KIDSCARE: An Android Application for Healthcare of Children

[1]Sapna Singh, [2]Komal Veer, [3]Kajal Hundare, [4]Harsh Namdeo Bhor

[1,2,3,4]Department of Information Technology, K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai, Maharashtra, India.

Abstract— To design a scalable android application which gives quick view summary report of your child's completed and upcoming vaccines that gives the user a quicker, easier, more efficient method to identify vaccination information and alerts the registered user about their child's vaccination with the help of remainder. Vaccination against diseases which can cause by the viral. So, In this app we can use mobile technology as Expanded Program on Immunization (EPI) which is one of the most cost-effective public health action taken to improve a medical disorder. Apart from this government has been taking lot efforts for providing these vaccines totally free. Also, these qualified health care providers against the increasing population, lack of access to best quality health care of equipment's, lack of electronic medical records of user that have received any form of vaccinations had hampered the smooth delivery and administration of these vaccines in developing countries. To overcome with this technology issues this KIDSCARE vaccination reminder application will be one of best solution which consist of vaccination information for the knowledge of parents so that they will get the basic idea about the vaccines which they gives to their children and its effects. Based on this research on child vaccination processes with the innovative power of telemedicine to give a software system framework that will definitely provide an alert mechanism on available child vaccine for a specific period. It will help to furnish health care provider with medical decisions and data for effective vaccination planning.

Keywords— Expanded Program on Immunization, vaccination, health care provider, vaccination reminder.

I. INTRODUCTION

Prevention of the disease is the key to public health. It is a general saying that "prevention is always better than cures". Vaccines protect people from catching specific diseases. Vaccines also help preventing the Spread of infectious diseases in a country. Such diseases include polio, whooping cough, diphtheria, measles, rubella (German measles), mumps, Haemophilus influenza type b (Hib) and tetanus (Malone & Hinman, 2003).

Parents are constantly concerned about the health and safety of their children. Therefore, they take many steps in order to prevent their children from catching a disease. One of the options is vaccination. Vaccine works to protect infants, children and even adults from illnesses and death caused by many infectious diseases. Vaccination has its own time, period and schedule. The dosage of vaccination remains the same among babies but may be different for adults (Rodewald, 2005).

Reminder systems have been in use for several decades, except for the more sophisticated Computerized phone reminder systems, and are not complex either to initiate or to operate. Reminder and recall systems can work through a variety of mechanisms meant to prompt the patient, including phone calls (by clinic staff, computer, through patient portals, or through centralized programs), letters, postcards, and email.

The universal problem of vaccine preventive as well as diseases such as Diphtheria, Tuberculosis, Jaundice, Malaria, Smallpox, and Polio has also accounted for almost 60% of death of small children. Effective ways of giving medicines was recorded as one of the most successful initiative for people's health and care which helps to avoid an calculated millions of life-threatening diseases as well as death that as in size affect children. Stated in UNICEF report that 123 countries were immunized over 90% of infants for measles in 2011 and vaccination results in 71% drop in deaths due to measles across the world between 2000 and 2011.This UNICEF report also told about the new techniques of vaccines for all children against Rotavirus, Hepatitis B, Homophiles influenza of type B and Rubella diseases had been introduced across 31, 177, 180, and 130 countries respectively around 80% of newborn babies in such countries were saved against neonatal tetanus through immunized ways. Despite these amazing success records, many countries are yet have difficult access to weak children who stay in villages or rural areas. Moreover, unavailability of vaccines,

inaccessible health services because of population increase, poor information on immunization have resulted to over 50 million children unimmunized worldwide and over 60% of these unreached children lived in Afghanistan, Chad, the Democratic Republic of Ethiopia, India, Indonesia, Nigeria, Congo, Pakistan, Philippines and South Africa. One strategy to properly inform families, increase awareness and provide updates of immunization coverage to the health care system globally is to create or design innovative technologies and methodologies that will facilitate the collection and elimination of immunization information remotely and through intelligent ways.

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The recent growth of mobile phone usage is a phenomenon that crosses all age and gender boundaries. More than just the latest electronic gadget, mobile phones have become integral parts of our business and personal lives [10]. According to the Hand phone User Survey by Malaysian Communication and Multimedia Commission (http://www.skmm.gov.my), fourteen percent of people who are under 20 years old owned mobile phones. Nearly 73.4 % of people living in Malaysia between the age of 20 and 49 years owned or used a mobile phone. The ownership drops drastically to 11.8 % for people 50 years old and above [11]. Hence, using a reminder system through mobile phone messaging service may benefit the community especially those parents who are between 20 and 49 years old.

II. SYSTEM DESIGN

KIDSCARE vaccination reminder application will consist of vaccination information for the knowledge of parents so that they will get the basic idea about the vaccines which they give to their children and its effects. Based on child's age, vaccination schedule will be provided for children of range between 0 to 12.The app will provide reminders to remind the parent of the vaccination done on the particular date specified in the schedule. They can also look up for the vaccination centre available nearby the home address or their current location. And the same can be located with the help of Google map provided by the app. It will also make a profile of child and charts with the scheduled dates. There is height and weight section for the parents to map the expected height and weight based on given ratio.

System Architecture:

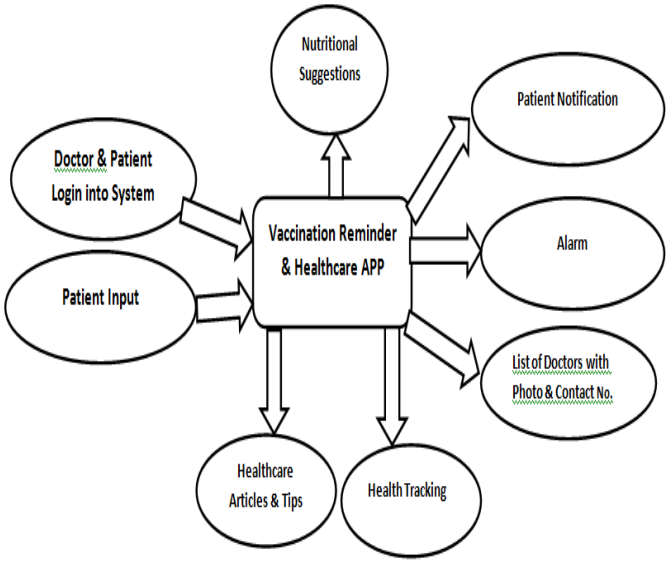


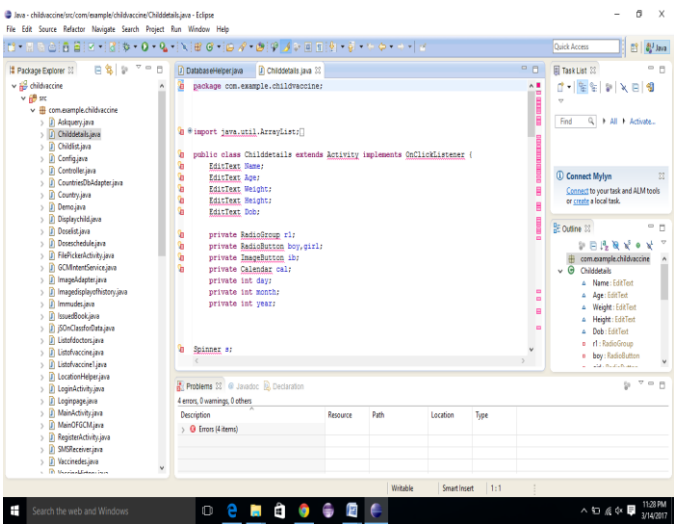
Figure 1 System architecture

III. IMPLEMENTATION

In proposed system, user has to register first by giving input such as username, password and other things. The system will save the details of user. Then user has to login first. Then application is open for all registered authenticated user. After the successful login user will create the profile of baby and get the vaccination details accordingly. Application will also provide symptoms information. System will save information of user. Based on the input given by user system will generate alert and also provide symptoms information. It will also manage the database.

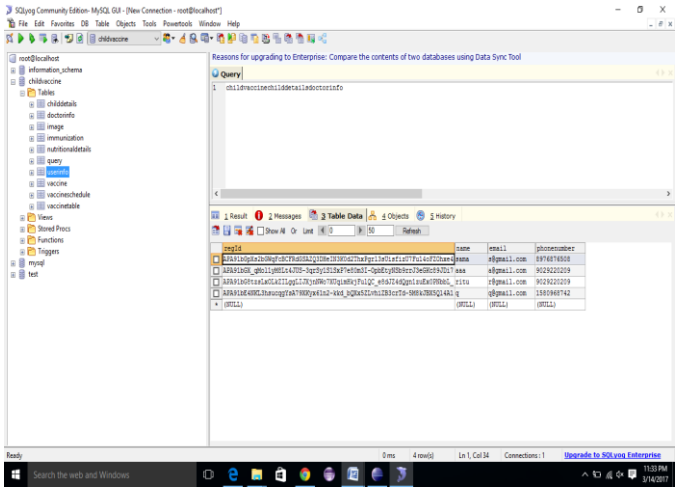
Registration info:

Here all new user have to register their information for the first time use, for that user have to provide their details such as user name, password, child details etc.



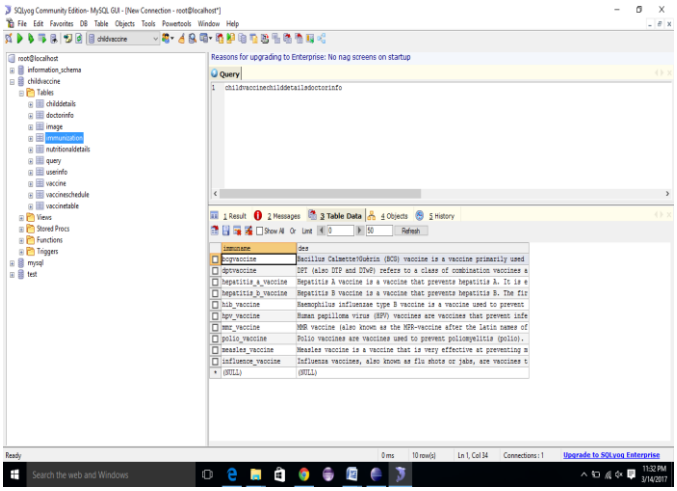
User Info:

This provide the user's information and it is better for understanding about users who is using the system.



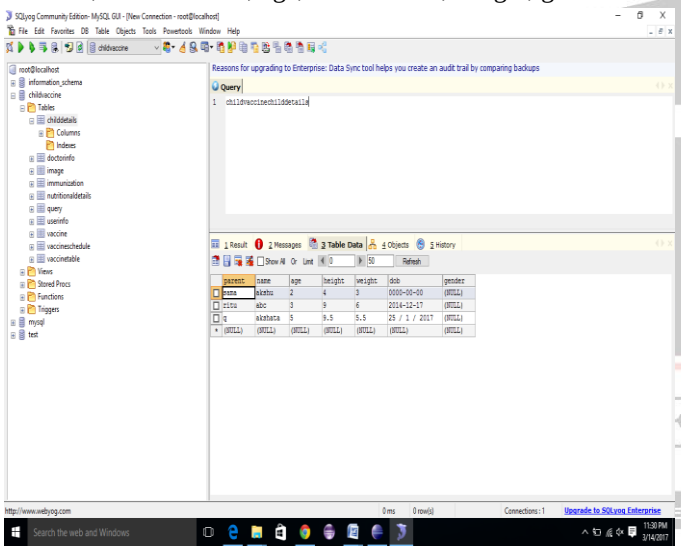
Immunization:

Here in this module details of immunes are being display for better understanding of immunizations.



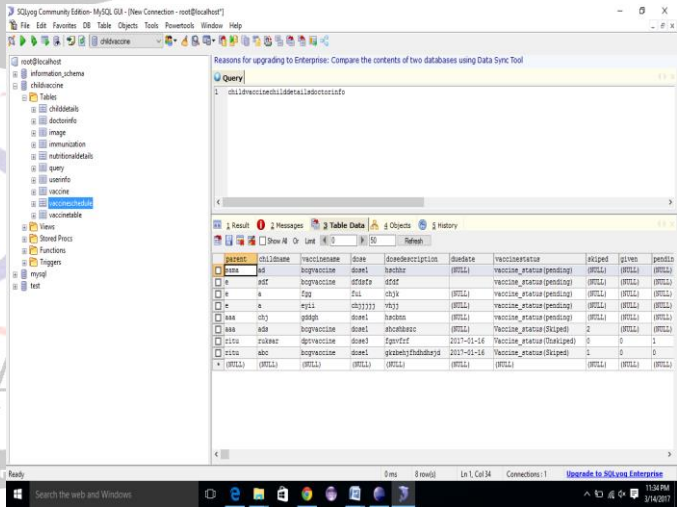
Child Detail:

Here all user as parent have to provide details of their children, such as name, age, date of birth, weight, gender etc.



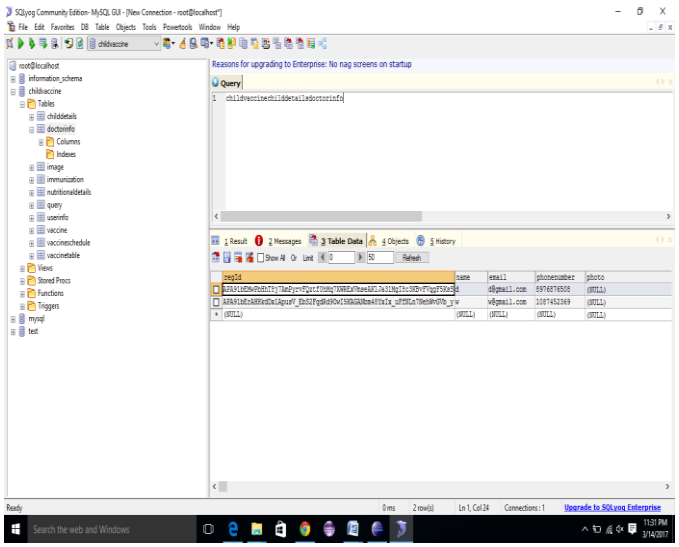
Vaccine Schedule:

All schedule related to vaccines are well prepared and will be displayed in an application. Like in the form of schedule table.



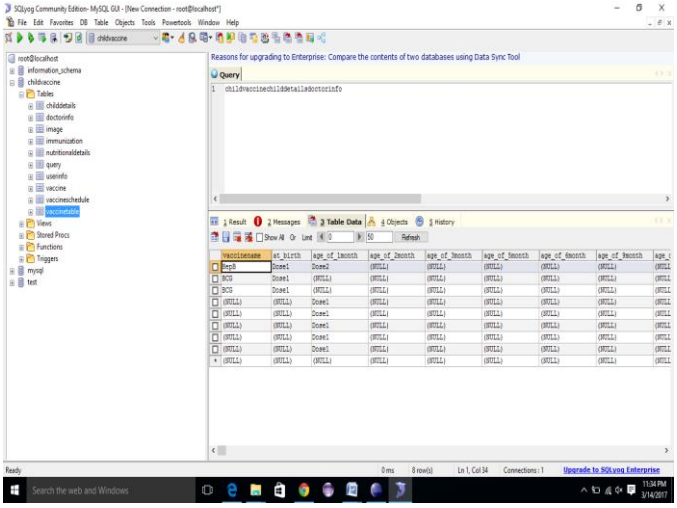
Doctor's Info:

Here in system doctors also have to register their information.



Vaccine Table:

Here vaccines are to be given or missed and upcoming date of same are provided for users.



IV. RESULTS AND DISCUSSION

We proposed a system which will overcome the problem of not being notified. In this system people will get notifications of upcoming vaccine dates and upcoming or ongoing events as well.We did research and study on existing system in which we have notice everything is properly given in the form chart but sometime people might fail to give or take on the same day as specified in the chart.This leads delay vaccine and child can fall ill.We did comparison between existing system and proposed system where one can easily get the newly added features of proposed system and drawbacks of existing system.During presentation of same we got many reviews and suggestions for betterment of our proposed system. As we moved further in implementations we have came crossed that we can provide suggestions as well for registered child for their betterments.

V. CONCLUSION

In this paper we demonstrated the gains of improving effective immunization coverage in developing country like India through android mobile application. It was glaring that android application will help to improve better health care delivery towards meeting the earning of citizens who cannot easily access health institutions because of distance, and limited health care providers. For critical situation, the patient's location can be geo-located using the address supplied by the users. They can also look up for the vaccination centre available nearby the home address or their current location. And the same can be located with the help of Google map provided by the app.

The system is an interactive expert system that provides a more precise solution that will address immunization coverage problems, maintained a database that track the progress of immunization schedule and inform physicians of current health condition of patient as regards to evidence provided from physiologic data remotely sent via the application. Childhood vaccination against common childhood vaccine preventable illnesses such as Measles, Whooping cough and Polio (poliomyelitis) can be identified and patient (child) can properly book an appointment to see a doctor. A system of this magnitude should be introduced into India general health care system (hospitals, clinics, maternity) to help ease the work of physicians and combat childhood preventable illnesses and death.

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