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Design and Implementation of Newborn Registration System

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Abstract: *Every day newborns babies are delivered everywhere in the world, especially in Arabic society, it needs to follow number of sequenced steps to register the newborn baby, from providing the hospital with certain information and all required governmental documents about both parents. Then a paper is needed to complete the registration process in the civil services side, family notebook, passports, document of residence …etc. Designing and implementation of newborn registration system, a mobile application that combine all these tasks in one web based application, is a challenging task. The system is implemented under Android OS with MySQL database. In this paper we discuss the design and implementation of system which is intend to do, registering the baby through the application, combine all of these side (hospital – parents – civil services – vaccination sides) through one site. The parents may give their documents to the hospital or online, and all those documents passed also online to the civil services. All the steps completed online, and the parents will receive alerts on their accounts to see whether their baby registered or not yet*

Keywords: *Newborn registration, Android OS, MySQL, Multimedia*

I. INTRODUCTION

If a child is not registered at birth, he or she will not have a birth certificate, and be unable to legally prove his or her name or the relationship to his or her parents. Individuals acquire important benefits from the legal status that a certification ensures. Registration entitles a child to their rights and bestows the responsibility for that child, throughout his or her life, on the state in which they are born. In many countries, proof of identity is essential to gaining access to basic services and to exercising their fundamental rights. Without a birth certificate a child may not be able to sit for school exams, receive free health care or claim rights to inheritance or legal protection in courts of law. As an adult without a birth certificate, a person may not have the right to marry, vote, be employed in the formal sector, acquire a passport to travel outside their country of birth, or even register their own children´s births [1].

The civil registration in Saudi Arabia started in the 1930s. In the beginning birth certificate was issued and also contained main specific information of the person and the family of this person. In 1983, the country started to operate the civil registration system using the national 10-digit personal IDs. Vital events registered were used to update the population registry. All Saudi nationals were registered in the system. The difficulties and the challenges that the civil registration system currently faces are [2]

- There is a need to re-engineer the procedures of system so it is more efficient;
- There is a need to take quality control measures and to improve qualities of the information collected;
- Small offices are needed to handle the work load brought by moving everything online; and

- More effort is needed to speed up the process of e-government, telecommunication so better services can be provided to the population.

In this paper we discuss the design and implementation of newborn registration system, a mobile application that combines all these tasks in one web based application. This system is implemented under Android OS with MySQL database. The system intend to do, registering the baby through the application, combine all of these side (hospital – parents – civil services – vaccination sides) through one site. The parents may give their documents to the hospital or online, and all those documents passed also online to the civil services. All steps completed online, and the parents will receive alerts on their accounts to see whether their baby registered or not yet.

Parents of newborns in Saudi Arabia can now get convenient bundled services from civil services with hospitals and vaccination sides. They can use the Newborn Registration Service to complete the child's Birth Registration and apply for their child's National Number (NN)**.** They also have the option to apply for their child's Birth Certificate. With this integrated application, they can avoid going to different levels of government and entering the same information over and over again on separate application forms. The service is simple, convenient and secure! They can receive their child's NN in the application within 10 business days from the date their child's application was processed by the province. If more than 15 business days have passed and they would like to find out the status of their application, they can just send notifications for civil services area. Many other options will be listed in that application.

II. PROBLEM DEFINITION

Every day newborns babies delivered everywhere in the world, especially in our Arabic society, we need to follow number of sequenced steps to register that newborn baby, from providing the hospital with certain information and all required governmental documents about both parents. Then a paper needed to complete the registration process in the civil services side, family notebook, passports, document of residence …etc. all needed to complete the newborn baby registration process.

Also, after that each baby will have his own vaccination card. To follow all needed vaccinations required for that baby. And those vaccinations maybe changed according to what required day after day. And note that if mother didn't bring her baby card with him to take one of the vaccinations the side will refuse to give him until the card showed up. Many times parent went back home back home to got it and return to the vaccination side. Inside the civil services itself, sequence of steps required and needed to be established in order to complete the registration process, and parents may stand in rows in order to finish their work. What about managing all of these steps through the net? Isn't it much easier? For both parents and civil services employee? Isn't it very useful to register the baby through the net? And follow all these steps from everywhere?

The manual registration process has many drawbacks:
- It is subject to delays in transferring data.
- Subject to errors.
- Duplications and inconsistencies arose.

The electronic system was therefore proposed.

III. PROJECT MOTIVATION

- ❖ Integrate and apply relevant knowledge, understanding and skills we have developed during our program of study.
- ❖ Demonstrate the ability to plan and organize our system work appropriately.
- ❖ Demonstrate our ability to analyze a practical problem and, where appropriate, devise and implement a solution building on the knowledge and skills developed.
- ❖ To build a suitable application that can support Civil services and hospitals to communicate & finish new born baby's registration matters easily and online.

IV. BACKGROUND

Civil registration system in Saudi Arabia is administered by the Department of Civil Status (under the Ministry of Interior). However actual registration of births and deaths is conducted by the Ministry of Health and the registration of marriages and divorces is done by the Ministry of Justice. The registered information is sent to the Department of Civil Status (under the Ministry of Interior) to update the information in the population registry. The Department of Civil Status has 2000 employees in 84 offices within the country. Government hospitals are assigned to be the official site for reporting of deaths in the Kingdom of Saudi Arabia, whether these deaths reported from inside or outside of these hospitals. 218 Ministry of Health hospitals are distributed in different regions. Mortality data is sent in a form which is compatible with the format of recording of deaths recommended by WHO. In most cases, these forms are accompanied by the admission and discharge forms of the patients from the hospitals to be used if there is any missing information on the mortality form. The Statistics Department within Ministry of Health is responsible for validating data on the death form by comparing with the admission and discharge forms issued by the hospital. The form is then coded after validation process. The cause of death is coded according to the ICD10 classifications [2].

Birth registration is the official recording of a child's birth through an administrative process of the country, coordinated by a particular branch of government. It is a permanent and official record of the existence of a person before the law. A birth notification is the notice of the occurrence of a birth, during which midwives or others report to civil registrars, who in turn register the birth. A birth certificate is a personal document issued to an individual by the state to prove birth registration. The notification of a birth, registration and the issuing of a birth certificate are three distinct but related steps. Some birth registration systems automatically include issuing of a birth certificate, while others require a separate application [3]

Ideally, birth registrations are part of an effective civil registration and vital statistics (CRVS) system that acknowledges the existence of the person before the law, establishes the newborn's family ties and tracks the major events of the individual's life. Civil registration is the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events, pertaining to the population as provided through decree or regulation in accordance with the legal requirements of a country. Civil registration is carried out primarily for the purpose of establishing legal documents provided by law.

These records are also a main source of vital statistics. Complete coverage, accuracy and timeliness of civil registration are essential for quality vital statistics. Vital events that are typically recorded include live birth, death, fetal death, marriage, divorce, adoption and recognition/legitimization. The resulting repository or database is called the civil register or civil registry. A fully functional CRVS system should be based on fundamental principles to ensure it is universal, permanent and continuous and that it preserves the confidentiality of personal information. It should collect, transmit and store information effectively and guarantee data quality and integrity. Such a system fulfils human rights as well as supporting the normal functioning of society [3]

The format of birth registration and the birth certificate varies from country to country, but the following is the minimum information that should be recorded [4]

- Full name of the child, Child's sex.
- Full names of parents, their nationalities and address.
- Name of attending physician, midwife, birth attendant or other witnesses.
- Date and place of birth.
- Name and signature of the civil registrar.

Other commonly recorded information includes:

- Age of the mother.
- Names of and nationalities of all grandparents.
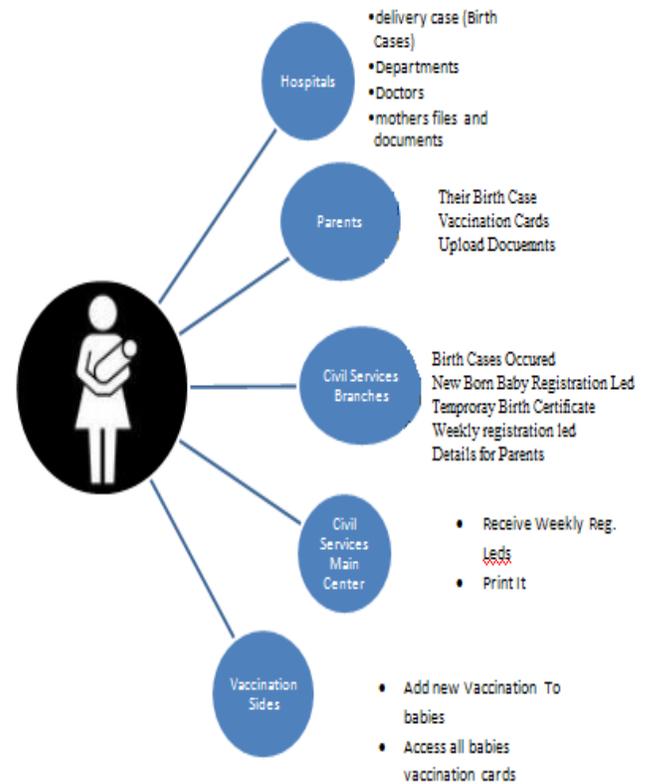- Child's height, weight and gestational age.
- Child's immunization status.

Children's development organization, PLAN International, and the World Health Organization (WHO) have launched a mobile registration system to help Kenyan parents access their newborn babies' birth certificates using their phones [5]. SAP Africa has launched a new mobile application that it says will simplify the birth registration process [6].

V. PROJECT OBJECTIVES

- Simplify the newborn baby's registration matters.
- Include all sides related to that matter in one online mobile application.
- Help parents in viewing the progressing of their baby's registrations.
- Issue Birth Certificate online and the ability to print it
- Send alerts for parents if there is any new vaccination should their baby took, or when their babies' birth certificate already issued.
- Make it easy for any vaccination side to view how much baby need certain vaccination in the coming month or year.
- Electronically modify the vaccination cards and requested vaccinations, without the need to re-produce a new card

VI. SYSTEM DESIGN AND IMPLEMENTATION

Designing and implementing an application that combine all these tasks in one place, is our mission for system. That exactly what we system intend to do, registering the baby through the net, combine all of these side (hospital – parents – civil services – vaccination sides) through one application. The parents may give their documents to the hospital or online, and all those documents passed also online to the civil services. All the steps completed online, and the parents may check their accounts to see whether their baby registered or not yet. Moreover, and as an extra service for parents, the vaccination card will supplied online, and they can access it to see if the baby had any vaccinations now. The system will also send an alert to parents to alert them for their baby vaccinations.

Fig 1: Overview of Newborn Registration system

Software Requirements:

- For Analysis - E-Draw Max 6.0, Visio 2007, Project manager
- For Design - Adobe Photo Shop 5 CS
- For Programming - Visual Web developer 2008, Eclipse
- For Data Base - SQL Server 2008

Hardware Specifications:

- Multimedia PC – high quality colored monitor, mouse, keyboard, CPU (8GB RAM, 80 GB Hard disk. And 3D rendering quality for screen and processor must be very high.
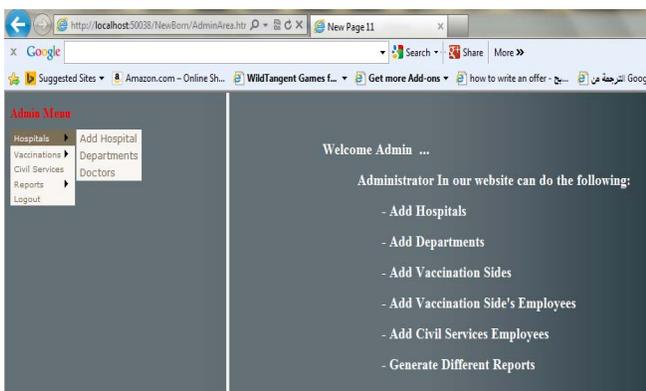- Android Mobile Device

VII. SYSTEM TESTING AND RESULTS

The newborn registration system various modules are made and integrated to make complete system. Each module is tested independently and found successful. Newborn registration system is finally run for system testing to determine the system meets all users requirements as a whole and found successful.
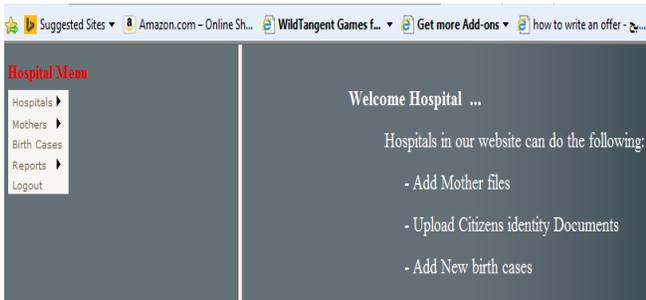
The Newborn registration system main screen shots of web and mobile applications are shown in Fig 2 to Fig 10

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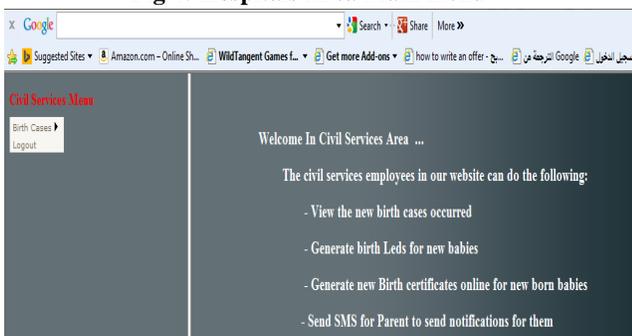All Rights Reserved © Biohouse BJCS 2014-15
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Fig 2: Web Application - Home page for Newborn Registration system

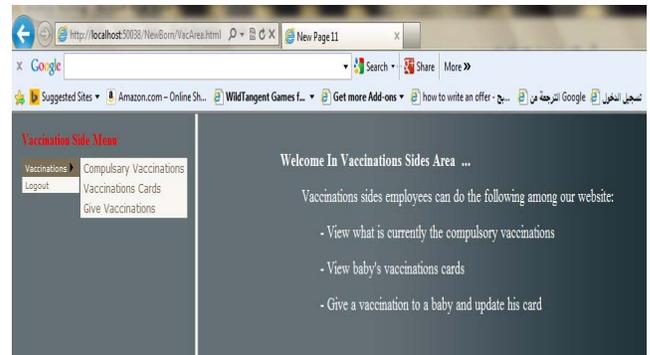**Fig 3: Admin Area Menu Page**

Fig 4: Hospitals Area Main menu

Fig 5: Civil Services Employee Menu

Fig 6: Citizen Area Menu

Fig 7: Vaccination Side Menu

Fig 8: Mobile Application - Main screen for Newborn Registration system

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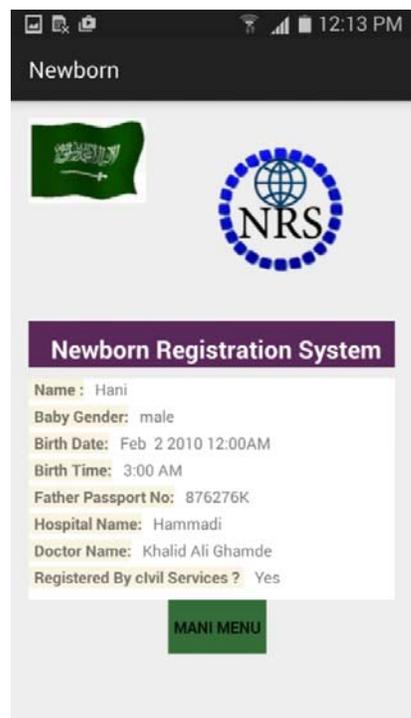**Fig 9: Hospitals area – get mother details**

Fig 10: Citizen area – View birth case details

VIII. CONCLUSIONS AND FUTURE WORK

We had Designing and implementing Newborn Registration system, a mobile application that combine all tasks of newborn registration system tasks in one web based in dot net platform with back end MySQL database. The system will have many benefits including parents of newborns in Saudi Arabia can now get convenient bundled services from civil services with hospitals and vaccination sides. They can use the Newborn Registration Service to complete the child's Birth Registration and apply for their child's National Number (NN)**.** They also have the option to apply for their child's Birth Certificate. With this integrated application, they can avoid going to different levels of government and entering the same information over and over again on separate application forms. In future we will host the website and suggest our idea to concerned authorities of government.

IX. REFERENCES

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