DEVELOP AN APPLICATION TO PREVENT RISK FACTORS OF THE FETUS

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ABSTRACT

Maternal health refers to the health of women during pregnancy, childbirth and the period after pregnancy. Maternal health care is facing the emergence of a new range of systems, services, and applications using electronic communication. This objective is to develop an application to help pregnant woman by suggesting on how to take care of themselves and to prevent risk factors affecting maternal and fetal health conditions. Using the application as a tool, data related to the users are collected. With that data, health status of the fetal is analyzed. This application gives awareness about the risks and suggestions on maternal and fetal health. The important aspect of an application for pregnant women should consider in meeting user needs.

Key words- Maternal Health, Fetal Health, Web Application, Risk factors, Suggestions.

I.INTRODUCTION

Pregnancy is the best period in life in when women get used to a new state and begin to know about new uncertainties and anxieties. Factors like age and overall health status can increase your probabilities of experiencing complications during pregnancy. A good prenatal care and support can help you minimize the complications. The stage of gestation period during pregnancy may carry complications for both the mother and the fetus. Fetal health may be affected by the maternal adaptive changes during this period such as existing health conditions, malnutrition, lifestyle factors etc. Thus, regular observation of fetal and preventive health provided for pregnant woman during this phase is crucially important for maternal and fetal health. Health conditions that can cause risks to the mother or baby include High blood pressure, lung , kidney , or heart diseases, Diabetes, etc.,. This objective is to provide the list of risk factors that is diseases and pains that may occur during the period of pregnancy.

Objective:

To develop an application to prevent risk factors of the fetus.

II.RELATED WORK

Akhan Akbulut, Egemen Ertugrul, Varol Topcu has developed a mobile application as a tool for patients to enter clinical history and data, to communicate with a supervisor and to use the prediction via a UI provided in the application. They offered the pregnant user a suitable exercise schedule considering the clinical data of the patient as well as some other factors.[1]

Zarka Nizar and Mohammad Moayad Mansour, has designed a health care application containing three parts (i.e.) a mobile application, a web application and the web service. The mobile Application was

evaluated using Android Studio. The web application is implemented using Code generator framework 3.0, an open source framework, which was modeled on the Model View Controller.[8]

Alaa Saleh used a mobile application by synchronizing with web application using the web service where data can be transferred through GPS, 3G or WIFI. This system enables data communication between patients and doctors and saves lot of time and efforts in mobility. They have used SQL to create the database of the web application. The database tables are encapsulated with model, the views are made using HTML, CSS3 and JavaScript. The Bootstrap library, an open source, is used to create user interfaces that can save the data for future use.[5]

Naughton, Michelle made a research on pregnant women with medical risk factors, preterm deliveries, or older age may be at increased risk of cesarean delivery and death during pregnancy, they explored the association between the factors and both method of delivery and case status. The adjusted OR for pregnancy- related death linked with cesarean delivery versus vaginal delivery was 3.9%.[3]

Yeonkyu Lee, Mikyung Moon, as an important in dictator of fetal health, low birth weight (LBW) and the other risk in pregnancies was predicted via machine learning methods. By using Bayes minimum error rate classifier on Indian health care data, they predicted the fetal status as LBW or NOTLBW with the accuracy of 96.77%.[7]

Jayashree Piri, Mohapatra made a classification based on association (CBA), a rule based approach to the cardiotocographic analysis of fetal evaluation is suggested, The test findings showed that the classifier model made was 83% and 84% accurate, before and after feature selection respectively for classifying fetal health status. [4]

Al-Ghrairi, Assad & Mohammed, Ali & Saeed, Harith created a website designed to provide accessibility with easy manner of perinatal information to the management organizations for instance the Medication and Medicare. This website reduces the mistake in pregnant healthcare, and reduces the cost of delivery of healthcare. The website prepared for the utilization of nurses, physician, pharmacists and another healthcare professionals, and by patients and monitor patients using application.[2]

Jun Lu, Song Zhang made a work that presents the whole process of development of the self-care management web-app framework that provides instructive supports for future other E-health field application. The report of the web application consists of analysis, design and implementation, and evaluation[6]
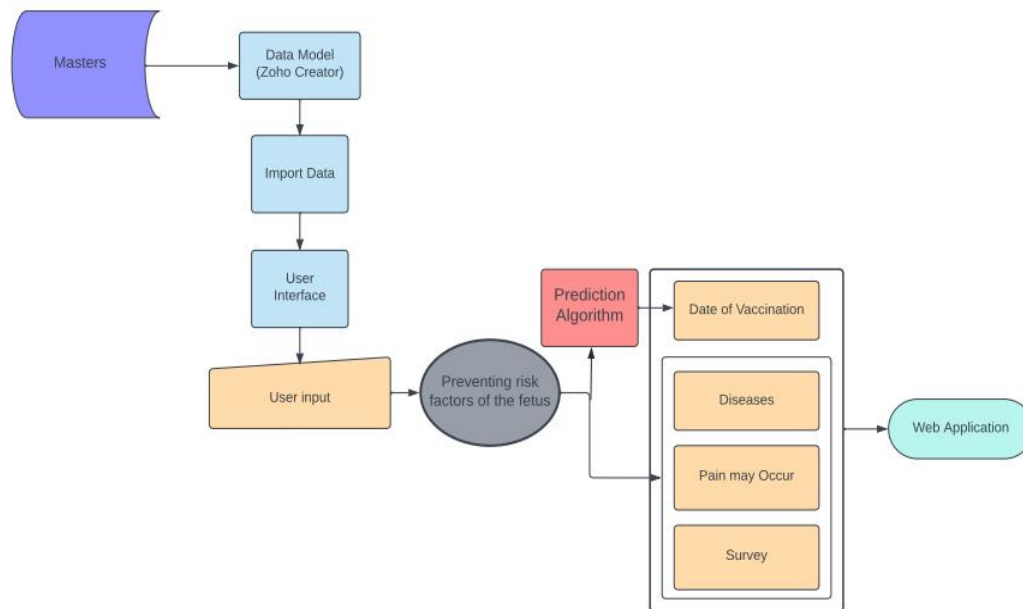
III.METHODOLOGY

WORK FLOW

Fig:3.1

A.APPLICATION

This objective is to provide the list of risk factors such as diseases and pains that may occur during the period of pregnancy. Date of birth is predicted based on conceive date. The masters' dataset with attributes like name of the diseases, reasons, symptoms, control and causes is collected. Then the data is linked to a data model which is created using zoho creator. The application acts as a user interface and receives the input from the user to show the result of Diseases, Pain may occur and Date of Vaccination. A survey is also created in the web application to collect the users details for future analysis.

B.DATE OF VACCINATION

In this tab, When the conceive date is given, Date of delivery is predicted. With delivery date, the date of intake of vaccination is also detected. The number of days from the conceive date to the delivery and vaccine dates are noted for the purpose of prediction. Then the dates are predicted by adding the number of days to the conceive date.

C.DISEASES

As a result, this tab shows the list of diseases. Lack of awareness in diseases are the major reasons for fetal and maternal death or these risks leads to high risk pregnancy complications. Thus, there is an important condition to learn about the risks that may arise before, during or after pregnancy. This part allows the user to select a particular disease using a drop down menu. Then the attributes like

- reason for the disease
- control over disease
- effect on the mother and the fetal
- reasons for the disease

will be displayed as a result.

D.PAIN MAY OCCUR

In this section, various pains that may be experienced by a mother-to-be is listed. Pains like pain during urination, one side pain, headache, burning feel in chest or throat, etc. which may occur is given month-wise. In this tab, the user (i.e. the pregnant woman) will select the month and then the attributes like name of pains and the reason is displayed from the masters dataset.
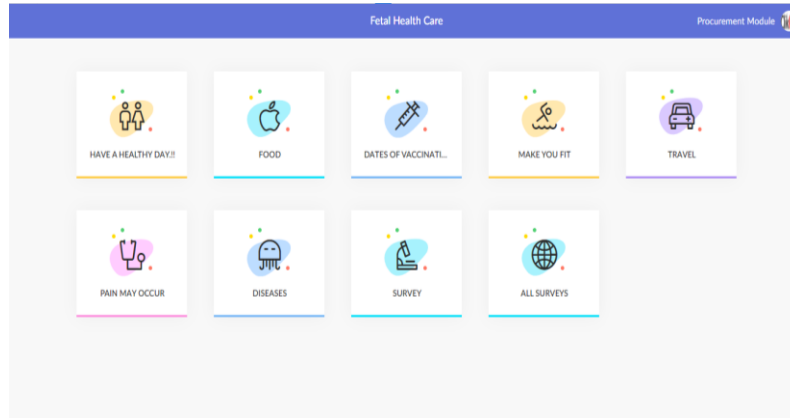
IV.RESULTS

Fig.4.1

In Fig.4.1, The Home Page, where the tabs Date of Vaccination, Pain may Occur, Diseases and Survey is displayed. Each of the tab can be used to know about the risk factors in pregnancy and the control of such risk factors is also given. When the user clicks on the Done button, the screen is returned to the Home Page.
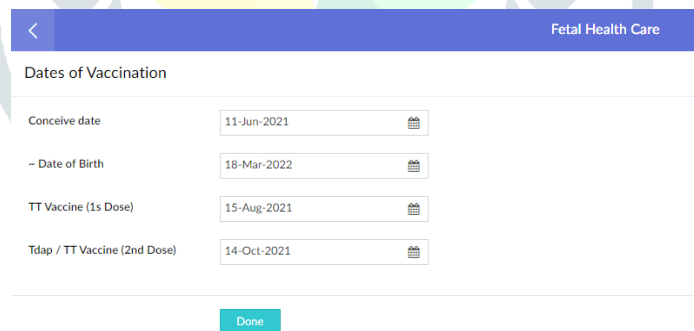

Fig.4.2

In Fig.4.2, Date of vaccination tab is displayed. In this tab, when the conceive date is selected using the calendar, the approximate date of birth, dosage of vaccination is predicted.

Fig.4.3

In Fig.4.3, the view of the diseases tab is displayed. When the user selects particular disease name using drop down menu, the reason for the disease, control over the disease, the problems caused for fetal and the mother and the symptoms of the particular disease are displayed.

Fig.4.4

In Fig.4.4,Pain may occur tab is displayed. In this tab, pains that occur is displayed month-wise. That is, when the user selects month 2, pains and reasons that occur in month 2 are displayed.

Fig.4.5

In Fig.4.5, Survey tab, where the data is collected for further analysis. In this survey form name, age, maternal age, number of children, previous child physically disabled, factors to know the health condition of mother like BP, sugar, cholesterol, thyroid levels are collected. Then the health issues that the pregnant woman is currently facing like heart or kidney diseases and the smoking and the alcohol consumption status of the pregnant woman is also collected.

V.CONCLUSION AND FURTHER WORKS

In this paper, the list of data related to diseases and pains are collected and are used in the application. The approximate birth date of the baby can be predicted by noting the number of days between conceive and birth. The questions to be asked to a mother-to-be are collected in the form of a questionnaire for further analysis. The list of details, pains and the survey can help in the prevention of risk factors of the fetus and the mother. This application can provide care to the mother and the fetus before and during her gestation period. The survey can be used to know about her present condition and prevent any complications during her pregnancy.

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