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TOWARDS IMPROVING SECURITY FOR MOBILE BANKING IN SRI LANKA

Wijenanda D. A. K.&SellappanPalaniappan

Research Scholar, Malaysian University of Science and Technology, Malaysia

ABSTRACT

In mobile banking schemes, financial services are available. Bankingservices are provided using mobile devices. Mobile phones are used for data used in carrying out mobile transactions via mobile applications. This paper describes the security check processfor improving the authentication of mobile applications for mobile banking in a bank in Srilanka. The mobile banking in a bank in Sri Lankawill be used as case study. The application includes security features to enhance data protection across mobile networks. Features for data encryption, integrity, secure entry of security details on the phone and improved security policies in the application server are incorporated. Issuesof data confidentiality, user authentication, and message integrity in order to provide end-to-end security of data carried on mobile networks is ensured. In particular, this project specifies theinclusion of a biometric component in the security authentication process in mobile banking in Srilanka. This is in a bit to improve the security platform. The paper only presents the general architecture of the proposedmobile app model, which includes the biometric security component, towards subsequent implementation.

KEYWORDS: *Mobile Application, Mobile Banking, Mobile Application Models, Biometrics, Mobile Phones*

INTRODUCTION

The breathtaking pace of evolution in communications technology and the correspondingchange in consumer behavior has had a significant impact on how customers perceive anduse banking services (Sunari, 2014). The rapid growth of mobile technology and the ever-growing ubiquity of mobile devices over the years have resulted in mobile banking to evolve from a simpleinformation delivery channel to a comprehensive banking transaction channel. In mobile banking schemes; financial services are availed and banking services are provided using mobile devices (Baraka et al, 2013). The challenge now for Sri Lankan banks is to develop and execute a mobile banking strategy that creates value for customers and encourages them to switch to the mobile channel from the costlier channels such as the branch, so that it would make a difference to the cost/income ratio of the banks (Sunari, 2014).

LITERATURE REVIEW

Changing customer preferences coupled with the rapid and continuous advancement of technology have prompted financial institutions to opt for alternate distribution channels in place of traditional brick and mortar branches. In pursuit of such objectives, financial institutions globally have placed heavy emphasis on cost -effectiveness, efficiency and seamless service and the optimal mobilization of existing resources and infrastructure (Delrene, 2016). The adoption of

mobile technology has emerged to be a winning formula as a cost -effective and efficient distribution channel of financial products and services. Experiences of several developing countries have shown that the poor majority is in need of a wide range of financial services that could potentially be delivered via mobile phones or mobile phone operators. In their operations, these mobile apps send data in plaintext. Financial service providers tend to rely on the security services provided by the mobile applications, which has been proved to be susceptible to cyber-attacks. The used algorithms for crypto mechanisms are flawed, leaving data carried through the network vulnerable upon interception.

Operators need to take precaution by enforcing some protective measures on the information to be transmitted. This is inside the security required to be incorporated into the mobile apps in terms of the authentication of the platforms. Access to banking services widely acknowledged to be high and Financial access in Sri Lanka being estimated between 68.5% of the population (WB) to 82.5% of households (GTZ), 58% of adults of bottom 40% income group having bank accounts (WB) is a call for security improvement (Peter, 2013). The banks in Sri Lanka, however, are trying to popularize the concept of Internet banking among their customers, to meet up with the ever-increasing traffic in physical bank premises (Kariyawasam, 2016). Mobile phones have created a platform to expand commercial transactions in a very easy manner and have created a wide array of business opportunities through the expansion of wireless communication (Kumari and Janaka, 2014). The basic idea of mobile services is to improve the access to information services when traveling or anywhere (Drennan and Mort, 2007).

In a case where a banking area is poor in terms of internet connectivity, there will be a need for proposing a topology for improving the connectivity. These could begin with a pre-plan for a better topology (Datukun et al, 2016a; Datukun et al, 2016b). Improving network performance is necessary for any organization (Datukun et al, 2017). This includes tourist centers for free and conveniently connecting virtual tourism. With the increasing levels of deployment of various forms of high-speed (or broadband) services within today's Internet, there is new impetus to find some usable answers that allow both providers and users to place some objective benchmarks against the service offerings. Furthermore, with the lift in access speed with broadband services, there is an associated expectation on the part of the end user or service customer about the performance of the Internet service. It should be "better" in some fashion, where "better" relates to the performance of the network and the service profile that is offered to network applications. And not only is there an expectation of "better" performance, it should be measurable (Onwudebelu et al, 2014).This will help in browser-based management information system provided for administrative users in mobile banking.

METHODOLOGY

This research is a project aiming at improving the security situation of mobile banking in Srilanka. A prequestionnaire will be distributedto customers and banking bodies. Questions will be focused on getting the opinions of banking customers on the use of the mobile application for banking. Next, a mobile application with biometric security for authentication will be developed. After all, a user study to check whether the given solution is viable to enhance the mobile banking in Sri Lanka will be conducted.This will be first conducted in abank in Sri Lanka. Figure 1 clarifies on the basic methodology to be adopted in this work. Finally, a recommendation based on the research findings will be made for initial implementation.

In particular, the general architecture of the proposed model of this project will be presented in this paper. This will include the biometric element that will be applied in the system for improving authentication process of the mobile banking.
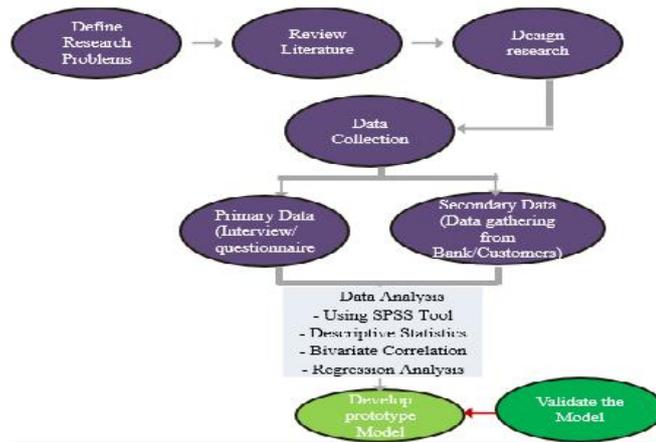
Figure 1: Methodology Flow Diagram

General Architecture of Proposed Mobile App

The application resident on the customer's mobile phone is being launched before logging into the application server. The transaction is then initiating before biometric recognition. It is after the biometric recognition that the customer will be allowed to access the account for therelevant transaction. The biometric recognition shall be by the customers' face. This is because no two customer's face is exactly the same and would further improve the security platform of the mobile banking in terms of hacking and other security threats and/or risks.
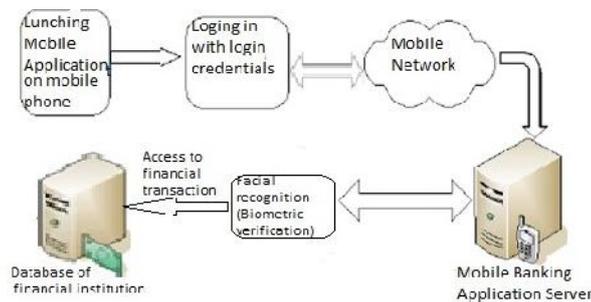
Figure 2: General Architecture of Proposed Mobile Application

Figure 3 describes the entities involved in the mobile financial transactions, which constitutes the mobile communication network. Within the mobile network, a security feature is expected to be inserted to function at the point of the transaction between the application server and a financial institution.
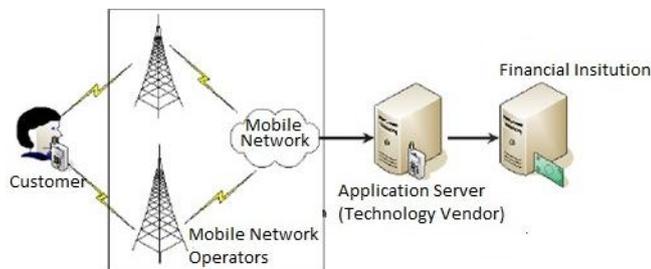
Figure 3: Mobile Communication Network

This model is the one to be presented in this paper. It is described in Figure 1 below.

CONCLUSIONS

In as much as the security model is important in providing a secured mobile banking application, the application program will be in the next work. In the subsequent part of this work, which is the next work, shots of running application will be presented. This will be towards a user study to check whether the given solution is viable to improve mobile banking in Sri Lanka.

Hence, we could conclude that this modelwill subsequently provide a mobile application with improved security. As such the next paper will be in connection with this one.

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