

## Using Vaccination System to Achieve Health Quality Unifying Medical Vaccination Form (UMVS)

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**Abstract:** We presenting all the possible services and more ideas compatible to my opinion and in same time help to improve community and general health. After deep discussion we decided to translate the traditional Vaccination Form and its manual set and register to form into E-vaccination system that give admin and assistance more control and quality services behind enable people to check what has been done . Vaccination is the important part life part for any person to prevent from diseases. we notice that part is doesn't have take best care from maker decision .In this documentation you will show how can combined between different domain in order to achieve full Hospital service . The vaccination system introduce new way to deal with different user and stake holder to achieve best hold data for all people without need to hold the traditional form . By using the features of E-vaccination system and uses in different hospital we can get unified system in all hospital. The main thing also increasing the acknowledgment of people in vaccination fields so that no one can say I don't know how get services of vaccinations. System enables to remember people by sending SMS message in mobile before the deadlines. Additionally using web to access to web site to show the form info form by query using ID person. The system gives administrate all privilege to manage all data (tables in database). Also hospital user have feature to do daily operation of vaccination and manage should supported users when face problem. Admin responsible to ensure every function of system working in right way without errors or mistake. Admin should accept feedback from users of system to increase ability to develop a advance version for system to reach to full system activities and usability. The important part keep in mind more easily of system more production from users.

By built the vaccination system we should link to hospital system with and hold the integrity of system. Also complement the others system such as store and order request quaintly from main store.

**Index Terms:** Vaccination services, E-government, health quality , hospital, Mobile note.

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### I. Introduction

Prevention is better than cure " based on these words and As we usually know the importance of health care for the community by preventive method and specially from the childhood , and about the childhood one of the most effective method is the vaccination to protect and prevent the youth from medical disorder. This'll lead to more and better community immunization , and less academic diseases. papers.

### II. Related Work

KAU Local System[1] The system of King Abdul-Aziz University is the best Example when compare with the E-vaccinations system (UMVF) but have many different s. if we compare the king Abdul-Aziz University as the part only the local system that university working on. Of course The Stockholders of the university instructor, students, and employee of the university all these share the resources in (ODUS) and the purpose of system of the university to organizes the educational procedures and control the staff to help the student and performing deferent but the E-vaccination system help doctor and assistance to organized the vaccination progress after that keep the data in web server to enable the people to query about the vaccination that he took .Also In E-Vaccination system (UMVF) the main stakeholders are the staff of both ministry of health and hospitals and they are sharing the work together to insure the process of vaccination is done in safety environment including the vaccine (Who take vaccination) to follow up the program of vaccination scheduling and enable the researchers to use the vaccination statics in a useful way. The systems of University including colors interfaces with unique symbols and names for every features . In fact it is help easier to understand the work of feature so that users are not sensory understand the Arabic clearly. Of course the result reflect to structures more organizes the Information and faster find what the user want without waste times also user save the place of features just after one use. In other side the web site of KAU concerned to support people remotely. The authors of the system of university built the system in the clear way with enough interested information and useful information for different recourses that using the system to achieve objective . I trust and reliable perfectly the authors because the owner of system actually the Ministry of higher education so that of course related to government view else that most of information is compatible and written in academic study without any effected other academic university. The system of university

collecting data must be reliable and with references to person writing. The condition to present data must be right no possible probability. The place of features are arrangement in logical to easy find the fields. I trust the data representation because it dependence to submit all things in university such as student submit to university the GPA to accepts study to university in specific time. Actually system university are essential to trust without this we never cannot find any data trust. The data was not clear enough when the system established but after the 2000 the system start new version to offer services data in useful way. The earlier version of system I think it won't cover my requirement because the tools that used are traditional but now the latest version of system is completely cover my requirement. The state of system is up to date every periods when needs. The system absolutely working in the right way. The Bank System[2] The bank system is the best Example when compare with the E-vaccinations system (UMVS) but of course with many different. When you create account in specific bank you can use many services and register in your history from anywhere. Also query from web the different operations you do. The faces of similarities is you can deposit money from anywhere also vaccination system can take vaccination at any hospital that use the system that link to centralized data base. In other side you can query from the web page to show all the vaccination you took. Of course the security of bank in become more than the security of hospital. The bank contain the funds of all people around the city so that the cost of bank is more expensive because is need more algorithm and techniques to ensure no one damage data unlike the E-vaccination system it contains the data is less important than bank so that the cost of security is more less. There are more similarities between two both system bank and vaccination have to different types of user admin and normal user. Also the service of mobile sent message available in both. Also the stake holder is the smeller except the baby not logic have account in bank.

Our work goals to add new feature to existing hospital system in order to improve health quality. The system start work from born until 8 years old. Also other vaccination. The system sent SMS when appointment to remember parents. Additionally, replacement the paper form to electronic form.

### **III. Problem Statement**

The Ministry and Hospitals can't administrate vaccination forms because the current forms are handwriting and only keeping with in parents. People usually forget the time or the date of vaccination or losing the vaccination form and there's no effective or guaranteed way to remember the vaccination right time.

### **IV. Proposal Solution Methodology**

Making Every hospital run Vaccinations system (UMVF) an putting the data base globally to distribute data. Admin of system have ability to modify and edit data. User hospital will enable input data to record to history electronically, accurately and automated in hospital. People enable take vaccination from any hospital. By connect the web to globally data base people can query for the history vaccination and statics to researcher about the vaccination.

Incremental builds allow you to develop the system a piece at a time, and test each piece as it's developed. Increments may depend on prior or future increments. At the beginning of the project we used another methodology " Water-Fall ", then we decide to change it to " incremental " because it can give us more ability to edit on the system while the implementation.

Data collection :In most of electronic systems the best way to build it by collecting data, and the larger your data the more accurate system will come out, so we started to collect data for the user needs in the system starting by the specialized people (Doctors) till the targeted community ( Parents ) And for these goals, we used manual survey to get the right Data and information.

Survey contents(Basic information, Questions list, Comments, Distribution, survey summary)

#### **A. Requirements**

##### **1- Functional requirements**

- The Vaccination system (UVMF) combined three interface Hospitals(client side), people(web server connect to main data base).
- Starting working in system when the baby born in the hospital (client side) create the fields (Standard Form) to start vaccination from birth until needs.
- When person take injection in hospital the Standard Form update in hospital DB initially then Ministry.
- Data of vaccination form(Standard form) of person save inside the main DB (global)
- After updating the table of appointment the people who have an appointment the system will send reminder message to him.
- Ministry of health established web site for public access purposes.
- Web site must connect to the Main DB.

**2- Non- Functional requirements**

- Admin have interface to managing the form.
- Create interface user to use the application in easier way.
- Using local network and global network (STC).
- Select windows OS.
- sing the oracle data base 10g.
- Java programming.

**3- Performance Requirements**

- High performance
- low response time
- Scalability

**4- Data Requirements**

- System administration
- Standard Form
- Appointment Hospital
- Vaccination process

**5-System design**

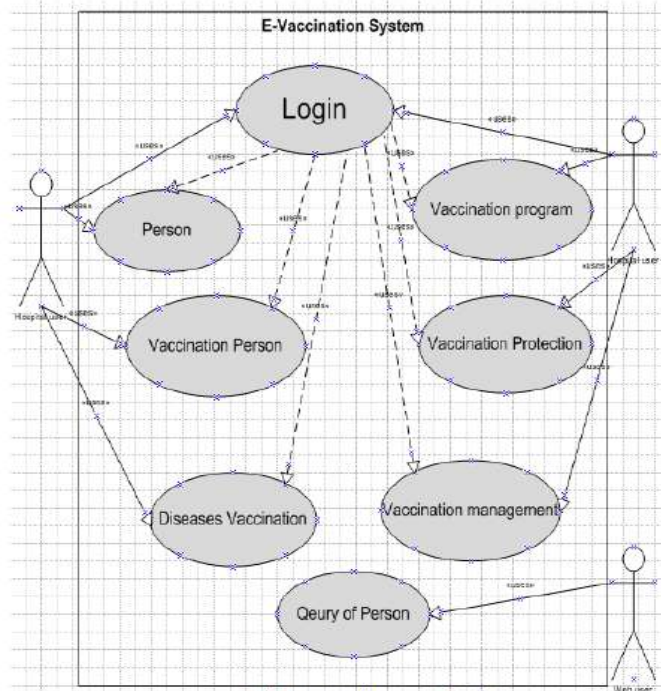


Fig1. Overall system design

**1-Login:**

(Enable admin and user hospital enter to login to system to do different services ).

**2-Person:**

(Adding/delete/update/modify baby or person ,also enter in system ).

**3-Vaccination program:**

(Adding/delete/update/modify) the form to view the correct chose for the age .

**4-Vaccination person:**

(Adding/delete/update/modify) Vaccinating person in specific date , hospital and type vaccination).

**5- Vaccination protection:**

(Adding/delete/update/modify) the form to show different vaccination against disease).

**6-Disease vaccination:** (Adding/delete/update/modify the list of disease ). **7-Vaccination management:**

(Adding/delete/update/modify the list of vaccination).

**8-Qeury :**

(Web user enter select browser and enter to the web to show the history and display the statics).

6- System GUI(Short description)



Fig2. The main interface

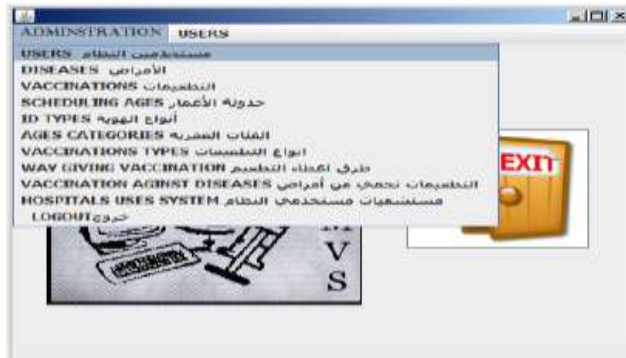


Fig3. Administration interface

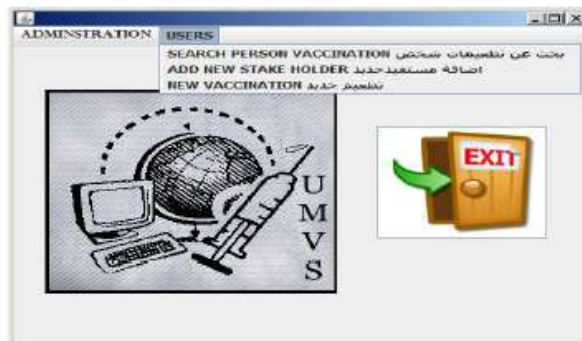


Fig 4. User interface

## V. Implementation

### Tools use it

- Java Net beans 6.7.1 its advantage of reusing the same thing more than one and it's a cross platform (Work with any OS) but you must Install its JVM( Java Virtual Mashing ) even the java (Oracle buy it) gives a TUT about the programming languages from the start till advances topic and others.
- Oracle (SQL) 10g is to design the tables and the company bought Java (Sun Microsystems ) so it's better to use it since we use java.

## VI. Test The Implementation

### A. White Box Testing

- Include test the system from abstraction level from the GUL interface with the result.
- The steps we will covering
  - Purpose (what system do)
  - Pre-request(requirement to run)
  - Test data(result data)

### B. Pilot Test

Scenario : Add new Person after that give him vaccination and show the in search report what take First start up the system press enter then the login interface come fill the user name and password press login . Now you will show main features of system click the menu users then press add new stack holder you will show new interface name Add new person , then press add and fill the required form close the menu . select users menu open the new vaccination person press add fill the form with right vaccination press save close the interface .

Finally we want to show the person that add and vaccination take show the report . So that click users open the search person vaccination enter the id of person press search the result will show in table with all info.

Table I. Test cases

Test case name	Steps do/action	Output
<b>Check login</b>	The user enter text and password then press login or exit	Accept and enter to system not accept display error
<b>EnableItems() DisableItems()</b>	The current user when login have admin flag if =1 admin of 0 normal user	Make available all features if admin if not admin limit the functionality
<b>Open menu users</b>	The admin user open menu administration	New dialog should opening
<b>In users dialog Table appear</b>	The admin press reload button	All data stored in data base must appear in table
<b>In users dialog Table appear</b>	The admin press Add button	New row will appear in table
<b>In users dialog Table appear</b>	The admin press Save button	Will save in data base to show effect reload button again
<b>In users dialog Table appear</b>	The admin press Del button select the row wand delete	The row was selected must be hidden
<b>Normal users want add new person or stake holder to system</b>	This for user work open the menu and select add new stake holder from menu item	Appear new interface user show table and under have form to add new person
<b>Normal users add new person or stake holder to system</b>	User select the reload button	All the person have will display in menu
<b>Normal users add new person or stake holder to system</b>	User select the Add button	Set all form null value to enable user enter new value

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## VII. Result And Discussion

The Vaccination system is the part from overall hospital system. Can't come partial or work alone. Applying this system in all hospital well help researcher to improve our health and gives more patents to community. Also the citizen of Saudi especially who born recently they are take care in observation environment in order to improve our health. The system will sent SMS to remember parents to take their children and take vaccination in a time. The benefit of system when compare to traditional we can add new born every day and get statics number of baby male and female. Also, how many specific vaccination take. In addition, The traditional form only with parents. Current system enable create Electronic form or certificate can take from system any time and present to specific place.

### **VIII. Future Work**

- Add new features contain the patient file electronically.
- We'll try to improve the system to make official to all hospitals in the Kingdom.
- Add Reservation appointments.
- Add the pharmacies to the system.
- Make the doctors to go to the homes instead of the parents going to the hospital.
- After Building system for hospitals that in second term combined all this thing .

### **IX. Conclusion**

The core ideas of the E-vaccination system to organized the process of vaccination in all medical center and hospital . After that we can step by step add more feature every new version . The system will combined to the original hospital system and work under one system . The stack holder should full useful from the system to achieve the aim from built this system.

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