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Development of a Centralized Sim Registration System

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Abstract- African countries like other developed Nation of the world have seen the need to maintain a collection of information about individuals using a particular sim. The registration of identity information to activate a mobile SIM card, are fast becoming universal in Africa [1][4]. Other developing Nations of the World are not left out in the trend. With the enforcement of the SIM registration different Telecommunication Service providers offers different independent and not connected SIM registration process. There is the need to have a Unified SIM registration platform that will cater for SIM registration irrespective of the Service provider.

Keywords: SIM, Telecommunications Service Providers, SIM Registration

1. INTRODUCTION

SIM registration process involves gathering of vital information of individuals using a particular SIM. Communication monitoring agencies of different Countries have in recent times started to enforce different SIM Card Registration Regulations. The benefits of the SIM registration goes far beyond security check. Countries that enacted the SIM registration often have to pass through a lot in ensuring that the Citizens welcome and accepts it. In many cases the national regulators had to extend the 'cut-off' deadline repeatedly to give mobile users more time to register. In Rwanda, over 485,000 SIM cards were recently deactivated, as their holders failed to register them by the latest deadline, despite this having been pushed back on several occasions [3]. The lapses in the present registration process can be largely held responsible for this. The existing Sim Registration process has some lapses which are:

a) It is not centralized and therefore, a subscriber has to undergo multiple registration process if using sim card from different service providers [1][5].

b) The difficulty of the process identified above brought about this second lapse in the existing system. Information held by Service providers about most customers are actually false, because Nigerians prefer to have someone register their sim on their behalf in other to avoid the difficulty pointed out above [4].
c) Data redundancy which in turn will lead to unnecessary cost in keeping data [4][7].

There is therefore the need to Design and Implement a "Centralized Sim Registration Platform" that will enable Nigerian citizens register their Sims without difficulty. This will ensure all subscribers are connected and ensure data integrity. Some SIM Card registration process is usually not unified i.e. Different Mobile Network Providers have different SIM registration system. In most developing Countries, people have more than a SIM card from different Telecommunications Service providers so as to cover up for the inadequate network coverage of Network Service Providers, such people have to undergo different SIM registration process depending on the number of network providers they bought their SIM from. This in turn has brought about lack of integrity in the data collected as people try to escape the multiple Registration processes. This project work identified the need for a **Centralized SIM registration process.** With the newly designed System, there will be no need for the Collection of a formerly registered users details. The user's finger print brings up the identity information of the registered user including his/her formerly registered Numbers. The new number to be registered is simply added up to the list of Numbers. The designed System ensures Section 2 discusses related works while section 3 explains the system design. We give details of our implementation in section 4. Section 5 concludes the paper with recommendations for future work.

II. RELATED WORKS

SIM Registration has been around for a while, most countries have accepted it, and some have rejected it while other countries are still evaluating the advantages and the disadvantages [3]. An increasing number of governments have recently introduced mandatory registration of prepaid SIM card users, primarily as a tool to counter terrorism and support law enforcement efforts. However, to date there is no evidence that mandatory registration leads to a reduction in crime. A number of other governments, including those of the United Kingdom, the Czech Republic, Romania and New Zealand, have considered mandating prepaid SIM registration but concluded against it [3].

III. DESIGN

The Design involves the use of a data access layer and a presentation layer. The data access layer saves and fetches the Users entity from the database. Griaule (a .Net Fingerprint SDK) was used in implementing both the enrollment and validation of the Fingerprint.

3.1 Software Specification: Software specification deals with the major things the software can do. This includes

1. Capture user's bio-data.
2. Capture user's SIM card numbers.
3. capture user's biometric signature(thumb fingerprint to be exact)
4. Validate a registered user using this/her finger print.
5. Check the list of all recorded users.

3.2 Software Requirements: In developing the entire system, a number of tools were used for actual development, debugging, they include;

1. VISUAL STUDIO IDE
2. C SHARP
3. MANAGEMENT STUDIO IDE
4. Microsoft SQL Server
5. Griaule Fingerprint SDK
6. Secugen Hamster plus finger print scanner

3.3 Architecture Diagrams

This includes diagrams, showing how each of tiers and layers of the system are connected to one another other.

3.3.1 User Flow Diagram

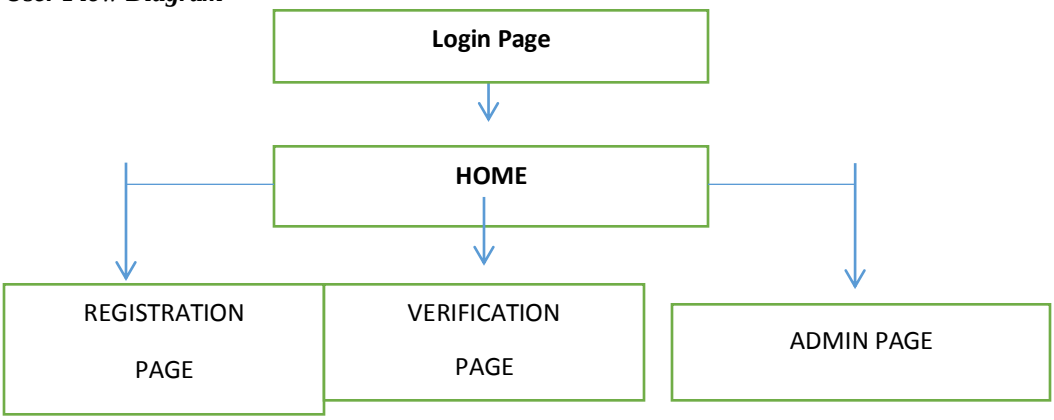

Figure 1: User Flow Diagram for the designed System

3.3 Activity Flow Diagram for Registration: To Register, Authentication via verification or Identification takes place, after which enrollment is carried out.

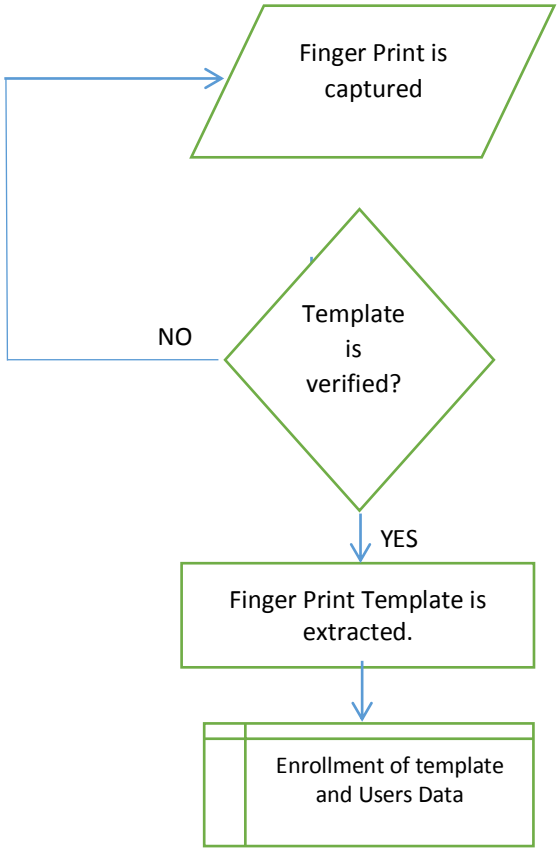

Figure 2: Activity Flow Diagram to register a new Subscriber

3.4 UML Class Diagram

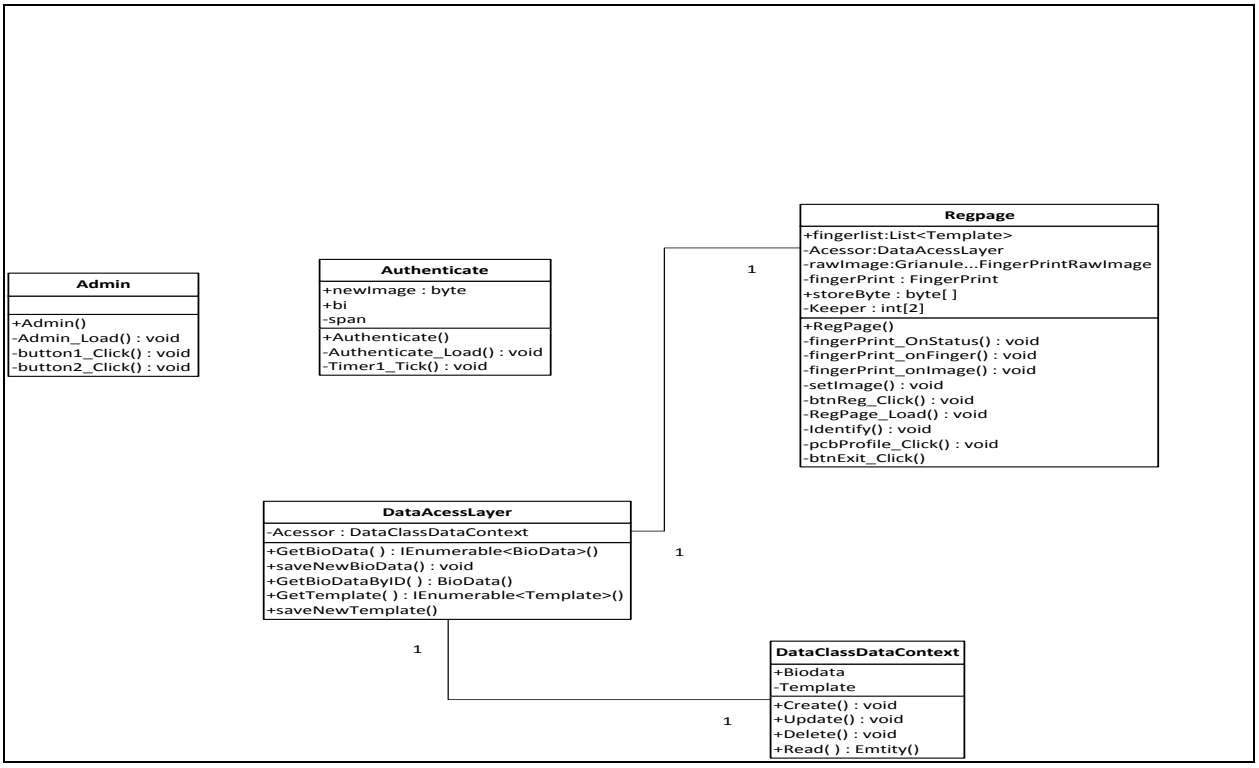

Figure 3: Class UML Diagram for the whole processes

IV. IMPLEMENTATION

In this section, the user interfaces, based on the implementation are highlighted.

4.1 Graphical User Interface (GUI) Implementation

The Graphical user interface comprises of everything the users can feel, touch or talk to in a system. The following diagrams show the user interfaces involved in the developed application software.

4.1.1 Home Page

Figure 4: Login Page for the Administrator

4.1.2 Menu Page

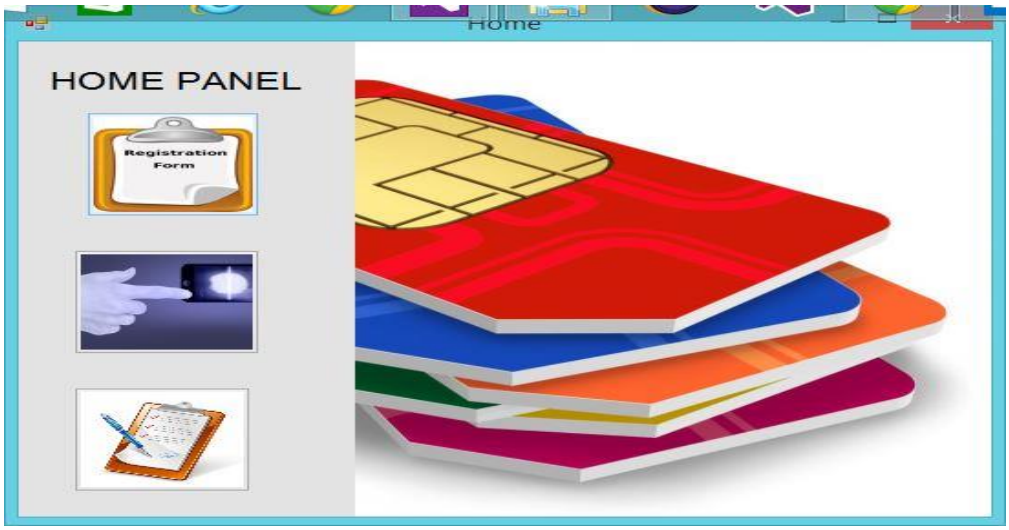

Figure 5: Menu Page for the Application

4.1.3 Registration Page

Figure 6: Registration Page for The Centralized SIM Registration with opportunity to register more than a SIM

4.1.4 Validation Page

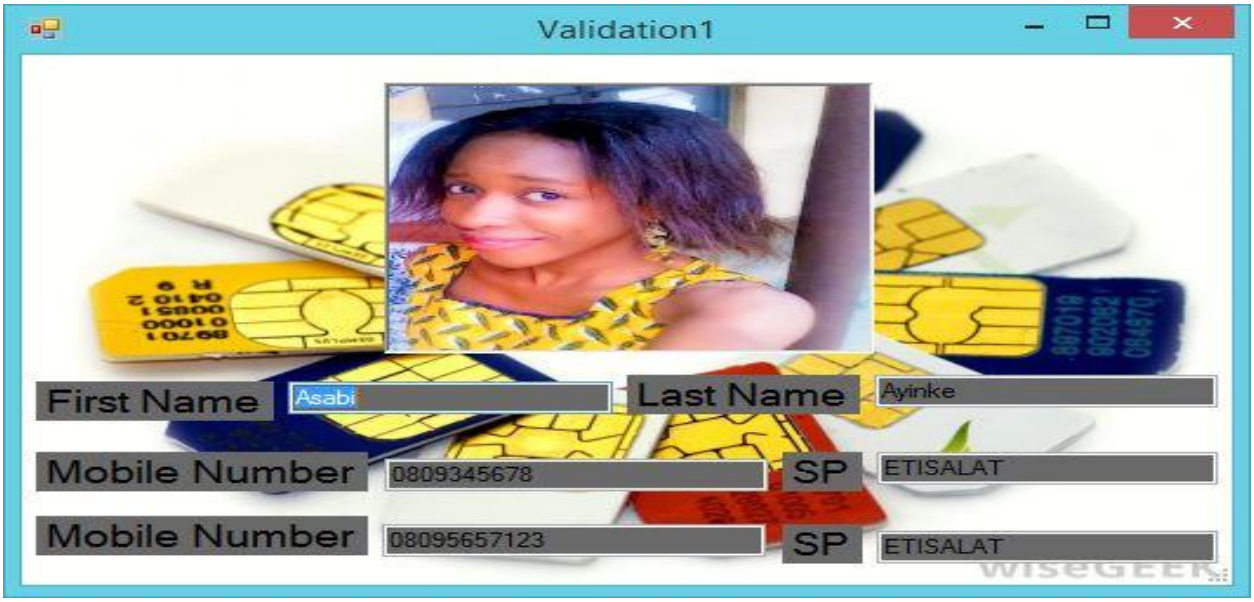

Figure 7: Validation Page showing an already registered Users Details

V. CONCLUSION

To make the SIM registration process more acceptable so that its intended purpose can be fully maximized, the government has to ensure easier SIM card registration process. It is believed that if the System designed in this project work is fully implemented and made perfect for real life use scenarios, it will increase the public acceptance of SIM registration. This will cause an increase in the integrity of data collated during the SIM registration process.

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