Implementing a Mobile-Based Child-Birth Registration System in Nigeria

Olusola O. Ajayi
Department of Computer Science,
Adekunle Ajasin University
Akungba-Akoko, Ondo State,
Nigeria
Email: olusola.ajayi [AT]
aaua.edu.ng

Stella C. Chiemeke
Department of Computer Science,
University of Benin,
Benin-City, Edo State, Nigeria

Olumide B. Longe
Department of Computer and
Information Systems, Adeleke
University,
Ede, Osun State, Nigeria

Abstract–**The conventional method of child-birth registration is by human inspection. Manual child-birth registration is complex and impractical for large increase in population of new born babies. The cost of registering a child, risk and stress of commuting at the registration centre, loss of registration certificate by the parent and child, inaccurate population statistics are possible problems which inaccurate birth registration records can cause. Child-birth registration became an issue of utmost importance as a result of difficulties encounter while obtaining accurate population statistics essential in social services planning for any government and in ensuring that adequate resources and budgets are made available to address the needs of the populace. The use of globally accessible device for child-birth registration has shown great potential in this field. The performance of the mobile-based child-birth registration was evaluated in terms of accessibility, speed, cost and capacity; and the result confirmed that the proposed mobile-based child-birth registration will be able to assist government officials in terms of having a portable and globally accessible system, speeding up child-birth registration process, reducing cost of registering a child and capable of keeping registration details for future use. This study therefore aims to address the challenges facing families in the area of child registering by using mobile technology for child-birth registration. The system implementation is achieved using MySQL as the backend database, and object oriented PHP as the application programming interface.**

Keywords-- *child-birth registration, population statistics, globally accessible device, accessibility, speed, cost, mobile technology, implementation*

I. INTRODUCTION

Birth registration establishes the existence of the child under law and provides the foundation for ensuring many of the child's rights. Although birth registration alone does not guarantee that a child will have access to adequate healthcare, receive an education, or be free from abuse or exploitation, its absence leaves a child at significantly greater risk of a range of human rights violations. Despite the importance of Child birth registration, according to United Nations International Children Fund (UNICEF), approximately 50 million newborn babies are not registered each year, accounting for over 40 percent of the children born annually (Todres, 2003).

Child-birth registration can also be called a process by which a child's birth is recorded in a civil register by the applicable government authority. This step provides the first legal recognition of the child, and generally is required for the child to obtain a birth certificate. Although birth registration can be achieved in a variety of ways, the registration of a newborn child typically is facilitated by the local hospital where the child is born or the community healthcare worker present at the birth. If the birth does not take place in a hospital or is not presided over by a community health worker, the parents are expected to take their child to the local government office.

Birth certificate is an awkward and hybrid document, tasked with any number of purposes. It dates back to the ancient world, when officials wanted to know how many citizens to tax and conscript, as well as to the 1500s, when the English church began requiring ministers to register christenings. In this country, a few colonies began recording births as early as the 1600s. But the first national model appeared around the turn of the twentieth century, as part of a health and sanitation movement. Officials needed birth records to calculate the mortal effects of epidemics, industrialization, and urban overcrowding.

Birth registration in both ancient times and in modern times is done by parent of the new born baby through visiting the government officials in charge as soon as the birth takes place. A freeborn person who was illegitimate enjoyed higher social status than a freedman. Illegitimate children did have some disadvantages under the law. Their birth could not be officially registered during the first 150 years when birth certificates existed. A law passed in 178 AD, however, gave illegitimate children the same right as legitimate children to share in their mother's property if she died without leaving a will. After the Empire had come under Christian rule, this right was taken away from those born outside wedlock. The birth registration is

carried out after the eight day naming ceremony so as to have access to a birth registration certificate.

A child gets registered with the government through the government officials in charge of birth registration either in the hospital or in the registrar office. The child's either parent registers the baby's birth in the district where the baby was born within 42 days (six weeks) of the birth. If the parent can't get to the district where the baby was born or the hospital where the baby was born, the either parent can then go to any register office and the registrar will send the information to the appropriate district officeand the birth certificate will be sent to theparent from the registration place. The parent provides the child's full name, child's place of birth, child's date and time of birth, child's gender, parent's detail such as full name, occupation and address, and parent's seal or signature. The government officials issue a birth notification, a birth certificate and national health insurance card.

The study however present a mobile-based birth registration platform, which provides a more efficient and effective means of birth registration that cuts the birth registration process from months to minutes.

II. STATEMENT OF PROBLEM

Child-birth registration became an issue of utmost importance as a result of difficulties encounter while obtaining accurate populationstatistics essential in social services planning for anygovernment and in ensuring that adequate resources and budgetsare made available to address the needs of the population.If a government's birth records are incorrect, it may notallocate adequate resources to immunization programs, educationbudgets, or programs designed to combat exploitation.

The obstacles to child birth registration are difficult access to civil registry services, the cost of registering a birth, long distances to registration centres and loss of registration certificate by the parent or child. Additionally, many parents do not prioritize child-birth registration as they focus on coping with an array of other daily challenges.

III. RESEARCH METHODOLOGY

In this research, we have adopted hash (SHA-1) encrypting technique as our method of encryption because the level of security provided by a hash function is based on the difficulty of generating a plain-text that will produce a given hash signature (the output of the hash) in order to prevent packet sniffing hackers from being able to steal a user's data. Bar code was also used. By using barcode, data (birth ID) is woven into the birth certificate, giving it digital identity, which will go a long way in reducing human error, recognition errors and reduces the level of forgery of birth certificates.

IV. REVIEW OF LITERATURE

Todres(2003) define birth registration as the official recording of a child's birth by a government agency, which is one of the most important events in a child's life. Birth registration is the process by which a child's birth is recorded in a civil register by the applicable government authority. This step provides the first legal recognition of the child, and generally is required for the child to obtain a birth certificate.

Jenny Matthew(2009) definesbirth notificationas the notice ofthe occurrence of a birth by midwivesor others to civil registrars, who thenregister the birth. He defines birth registrationas the officialrecording of the birth of a childthrough an administrative processof the state and is coordinated by aparticular branch of government. It isa permanent and official record of theexistence of a person before the law while he describes birth certificateas a personaldocument issued to an individual bythe state to prove birth registration.The document includes theindividual's parents' names, datesand places of birth, nationality, andmay include further details.

UNICEF (2007) states that around fifty-one (51) million births go unregistered every year in developing countries; this translates to one in three children globally. One out of every three developing countries has a birth registration rate of less than 50 per cent.

STATUS	NAME OF COUNTRIES
No data	Armenia, Bahrain, Burkina Faso, Costa Rica, Ecuador, Egypt, El Salvador, Eritrea, Ethiopia, Guatemala, Jordan, Kyrgyzstan, Lebanon, Liberia, Malawi, Mexico, Morocco, Mozambique, Nicaragua, Pakistan, Paraguay, Peru, Romania, Somalia, South Africa, Sri Lanka, Syrian Arab Republic, Thailand, Tunisia, Turkey, Turkmenistan and Yemen
Less than 25% of children registered	Afghanistan, Bangladesh, Cambodia, Ghana, Kazakhstan, Tanzania, Timor-Leste, Uganda and Zambia
Less than 50% of children registered	Angola, Chad, Democratic Republic of the Congo, Equatorial Guinea, Gambia, Guinea-Bissau, India, Mali, Myanmar, Nepal, Niger, Sierra Leone and Zimbabwe
Less than 75% of children registered	Benin, Botswana Central African Republic, Cote d'Ivoire, Guinea, Haiti, Indonesia, Lao People's Democratic Republic, Kenya, Lesotho, Mauritania, Namibia, Nigeria, Maldives, Rwanda, Sao Tome and Principe, Senegal, Sudan, Swaziland and Vietnam
75%-100% of children registered	Albania, Azerbaijan, Bolivia, Bosnia & Herzegovina, Brazil, Burundi, Cameroon, Colombia, Comoros, Cuba, Democratic People's Republic of Korea, Dominican Republic, Gabon, Georgia, Guyana, Iraq, Jamaica, Madagascar, Mongolia, Occupied Palestinian Territory, Philippines, Republic of Moldova, Suriname, Tajikistan, Togo, Trinidad and Tobago, Uzbekistan and Venezuela.

Table 1: Registration Status of Children across the World

Source: UNICEF (2007)

V. SYSTEM MODELS

A. The Conceptual/Contextual Model of the Proposed System
   Contextual model of the proposed system show that the environment includes several other automated systems.
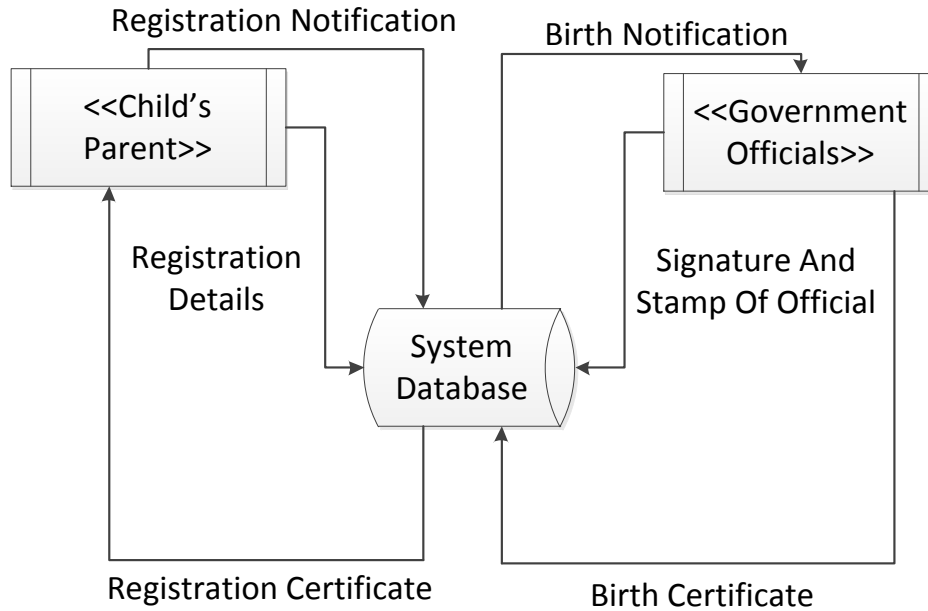
SYSTEM'S CONCEPTUAL MODEL

Fig. 1: Conceptual model of the proposed system

B. The Interactive/Use-Case Model of the Proposed System
       The interactive/use-case model of the proposed system shows the interactions between the system and its environment (i.e. interaction between the system and the parent and government officials).

PARENT-SYSTEM USE CASE MODEL
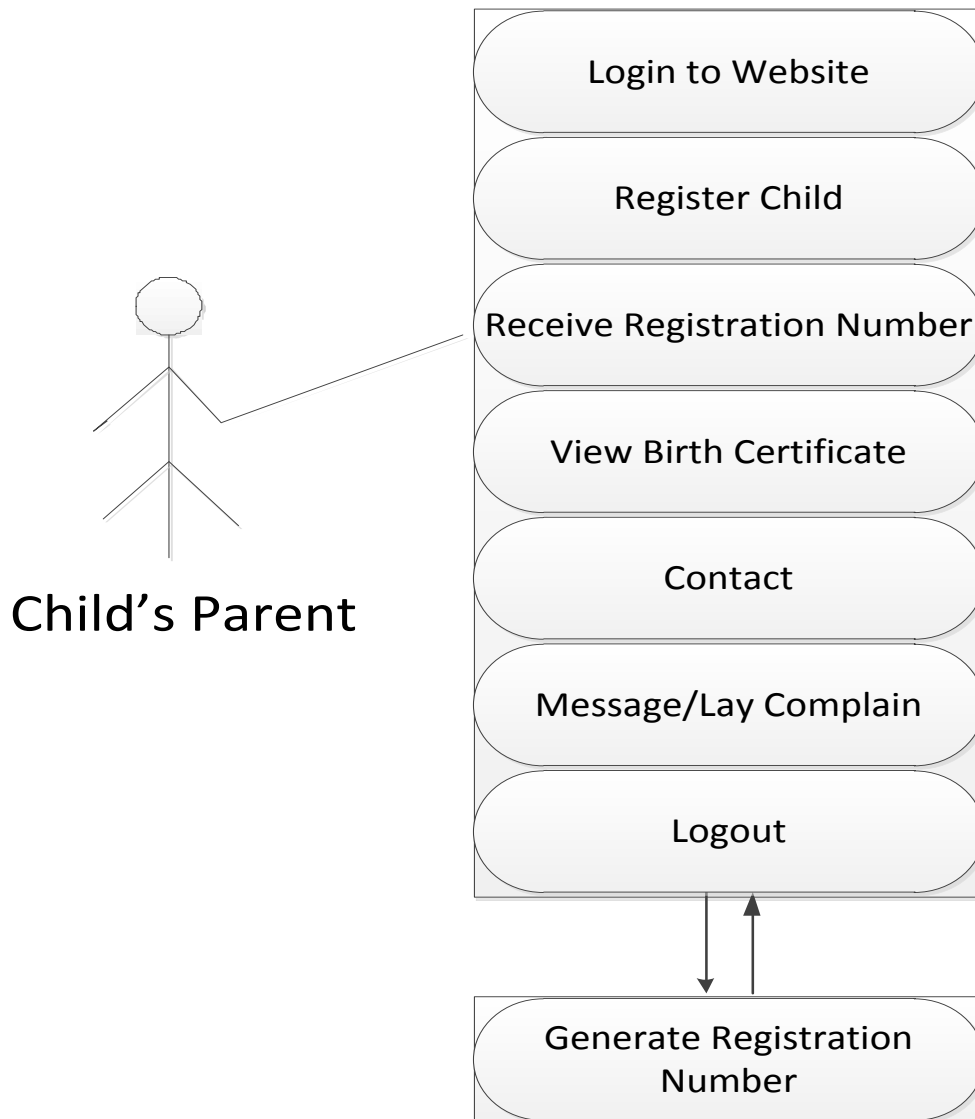
Fig. 2: Use- Case diagram Showing Parent-System Interaction

Government Official-SYSTEM USE CASE MODEL
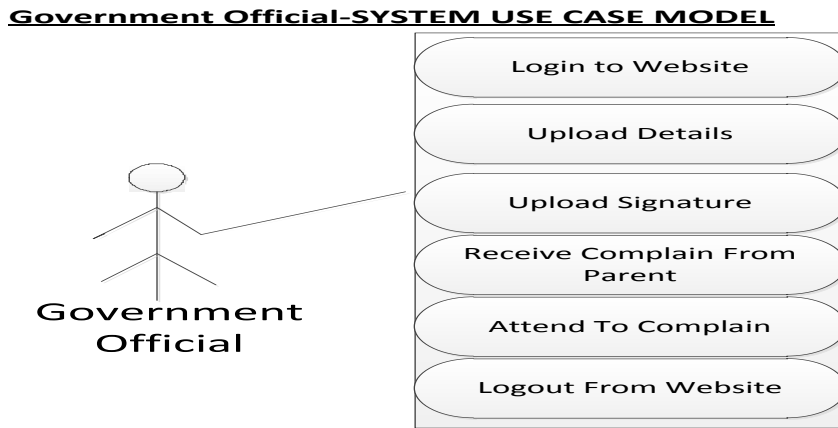
Fig. 3: Use- Case diagram Showing Government Official-System Interaction

INTEGRATION OF THE SYSTEM USE CASE MODEL
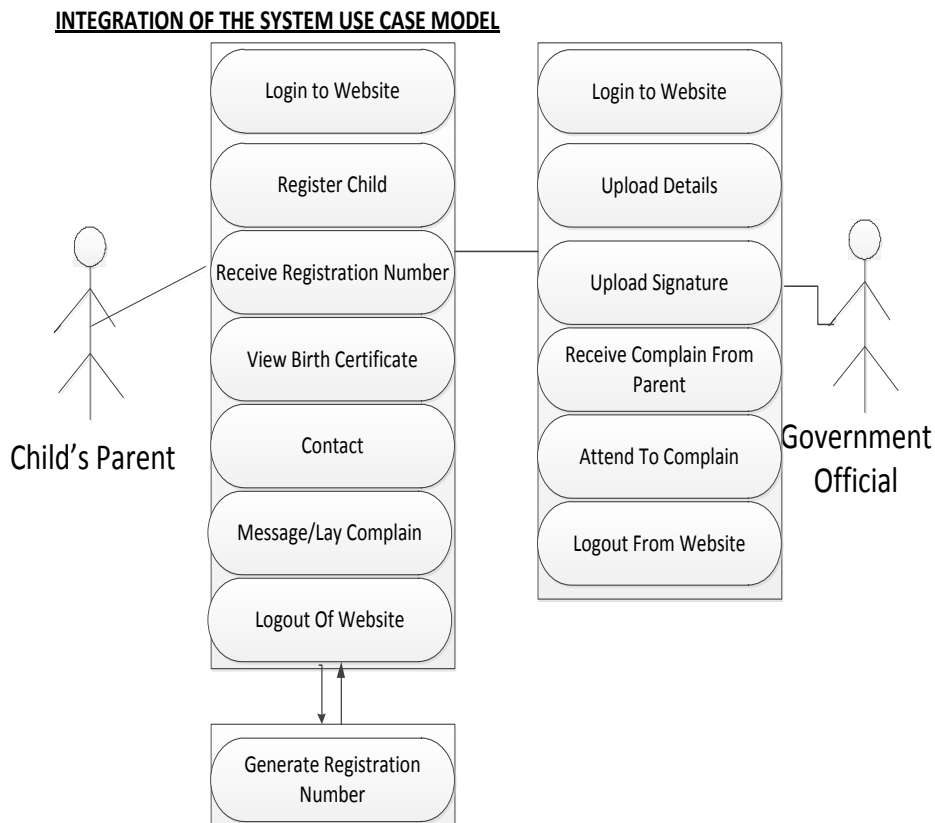
Fig. 4: Use-Case diagram showing the overall interaction in the system

VI. THE SYSTEM FLOW

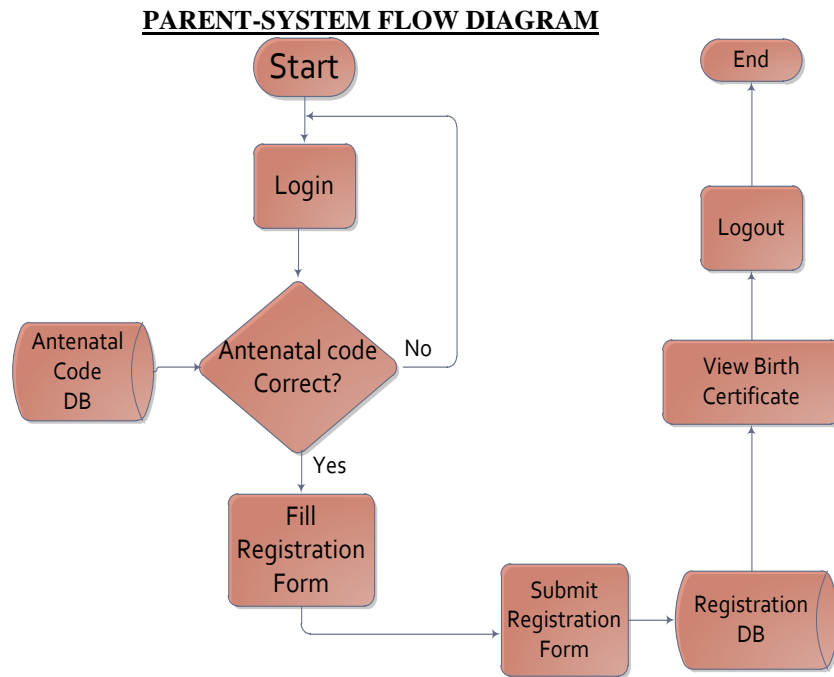The system flow shows both the data and process involved in the system. A flow of how the whole system works.

PARENT-SYSTEM FLOW DIAGRAM

Fig. 5: Process Diagram of Parent-System Interaction
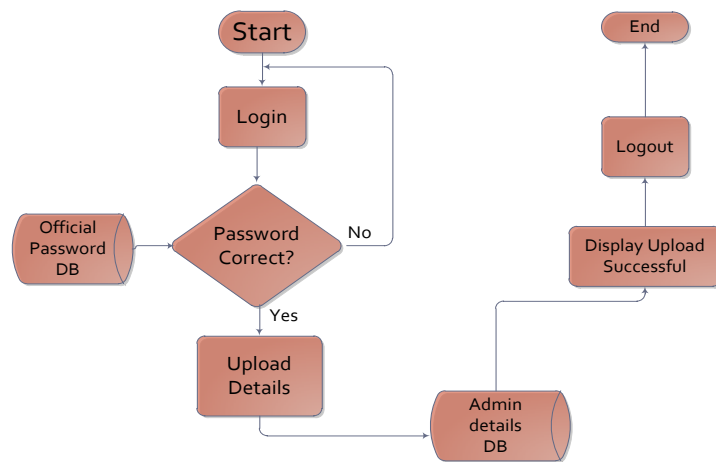
Fig. 6: Process Diagram of Admin-System Interaction
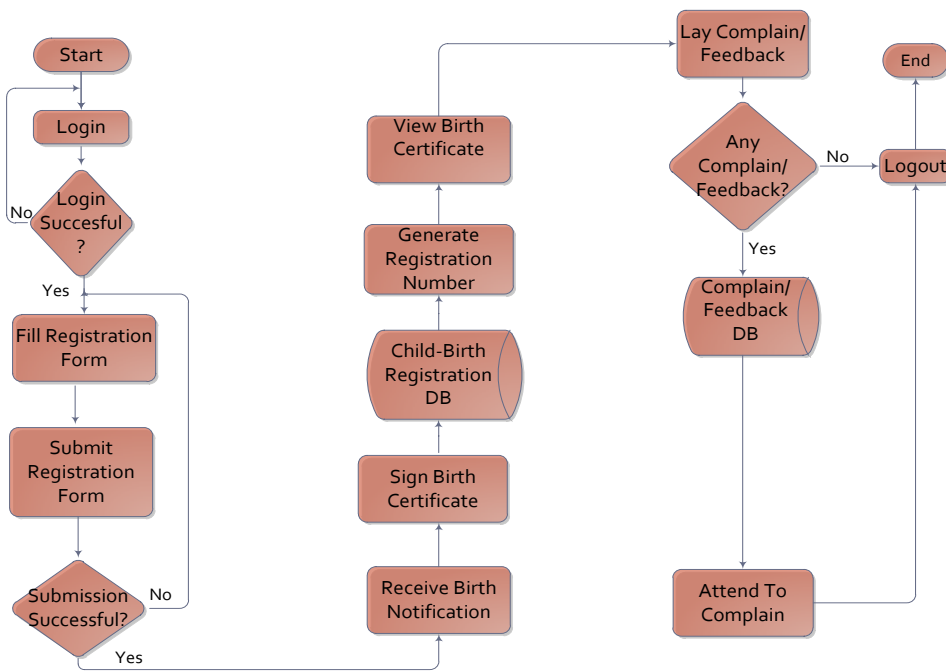
SYSTEM'S FLOW DIAGRAM

Fig. 7: The overall Flow Diagram of the System

VII.   SYSTEMS DESIGN

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specific requirements.

A.   Interface Design

The interface design is concerned with how users add information to the system and with how system presents information back to them. It captures the graphical interface of the system.
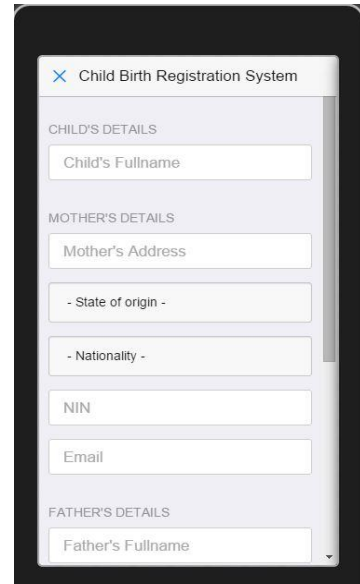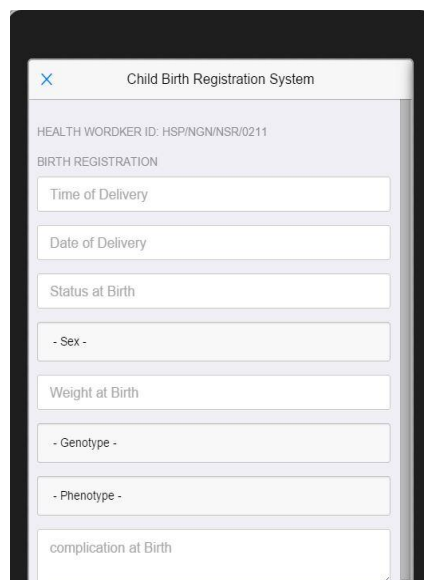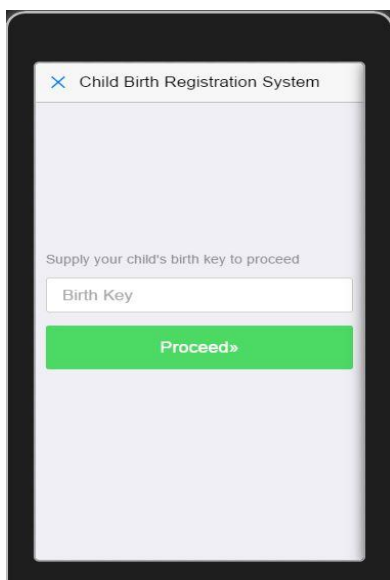
VIII. CONCLUSION

This study has been able to provide a more effective, efficient and globally accessible platforms for child-birth registration. The mobile-basedtechnique enhances fast execution of child-birth registration procedures. The robust security measures adopted ensures adequate security of gen key and avoids its duplicity.

IX. FUTURE RESEARCH DIRECTION

With the advent of mobile technology, the direction of this research should now focus on employing the more globally accessible device to implement this study. The encryption technique used can also be another consideration for improvement.

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