MAMTHA : A MATERNITY SELF-HELP APPLICATION

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Abstract: Mobile apps are computer application programs that act as one of the current major assists in connecting people to Internet Services accessed via handheld and several microcomputer machines. This study investigates the development and implementation of pregnancy healthcare mobile based application called 'Mamtha App'. The proposed application works as an assistant to pregnant woman in order to monitor their baby growth week-by-week, provide feedback information and as time management system. Agile development model was used as incremental model. As such, every software release was carefully implemented and tested in order to maintain and guarantee the minimum software quality. Based on the obtained feedback and results, the application sound as an indispensable asset for pregnant women and can provide additional support for the complete nine months of pregnancy. Application will be support with booking appointment doctor, emergency driver booking monitoring Kick tracks, info by Admins.
Keywords: Mobile apps; Mamtha mobile app; Mamtha Doctor, Mamtha admin app; Mamtha driver App

I. INTRODUCTION

Mobile applications are soft tools for connecting users to Internet services that are frequently accessed using PCs and micro computer machines. Mobile technology has made life easier, it serve the users in different aspects and can be used as an essential gadget to users worldwide. As such, mobile phones have many features, one of these feature is the ability to download application programs. In addition, the modern business needs and the technology advancements have made such applications very popular and highly demanded among several mobile phone users. According to mobile medical apps are more popular among women as compared to men. This popularity ranges from elaborating simple and common health patterns to experimenting personalized tests. In addition, as per the results on how women are using technology today which studied completive number of women using technology showed that women are always in a hunt of technology which help them to follow up with their active lifestyles. This makes women the fastest growing and one of most valuable consumer of internet and ecommerce companies.

From the exact sense, it is obvious that specific life-cycle like pregnancy requires the use of mobile technology to manage and monitor the pregnancy status week-by-week, provide feedback information and provide essential support and time management. On the other hand, mobile apps are customary in the healthcare development, and have achieved dominant progress in the aspect of developing healthcare mobile

applications. In view of the above, we have studied the development of specialized pregnancy healthcare mobile application that provide weekly monitoring and feedback information to pregnant women. The proposed healthcare mobile app provide a variety of free helpful information, graphs, charts, and videos. One of the interesting advantages of the proposed pregnancy mobile application is the due date and kicks calculator feature which helps pregnant women to easily know their expected delivery date. The app will provide a wish list for the pregnant women to organize their thoughts and ideas. In addition, the unique kick calculation feature gives an estimation about the average kicks per day, calculate the expected delivery time such that to help women be prepared for the delivery period. Furthermore, the proposed app has an online mini store which provides convenient use and benefits after delivery.

A survey has revealed that each year, around 303,000 women lose their lives during childbirth and pregnancy world wide.
A major contributor to this is negligence and ignorance during the tender and delicate period of pregnancy. The global rate is around 211 maternal deaths per 100,000 live births. In 2010, almost one-quarter of all pregnancy and delivery-related maternal deaths occurred in India; the major reason being, that not all women can afford to visit well educated gynecologists and receive guidance about the do's and don'ts during their pregnancy. Another factor to consider is that, in our country, people are not open to discuss about such issues openly and in several rural areas, it is still a social stigma to share such information with men.

Owing to all these factors, this application is an attempt to provide the necessary information about all the care that has to be taken during pregnancy for healthy maternity and child birth. It is a known fact, that today almost every house-hold has access to a smart phone. If not a personal one for each member, at least one per family is a genuine assumption. Thus the requirement to reach out to the ones in need is met to a certain extent. In further sections, all the features of the application are discussed.`

II. RELATED WORK

There has been extensive study in this field, made previously and the information that helped in framing this project to what it has turned out to be is presented below :

Utilization and Content Evaluation of Mobile Applications for Pregnancy, Birth, and Child Care
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Fifty-five percent of the participants were using mobile apps related to pregnancy, birth, and/or child care. First-time mothers used the apps significantly more often than women who were pregnant for the second time. Women who had used a smartphone for a longer period were more likely to use apps related to pregnancy, birth, and/or child care. The most frequently-used information concerned signs of risk and disease during pregnancy. Experts' quick opinions and Q&A for-mats related to diet and medication administration during pregnancy were the women's most cited need for content in applications. Information was the most common function of the apps. In the evaluation of information credibility, the 'information source' category had the lowest score. The results showed that applications related to pregnancy, birth, and child care have become an important information source for pregnant women. To fulfill the needs of users, credible applications related to pregnancy, birth, and child care should be developed and managed by qualified healthcare professionals.

The Rise of Pregnancy Apps and the Implications for Culturally and Linguistically Diverse Women: Narrative Review

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We found that pregnancy apps were principally used to access pregnancy health and fetal development information. Data storage capability, Web-based features or personalized tools, and social media features were also popular app features sought by women. A marked limitation of the health app industry is lack of regulation in a commercially dominated field, making it difficult for users to assess the reliability of the information being presented. Health professionals and users alike indicate that given the choice, they would prefer using pregnancy apps that are relevant to their local health care context and come from a trusted source. Evidence indicates a need for greater health professional and institutional engagement in the app development, as well as awareness of and guidance for women's use of these resources. This is the first review of pregnancy app use, types of information provided, and features preferred by pregnant women. It indicates the demand for access to accurate information that is relevant to users, their community, and their associated health services. Given the popularity of pregnancy apps, such apps have enormous potential to be used for the provision of accurate, evidence-based health information

The use and value of digital media for information about pregnancy and early motherhood: a focus group study

Deborah Lupton

Nine characteristics emerged from the focus group discussions as most important to women: information that was: 1) immediate; 2) regular; 3) detailed; 4) entertaining; 5) customized; 6) practical; 7) professional; 8) reassuring; and 9) unbiased. These characteristics were valued for different purposes and needs. Digital media provided women with details when they most needed them or at times when they had opportunities to access them. The study showed that women value apps or digital platforms that are multi-functional. The findings revealed the importance of using digital information for establishing and maintaining social connections and intimate relationships with other mothers. However, participants also highly valued expert advice and expressed the desire for greater and more ready access to information and support offered by healthcare professionals.

Development and Implementation of Pregnancy Healthcare Mobile Applications: A Case Study (IJRASET)

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BabyApp is an android mobile-based application for pregnant women. It helps the pregnant woman to manage time and provides all the information needed during pregnancy period. In addition, the proposed mini-online store provides essential goods for babies. The main audience of the BabyApp are pregnant women and it was found that such mobile-based application will make pregnant women life much easier, and provide additional support for the complete nine months of pregnancy

III. METHODOLOGY

The application has four interfaces :
- The admin
- The patient
- The doctor
- The ambulance driver

Basically, there are 4 separate apps, for each stakeholder, so that there is clear division of tasks and there is no hindrance to the overall functioning of the application. The main reason was that not all the stakeholders need all the functionalities. The patient does not need the functionalities that are needed by the ambulance driver and hence loading the application with unnecessary functionalities will only increase the battery consumption and reduce the speed. Thus, separate apps for separate stakeholders was the most feasible solution
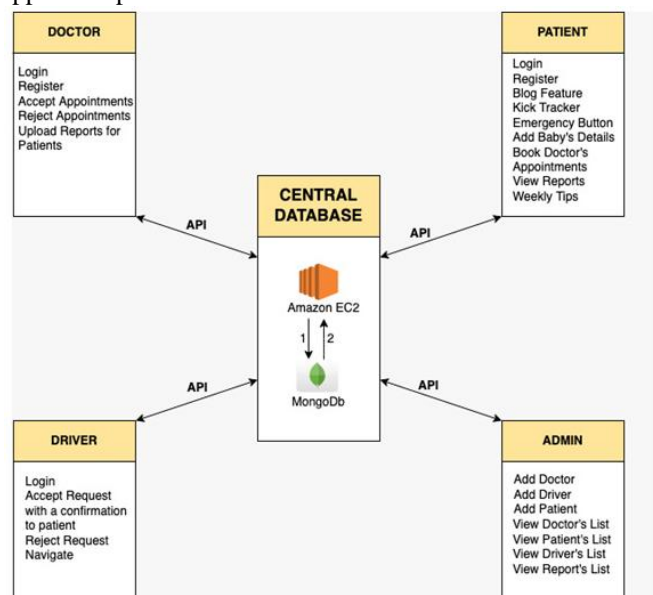
The functionalities of each stakeholder are as mentioned :
For the admin:
- The system should enable the admin to login.
- The system should enable the admin to change and enhance any part in the system like adding new item in any part of the system, updating or deleting.
- The system should enable the admin to view, edit, and delete any pregnant woman from the registered women list.
- The system should enable the admin to view, edit information in the week's section.
- The admin can upload reports, to be viewed by both, the doctor and the patient.

For the doctor:
- Enable the doctor to login
- Can see all the patients that he is attending
- Can upload reports of their corresponding patients
- Can see their booked apointments
- Can edit his profile or appointments

For the user:
- The user will be able to register in the App.
- The user will be able to add personal information.
- The user will be able to add name/s for the baby.
- The user will be able to track the development of the baby week by week, and by picture.
- The user will be able to get weekly updates and tips.
- The user will be able to get weekly pregnancy guide videos.
- The user will be able to use the Due date calculator.
- The user will be able to use the kick tracker: Easily keep track of your baby's movements.
- The user will be able to fix an appointment with her doctor
- The user will also be able to upload reports, in case they have been done from another diagnostic center, to make sure they're all assembled together.
- The user is provided with an emergency button, which will immediately alert her gynecologist, her most immediate contact person and an ambulance driver about the situation. Also, her current location will be shared with all the three, so that they can reach the destination immediately.
- The user can fix reminders in order to make sure that the tablets are taken on time
- Smart notifications
- Photo gallery
- Discussion forum – Where people can discuss about their issues, and others who have also faced similar issues, can share their experiences with them.
- Suggestion of practices to ensure a normal pregnancy rather than a caesarean one, right from the first week of pregnancy.
- Active tracking of the live location of the ambulance arrival.
- Complete security of personal details provided in the application, along with the feature that nobody can click a screenshot of it.

For the ambulance driver :
- Enable him to login with valid credentials
- An interface to confirm the request, so as to send an acknowledgement to the user about the arrival of the ambulance.
- An option to transfer it to the subsequent available driver, in case one is unavailable.
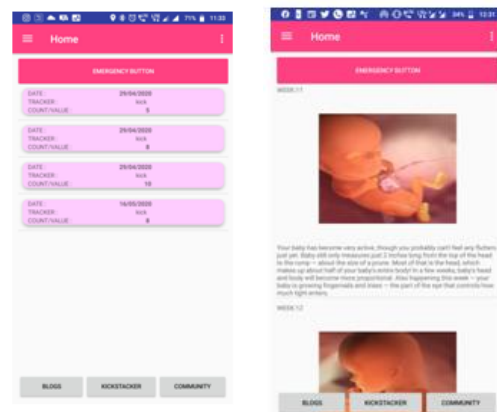
5. Hardware Requirements
- RAM: 4GB and Plus
- Processor: Intel Quad Core and Higher versions
- Processor Speed: 2.4ghz+
- Hard Disk: 40GB and more

6. Software requirements
- Operating system   :   Windows 7 Ultimate.
- Front-End   :   ANDROID
- Data Base   :   MongoDB
- Software   :   Android studio

IV. RESULTS AND DISCUSSION

KICK TRACKER   WEEKLY FEED

The kick tracker feature stores data about the number of kicks in a given interval of time, over a span of days. This data is useful to track the normal growth of the baby. The mother is required to fill in her week of pregnancy at the time she installs the application and weekly updates will be seen on her feed. This will include must do activities and practices that will help in normal delivery and help in avoiding caesarean delivery.

V. CONCLUSION

Thus, in conclusion, this self help application is aimed at providing a more comfortable and smooth pregnancy to women of all classes, irrespective of whether or not they can afford the consultation of expensive doctors. It is a unique application, as it combines the functionalities of several individual apps and the emergency button is the feature that makes it stand out. Just at the click of a button, the

information can be conveyed to the required people that the person needs immediate medical attention. This is a one-stop solution which can be used by women, for a convenient pregnancy.

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