

RFID-Enabled Smart Government

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Abstract: Radio frequency identification is a technology that allows user to identify people. In this research work you will understand the concept of RFID and E-wallet. To know the advantages and disadvantage of Emirates ID connected with the E-wallet. In This Research we will identify the problems and risks of connecting RFID E-wallet with Emirates ID. Also, recognize and recommend the possible solutions.

Index Terms: Smart Government, RFID Enabled Government, UAE Smart Government, Emirates ID e-Wallet

1. INTRODUCTION

Now a days everything is dealing with technology, even buying and selling processes. One of the main example of developing and inserting information into any card safely is radio frequency identification technology has a role of protecting information and payment process. It is a "wireless communication technology that enables users to uniquely identify tagged objects or people". (Lozano-Nieto, 2011) Another example of technology development on buying and selling is E-wallet, the main feature of the e-wallet that it can add all bank accounts and credits on one place. E-wallet included all customer payments accurately. (Roy & Bureau, 2013) On other hand if we connect RFID that located on Emirates ID to E-wallets will be something useful for people and banks. But the problem is each one of them has lack of security. For example any information inside RFID can be read by using homemade equipment cost only \$150. (Dubin) Also E-wallet has an issue on security because of user's passwords which are easy and the software weakness. (Ferguson, 2013) if this will not solve, users will not even think about adding payment process to Emirates ID because they may be losing their information or their money.

The goals of this research work are:

- Understanding RFID and E-wallet
- Identify advantages and disadvantages of Emirates ID E-wallet
- Identify security problems for Emirates ID and E-wallet
- Find solutions to improve level of security for Emirates ID E-wallet

There are many reasons if we ask about why this study is important, first it will support any organization in UAE by making services faster and easier also it will support the UAE orientation towards building a competitive economy and harnessing the advanced technology to serve citizens and residents and improve the quality of their life. (id.gov.ae,

2014) In addition it will support many banks and financial institutions across the UAE to improve their operations and programs. As a result the focus will be on these research questions:

- How RFID Technology can be beneficial by using E-wallet?
- What are the advantages and disadvantages of Emirates ID E-wallet?
- What are the possible recommendations and solutions of Emirates ID E-wallet's problems?

2. LITERATURE REVIEW

RFID

According to (Lozano-Nieto, 2011) "radio frequency identification technology is a wireless communication technology that enables users to uniquely identify tagged objects or people". The first use of RFID was during World War II to identify and differentiate military aircraft, in order to determine which is friend and which is not. Nowadays RFID is still used in different areas, for example keys to open your car, passport, payment card and even ID card. Moreover laptops, tablet computer, Bluetooth, music player and other devices connected to other wireless network. It used for many purpose and it has different shapes and sizes. More importantly (Lozano-Nieto, 2011) mention in his book the components of RFID, tags (or transponder) use to store and transmit information while readers (or interrogator) use to read and write information from tags. RFID systems are usually used in supply chain and logistics industry to serialized objects and keep track to of their products and accuracy of their inventories by connected to the database. It extremely useful technology to reduce cost, higher productivity, increase security and grow the efficiency of the work. However, in the reality this technology used for the purpose of preventing thefts in the packaging using tags. So when the product is being purchased by the consumer/customer, the cashier checks it out to change the code in the tag. As it gets waved on the reader/scanner making the tag invisible to the reader that is located in the exit door. However if the tag got stolen, and the scanner failed to change the code in the tag. Then the reader will locate it near the exit doors as it receives a signal from the tag and would start an alarm. (Lozano-Nieto, 2011)

RFID security concerns

The security experts say that with RFID cards personal information can be spared easily. Anyone can build a reader and scan the RFID even if the card is in the wallet. The University of Massachusetts did an experiment with using homemade equipment cost only \$150. They successfully got names and account number from a sample RFID credits

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cards. (Dubin)

E-wallet

E-wallet is an online account that person can use instead of carry a wallet physically ; the main feature of the e-wallet that it can add all bank accounts and credits on one place. E-wallet included all customer payments accurately. E-wallet needs Internet to work only the customer need to do registration for the application next step is inserting all bank accounts. User cans transfer money using online transfer. (Roy & Bureau , 2013)

UAE Emirates ID will replace bank cards

“Abu Dhabi: Are you tired of carrying multiple bank cards and remembering personal identification numbers (PIN)? Your plight will end soon.” (Kader, 2013). The national ID card issued by Emirates Identity Authority, which will soon replace the credit cards and ATM machines. Also, as they said the national ID cards will be used for financial transactions as part of a cooperation agreement between Emirates ID and financial institutions. Furthermore, Dr Ali Al Khoury, Director General of Emirates ID said, “The ID card will be used for authentication processes to verify the identity of the cardholder. The ATMs [machines] or credit card terminals will process the financial transactions. “The pilot results will be announced within six months [in the second quarter of 2014], and depending on the results, the plan will be implemented,” he said. (Kader, 2013) Moreover, as Dr. Khoury mentioned, so for who will carry out the emirates ID cardholder ID based the financial transactions anywhere in the world. Also, Emirates ID is discovering the ID authentication services with MasterCard and Visa to merge their services for global use. As an advantage, that's will be more preferable than carrying wallets with lots of credits cards And this will make life easier for all residents as the national ID card is compulsory. The disadvantage is, RFID can be easily read through wallet and bag which means anyone with scanner can read the data, so they have improve the security features of the FRID.

3. RESEARCH METHODOLOGY

Study type: Explanatory

Explanatory will involves research in question is intended to explain, rather than simply to describe, the phenomena studied. Understanding which variables are the cause, and which variables are the effected. Also, determining the nature of the relationship between, the cause variable which is e-wallet and the effect variable which is Emirates ID. In order to meet our research objectives, explanatory method have to isolate the particular variable emirates ID and e-wallet. We are explaining the Advantage and disadvantage of connecting the E-wallet with Emirates ID. Isolating the problems and the security issues and then trying to give solution for it.

Method: Qualitative

Qualitative method is more flexible in that it can adjust to the research objective. Concepts, data collection tools, and data collection methods can be adjusted as the research progresses. This method aimed to gain deep understanding of the RFID in the Emirates ID and E-Wallet. Also, understanding the risk of connecting RFID E-wallet in the Emirates ID by using articles, journals, and online sources to explore the issue, understand the phenomena and answering the question

by analyzing and making sense of unstructured data.

Secondary Data and Summarized

We are using the Secondary Data method that helps to improve the understanding of the research and provide a basis for comparison for the data that is collected from data from books and online sources that are related to our topic. In order to use secondary data for the research, we are first locating the data sources like from books and online sources. Second we are evaluating the data a by scrutinizing to ensure that the research high validity and reliability, at the last we are verifying the data if the data are valid, reliable and accurate. We summarized the data, like we did in the Literature Review. We read the data we collected and summarize the long information into key points, which are:

- RFID
- RFID security concerns and challenges
- E-wallet
- Emirates ID E-wallet
- E-wallet security

4. FINDING

The research addressed questions aimed to understand RFID technology and E-wallet concept. Currently UAE government is using RFID, example on that the Emirates ID E-wallet. The research addressed RFID and the Emirates ID E-wallet to distinguish the advantages and disadvantage to recognize possible solutions. Moreover, to see if the Emirates ID E-wallet convenience, secure and will it make a difference. Table 1 summarizes concept and content of the research. Secondary data gathered from different resources, books, journals, website e.g. to answer questions in the original research and fulfill the objectives.

Table 1: Summarizes Phase, concept and content of the research

Phase	Concept	Content
1	RFID Concept	- RFID definition
		- RFID history
		- Benefits of RFID
		- Component of RFID
2	E-wallet Concept	- Security concerns
		- E-Wallet definition
		- Benefits and reason of using E-wallet
		- E-wallet security
3	Emirates ID E-Wallet	- Responsibility of protecting E-wallet
		- Introduce the emirates ID E-wallet
		- How they will used
4	Opinion and Recommendations	- Advantages and disadvantage
		- Recommend possible solutions

Phase 1 - RFID Concept

“Radio frequency identification technology is a wireless communication technology that enables users to uniquely identify tagged objects or people” to (Lozano-Nieto, 2011). The first use of RFID was during World War II to identify and differentiate military aircraft, in order to determine which is friend and which is not. Nowadays RFID is still used in different areas, for example keys to open your car, passport, payment card and even ID card. Moreover laptops, tablet computer, Bluetooth, music player and other devices connected to other wireless network. It used for many purpose and it has different shapes and sizes. (Lozano-Nieto, 2011). Tags (or transponder) use to store and transmit information while readers (or interrogator) use to read and write information from tags. RFID systems are usually used in supply chain and logistics industry to serialized objects and keep track to of their products and accuracy of their inventories by connected to the database (Lozano-Nieto, 2011)

The security experts say that with RFID cards personal information can be spared easily. Anyone can build a reader and scan the RFID even if the card is in the wallet. The University of Massachusetts did an experiment with using homemade equipment cost only \$150. They successfully got names and account number from a sample RFID credits cards. . (Dubin, n.d.)

Phase 2- E-wallet Concept

E-wallet is an online account that person can use instead of carry a wallet physically ; the main feature of the e-wallet that it can add all bank accounts and credits on one place. E-wallet included all customer payments accurately. E-wallet needs Internet to work only the customer need to do registration for the application next step is inserting all bank accounts. User cans transfer money using online transfer. (Roy & Bureau , 2013) For securing this technology is depending on the developer’s handset and OS manufactures. The greatest step toward securing e-wallet would be the development of an open standard that includes security mechanisms such as TPM on the mobile platform. Also, the consumer have role in protecting e-wallet and keep their devices physically safe by locking passwords, enabling remote lock and wipe functionality and making sure that their sensitive information is wiped from the device when it will not be in their hands for a period of time. (Ferguson, 2013). Responsibility of protecting E-wallet are software developers are the gatekeepers, banks need to invest in security, retailers need to provide security if they want others to “Buy-In” and consumers have to protect their own money. (Koploy, 2011)

Phase 3- Emirates ID E- Wallet

Emirates ID E-wallet it is a new technology holding resident’s driving license, labour card, passport and health insurance details. The national ID card issued by Emirates Identity Authority, which will soon replace the credit cards and ATM machines. Also, as they said the national ID cards will be used for financial transactions as part of a cooperation agreement between Emirates ID and financial institutions. (Kader, 2013)

As an advantage, that’s will be more preferable than carrying wallets with lots of credits cards And this will make life easier for all residents as the national ID card is compulsory. Also some of the advantages are, it’s easier for savings and checkout and also faster for customer. Additionally, it’s ease of

use, accessibility and convenience, flexibility, safety and control. (Kader, 2013) The disadvantage is, RFID can be easily read through wallet and bag which means anyone with scanner can read the data, so they have improve the security features of the RFID . (Kader, 2013)

Phase 4- opinion and recommendation

Still there are security concerns about the RFID, The security experts say that with RFID cards personal information can be spared easily. Anyone can build a reader and scan the RFID even if the card is in the wallet (Dubin) so, there is no solution yet about it because it’s a new technology, and they are still studying and searching for best security solution. In addition, they find a solution that this risk can be reduced by putting such cards in significant protection or a casing which is resistant to scanner. And although it isn’t clear whether the government will be utilizing RFID technology for the planned e-wallet system, Solling is more optimistic that the government will ensure the card is doubly secure if such a tie-up occurs. (Fernandes, 2013). It’s a good solution but what would happen if the user didn’t put this cover or lost it. The recommendation is they should test it first before they implement the security solution, because it’s contains all personal information, so they make sure it works correctly before it used.

5. CONCLUSION

As a result, Radio frequency identification is a technology that allows user to identify people.it used for many things like car, passport and others. It can store and transmit information. But the information that resides in this chip can be read easily which is a problem. E-wallet is an online account, can do any payment through the internet. It is useful if the user have more than one bank account. The idea was to connect E-wallet to RFID that located in Emirates ID. This makes Emirates ID more useful because it will increase productivity in many banks and organization. But the security on both RFID and E-wallet is an issue that. That’s means both of them need to be more secured by developing the software such as TPM on the mobile platform and encourage users to have complex passwords.

Limitation, are to get the information about provide E-wallet in Emirates ID for people who lives in UAE , gives a hard time, because it is new idea, in addition collecting information and analyze from right persons is difficult because it takes a lot of time in searching.

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