An Android Based Application That Time: A Survey

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ABSTRACT: People are involved in many activities that are planned, unplanned, routine and emergency in nature. The ability to manage all these activities without conflict is desired by all persons, because time management is one of the attributes of successful people. With the proliferation of mobile devices in our society, this work seeks to develop an appointment management application for mobile devices using the android platform. The developed application utilized two application programming interfaces (APIs) from Google for the map and calendar. The developing use of technology and applications for health and wellness tracking presents an opportunity for expansion and advancement in women's reproductive health tracking. Through current ovulation tracking application analysis, interviews, and surveys, this project explores the requirements for an effective ovulation tracking application. The three major features found to be fundamental for a successful ovulation tracking application were discreetness, customization, and content. Based on these findings, a prototype android application was developed directly derived from the mentioned features.

I. INTRODUCTION

The Internet of Things (IOT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.A period tracking app for girls, accessible on mobiles they use daily can deliver tools directly into their hands to transform stress and shame to empowerment. This can change how girls learn about and manage their periods, their bodies.The overarching long-term goal of the app is to ensure every girl manages her period with confidence and normalcy, and makes informed decisions about her reproductive health. The establishment and improvement of doctor-patient interaction system is a very important requirement, especially now when the mobile communication technology is developing rapidly. The advantages of mobile web can be made full use of to make up the time and distance gap between doctors and patients and to provide fast and adequate medical services. Through the connection between mobile terminals and specific service, both doctors and patients are able to obtain required data to achieve a better interaction. Android is a Linux based open source operating system which is mainly used in portal devices with excellent performance thus making its market share growing. The platform, Web services and database technology are all gradually maturing, so that we can develop a doctor- patient interaction system on Android platform to meet the needs of the patient and provide doctors more efficient and convenient means of communication with patients [1]. Globally, health care sector is the pivot and integral part of human lives. Thus,any error committed in the clinical services might leads to defect or termination of life. Recently, information and Communication has been used extensively to improve the various operations and services in the field of the health care service. Patient appointment with the Doctor is one of the clinical services that have been automated. Healthcare providers are motivated to reduce operation cost while improving the quality of service. This has given rise to preventive medicine in order to avoid disease, lessening the demand for emergency department and hospital stays for sick people. The importance of Patient Scheduling cannot be underestimated in the health care delivery landscape. Patient scheduling is a complex process that perform a crucial role in health care. Patient scheduling performs several functions, from allocating resources to patients in need of exams and allocation of surgery rooms to on-demand appointment scheduling with Family Doctors working at Primary Care clinics. A

good appointment scheduling system encourages patient and physician satisfaction, and as such, is an important component of healthcare[1]. The efficiency of health care delivery hinged solely on the effectiveness of the Patient scheduling system. it reduces medical error among practitioner and also reduce the number of unsatisfied patient. Appointment systems have been extensively used to reduce patient waiting times and waiting-room congestion[2].Such systems have the potential to increase access to medical resources while reducing cost, as well as staff and patient dissatisfaction derived from unmet schedule constraints. The main aim of optimal patient scheduling is to determine an appointment technique for which a particular measure of performance is optimized under uncertain conditions [2].Appointment scheduling system is a system for planning of appointments between resources such as patients, facilities and providers. It is used in order to minimize waiting times, prioritize appointments and optimize the utilization of resources. Angular JS is an extensible and exciting new JavaScript MVC framework developed by Google for building well-designed, structured and interactive single-page applications (SPA). It lays strong emphasis on Testing and Development best practices such as templating and declarative bi-directional data binding. The framework is used to create rich and interactive SPA's(Single page Architecture).The framework consists of several core and optional libraries

II. RELATED WORK

Current approaches, While there are many menstrual care services, the majority are paper-based and/or face to face administered by educational institutions, with the strain on teachers who do not always have the appropriate training, resources or time. It limits the numbers of girls able to access knowledge on menstrual treatment. The incorporation of third-party libraries allows app developers to take advantage of useful existing functionality and also tap into an alternative revenue stream without the need to charge users for the app itself. While this may appear beneficial to end users as they are able to obtain apps seemingly for free, it suffers from the inherent privacy risks of the prevailing paradigm of services being free because users are the product and "pay" with their personal data. Not only have such libraries become prevalent (49% of apps contain at least one ad library), but the risks they present increase through time as they ask for increasingly more dangerous permissions. This necessitates the deployment of functionality that can differentiate between permissions required by the actual app and those requested by third-party libraries. Tracing permission requests back to third-party libraries allows for enriching the contextual information presented to users.

III. LITERATURE SURVEY

Choudhari et al (2014) developed a system that will ease the process of booking appointments with the doctor. The patient will book the appointment through his/her mobile phone. The doctor will come to know the number of patients he has to attend in the day. The system will save patient's as well as doctor's time. It will save the receptionist's paper work. The system will prove to be useful for the doctor as he can check his appointments whenever and from wherever he wants to using his mobile phone. The proposed system consists of two panels: Doctor and Patient. The users will first have to download the application and install it in their mobile devices. Once installed, this application will remain into the device permanently until the user deletes it or uninstalls it. The patient will have to register into the application for the first time. On registering, the patient will receive a username and password. The patient can use this username and password for logging into the app each time he uses it. After logging in, the patient will have to select a filtration type. The filtration is done on two bases: Area wise and Specialty wise. After selecting the filtration type, the doctors list will be displayed. The patient can select any particular doctor and view his profile. Also the patient can view the doctor"s schedule and look for an appointment according to his convenience. The patient will then send a request for appointment. The doctor can either accept the appointment or reject it. The database will get updated accordingly and the patient will get a confirmation message. The add-on to this system is that the patient will receive a notification 2 hours before the actual appointment. This will be very useful in case the patient tends to forget the appointment.

Symey et al (2013) proposed to develop an alternate patient appointment system using Near Field Communication (NFC) technique and Android enabled mobile application with a view to redefining the core of hospital waiting time towards appointment and also collection of medicines. These were carried out in practice using appropriate NFC hardware, Android SDK, PHP and MySQL database.

A work was carried out towards scheduling appointment for students using Agents from Android handset recently. There were a few drawbacks in the existing system, like no provision of scheduling between lecturer and Lecturer, and it did not take into consideration the time span between the scheduling, rescheduling and cancellation of appointment and the actual start of the appointment. Another drawback of the previous work was the fact that the appointment diary of the lecturer could not be seen. Last but not the least negotiation between Scheduler agent and lecturer agent can be carried out only if the lecturer's mobile handset is on as the fuzzy preference logic for appointment negotiation resides on the mobile side which is a bit of drawback. Parchment and Sankaranarayanan (2013) worked to alleviate the above mentioned problems by incorporating software agents on Android enabled handset into the educational arena in an effort to solve scheduling appointments woes. Also in the work, it allows the scheduling and cancellation of appointments based on some time period validation. The Smart agents utilize the properties of autonomy and mobility to intelligently schedule appointments on behalf of the lecturer. JADE-LEAP on the latest Android handset was the choice to develop the proposed system.

Grover et al (2013) looked to resolve the challenges faced by the sales industry by developing a "Salesman Application" an android mobile app that provides various hands-on services to a salesman thereby minimizing the reporting time and increasing the efficiency . The app allows a salesman to manage his appointments with clients , submit immediate orders , generate & print receipt via bluetooth printer , track his/her performance index , maintain a products catalogue, also features different payment modes (cheque , DD, Cash) and maintains client's history along with the feedback & a picture of the client (by creating phonegap camera plugin) on their android smartphones and tablets.

Hylton and Sankaranarayanan (2012) discovered that to make an appointment with the hospital staff, it becomes really tedious and time consuming. Over the past considerable amount of work have been done by using software Agents in areas like m-commerce, ecommerce, telemedicine etc. Agent based systems have also been developed for the hospital service, for searching and fixing appointment over mobile phones which gives a direct reply when the appointment is made or the next available date(s) or cancelled. However, no facility like priority appointment of patients has been developed. Also the appointment does not take into consideration emergency situations like accidents and so on and the scheduling reported is only for general patient appointment only. Taking these important aspects into consideration, we here have developed an intelligent agent based system towards negotiating and collaborating with the agents of doctors and the hospital for the appropriate appointment time for the patient which would take the above factors into consideration. In addition the meetings of the junior staff like the duty doctor and nurse with the chief doctor regarding patients would also carried out again while taking into consideration the medical condition of the patient admitted and so on. These agents developed would function based on fuzzy preference rules, to make a proper decision regarding making an appointment for patient and other hospital staff, which is very unique and first of its kind. The system validated used ANDROID 2.2 and JADE-LEAP, for providing a robust, user friendly solution for the patient and doctor.

Pocatilu (2012) stated that almost all mobile applications use persistency for their data. A common way for complex mobile applications is to store data in local relational databases. Almost all major mobile platforms include a relational database engine. These databases engines expose specific API (Application Programming Interface) to be used by mobile applications developers for data definition and manipulation. This paper focus on database - based application models for several mobile platforms (Android, Symbian, Windows CE/Mobile and Windows Phone). For each selected platform the API and spec   ific database operations are presented

IV. SYSTEM METHODOLOGY OVERVIEW

The primary aim was to provide health practitioners with an overview of how and what Fertility Awareness Method (FAM) app users voluntarily track on these apps. Many, if not most clinicians are unfamiliar with the specifics of health-related apps, and thus the information from this study may provide clinically helpful information. The secondary aim was to propose a mathematical framework to estimate the delaying hormonal states and most likely day of ovulation from FAM observation. This allowed a comparison of the duration of the menstrual cycle phases from the present digital study with reported values from previous clinical studies.

This is a design and programming work. Programming guidance was obtained from Felker and Dobbs (2011).
The android appointment management application consists of five modules: The modules are
- User Interface
- Appointment Manager Module
- Google Calendar API
- Google Map API
- Google Latitude API

User interface: this consists of the user and the graphical interface on the mobile device. The graphical interface makes the task of putting appointments and time allocation easy.

Appointment Manager Module: this serves the hub of communication with the APIs used in this work. Sample codes used for the integration are included in this paper.

Google Calendar API: lets users incorporate calendar functionality into personal applications or website. Users can edit calendars, create and delete events, query for events that match particular criteria, send invitations and more.

Google Map API: allows developers to integrate Google Maps into applications. Google Maps is a web mapping service application and technology for global use.

Google Latitude API: is used to access and update locations using the latitude, longitude and timestamp. It works with the Map API to produce results. The model of the Android appointment management is shown in Figure 1
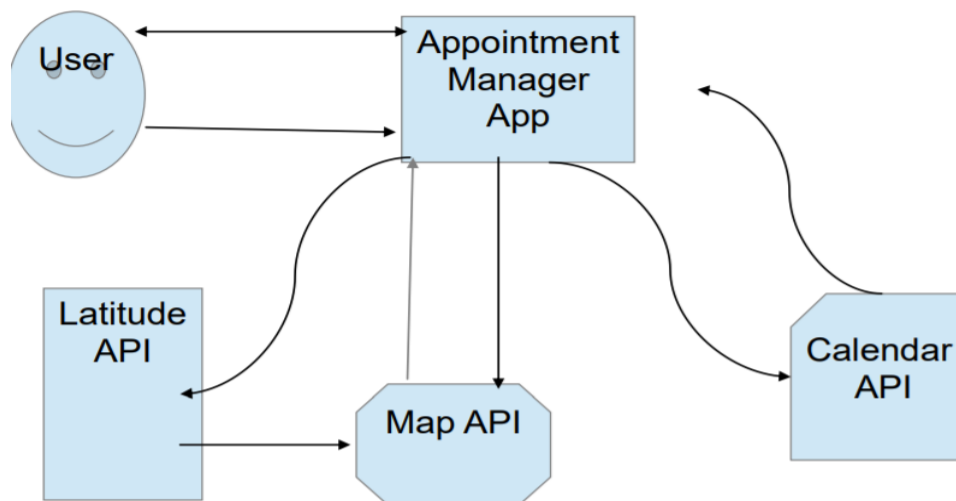
Figure 1 : Model of the Android that time Manager

In Figure 1, the interation of all the modules of the appointment manager is shown. The user provides details about an appointment with the user interface. The details are stored by the Appointment Manager App which sends the date or time of the appointment to the Calendar API and the location of the appointment to the Map API. The Latitude API obtains the user co-ordinates which are sent to the Map API and then used to load the corresponding map on the user interface.

Observation/Discussion
Advantages of System
- It will save time, reduce the effort and paperwork of both the patient as well as the doctor.
- The system focuses on improving the rate of attendance at healthcare appointments.
- The application will prove very beneficial to doctors and patients. This application is freeware, user-friendly and easily accessible.
- It supports an easy implementation as it is less expensive, trustable, adaptable, accessible to anyone with smart phone and do not require separate devices, packaging or extra hardware

Limitation of System
- Availability of android device.
- Internet connection

V. CONCLUSION

As a result, analyzing the survey was completed manually instead of through code as most answers were unique and specific to each respective participant. All features and functions developed were directly inspired and derived from the survey results, as well as literature review analysis.

VI. FUTURE WORK

Due to time constraints, the finished product of this project was a prototype of an application. For this reason, the Calendar view as well as the Symptom view would be the first and main suggestions as the next steps needed in continuation of this application development.

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