specify the number of pills that need to be taken and it will be displayed on their respective smartphone.

## III. MOTIVATION

While surveying we found that most of the people stand in a long queue for queries, x-rays, reports, medicine timetable, etc.. Some of the concerns we are addressing in our project are as follows:

- A We implement to ease the medical process, and to make it simple by using NFC technique.
- B Maintaining well communication between users and doctors by using NFC technique will be a more viable option in the future.

- C. The system based on NFC technique is efficient, user-friendly and shows promising performance.

#### IV. LITERATURE SURVEY

The literature review consists the existing approaches as:

- A. The design of modern medical data information systems is driven by the need to collect and present data to authorized users.
- B. The telemedical system focuses on the measurement and evaluation of vital parameters, e.g. ECG, heart rate, heart rate.
- C. A remote wireless monitoring terminal design, using ARM microprocessor as its core controller, is proposed in this paper.

#### V. PROPOSED WORK

System design architecture shows how the provision to add and manage new patients. Doctor can see prescriptions details of and has provision to define patient's medicine timetable. Every patient would get alert regarding medicine prescription and can add medical report to server. sData mining techniques will predict patient's disease based on their symptoms and make primary suggestion of tablet.



Fig -2: Architecture Layout

#### VI. MODULES

- A. *Admin Module:* In admin module, admin of the system can control all data contents like adding and managing the patients for that we are going develop admin module. Following contents going to be there like update, delete, add medicine details patient login, etc. The patient can also view their medicine timetable; upload their queries, x-ray, reports, etc.
- B. *Doctor Module:* This module defines the doctor's side of the application where he can can update the

patients timetable, update their prescriptions, view or search the patients in the database.

- C. *Medi-box module:* Designing the medicine box includes NFC tags through which the patients can notice which medicine is scheduled at what time.
- D. *Data Mining Module:* The main implementation comes in this module. This module emphasizes mainly on collecting of data on the server and maintaining managing of this data. There is large complexity as there can be many patients on the database which have a large amount of data to manage. This can lead to predictability problems for the doctors as to who prescribe which medicines as the level of disease can differ from patient to patient.

#### VII. COMPONENTS

A. *ANDROID DEVICE:* The device that runs on the android operating system is called an android device. It is an array of software intended for mobile devices that features an operating system, core application and middleware. A smartphone, PC tablet, e-book reader or any type of mobile device that requires an OS should be considered as an android device.

B. *NFC-TAGS:* NFC tags are passive device, which means that they operate without a power supply of their own and are reliant on an active device to come into range before they are activated. The trade-off here is that devices can't really do any processing on their own; instead they are simply used to transfer information to an active device, such as a smartphone. It allows users to share data through NFC tags and NFC peer to peer communication between two devices and in some regions, to use their device as a contactless payment card

#### NFC Specification:

1. Frequency band: 13.56 MHz (HF)
2. Regulations: ISM band worldwide
3. Range: 10 cm or less
4. Standard: ISO/IEC 18000-3
5. Cost : INR 100 to INR 150

#### Platforms:

- 3) Editor-Net Beans
- 4) Language - Java
- 5) Database-My-Sql
- 6) Android
- 7) Server-Glassfish Web server 3.1
- 8) Admin GUI: AWT

#### VIII. CONCLUSIONS

The sudden growth of population has been a challenge to global healthcare system. Many countries have been active in hospital restructuring through optimized medical resources and increasing the use of home health .Now Iot has been

recognized as a revolution in ICT and is expected to be applied to many industrial sectors which includes healthcare. Thus, we are going to implement smart medicine box using NFC tag which helps to old practice as well. We will be also applying data mining technique for predicting disease using patient's symptoms. Providing health reminder in day to day busy life

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