

Proposed System for HTC Phone Data Management

Dr. Alaa Kadim*, Dr. Hasanen S. Abdullah*
& Ameen Adnan*

Received on: 28/2/ 2011

Accepted on: 21/7/ 2011

Abstract

In the last years the electronic networks were used in several practical field of life. The mobile networks is considered one of the important and powerful type of these networks, that have wide area of using in the electronic life, such as financial application, electronic learning, remotely management and basic role in information management field.

In this paper a new system is proposed that can work to protect the customer information in the mobile devices and manage it through network server. The idea is based on design and builds a system for information management especially to each customer (such as bank system), and then display this information on the customer mobile device after an authorized connection with the manager of the system database and request the information.

The customer information must be secure enough, therefore one of the proposed system tasks is to protect the information of each customer, this task is done by using a block cipher method(DES).

The proposed system provides another task that is the basic operations which the manager of the system database can do such as add, delete, update, and so on.

The system is implemented by using **VS.net** with a database of type **.sdf** which is especially used in the mobile applications and implement it in the **HTC**(High toxicity clastogens) smart phone mobile.

نظام مقترح لأدراه البيانات لجهاز الهاتف الذكي HTC

الخلاصة

خلال السنوات الأخيرة أصبح استخدام الشبكات الألكترونية في العديد من المجالات العملية في الحياة، ومن بين هذه الشبكات شبكات أجهزة الموبايل والتي تعتبر واحدة من أهم هذه الأنواع من الشبكات حيث لها مجالات واسعة الاستخدام مثل التطبيقات المالية، التعليم الألكتروني، الإدارة عن بعد وأصبح لها دور أساس في مجال إدارة المعلومات.

في هذا البحث تم إقتراح نظام يعمل على حماية معلومات الزبائن في أجهزة الموبايل وإدارتها بشكل جيد من قبل خادم الشبكة، الفكرة تعتمد على تصميم وبناء نظام إدارة المعلومات الخاصة بكل زبون (مثل النظام المصرفي) ومن ثم عرض هذه المعلومات على جهاز موبايل الزبون بعد تأمين إتصال موثوق بمدير قاعدة النظام وطلب المعلومات.

إن هذه المعلومات يجب أن تكون سرية بما فيه الكفاية لذلك واحدة من المهام للنظام المقترح هي حماية تلك المعلومات ولكل زبون، هذه المهمة تم إنجازها من خلال استخدام طريقة التشفير الكتلتي في تشفير المعلومات(DES).

النظام المقترح يوفر مهمة أخرى ضرورية وهي العمليات الأساسية التي قد تجرى على قاعدة النظام مثل الإضافة والحذف والتعديل وغيرها من العمليات التي يقوم بها المدير المخول لقاعدة النظام.

* Computer Science Department, University of Technology/ Baghdad

لقد تم برمجة النظام المقترح بالإعتماد على VS.net مع قاعدة بيانات من نوع sdf. الخاصة بتطبيقات أجهزة الموبايل وتنفيذها على جهاز الموبايل الذكي HTC .

1. Introduction

In the beginning with the first appearance of mobile devices, the basic purpose was the communication services and some of simple applications that the user needed them in life. But with the continuous information technology and networks developments, the mobile devices become using in wide area and fields of the user life requirements such as E-Commerce, E-Learning, GPS(Global Positioning System), Internet and Web Services, iPod and iPad.

A mobile device (also known as cell phone device, handheld device, handheld computer, "Palmtop" or simply handheld) is a pocket-sized computing device, typically having a display screen with touch input or a miniature keyboard. In the case of the personal digital assistant (PDA) the input and output are combined into a touch-screen interface. Smart phones and PDAs are popular amongst those who require the assistance and convenience of a conventional computer, in environments where carrying one would not be practical. Enterprise digital assistants (PDA) can further extend the available functionality for the business user by offering integrated data capture devices like barcode, RFID(radio frequency identification) and smart card readers. Mobile devices have been designed for

Many applications and include: [1] Mobile computers, Personal digital assistant/enterprise digital assistant,

Graphing calculator, Handheld game consoles, Digital still camera (DSC), Digital Video Camera (DVC or digital camcorder), Portable media player, e-book reader, Mobile phone, Pager and Personal Navigation Devices (PNDs)

2. Range and Applications of Mobile Devices in Life

A wide variety of mobile devices are available to address a broad range of applications and users. They range from very inexpensive Web-enabled devices to high-end customized tablets, with laptops, a variety of PDAs, and smart phones in between. Along with size differences come variations in the features and performance that these devices provide. No matter which type of mobile application you are looking to deploy, a device is available that will meet your needs.

It is important to emphasis on the mobile devices that are most appropriate for m-business solutions. For each device category we will look at the leading features, such as screen size, data input mechanisms, wireless support, and storage space[2].

2.1 Mobile Device Classification [3]

Much has changed since 1996 when the Palm Pilot was first released. Even though previously there were other palm-sized devices, such as the Apple Newton, the Palm Pilot changed the way we look at mobility. Users now had the option of using a small, palm sized

device to store their schedules, calendars, to-do lists, as well as perform other simple applications. This was clearly an option that users liked, signaled by the phenomenal pace of adoption of Palm devices. By 2000, the vast majority of all palm-sized devices were based on Palm operating system (Palm OS). Because of the success of the Palm devices, many other companies released mobile device offerings in an attempt to get a slice of this burgeoning market. As these new companies entered the market, they came out with new devices, with new features. As depicted in Figure (1), a distinct relationship exists between number of units sold and price: As the cost rises, fewer devices are sold. Devices costs vary anywhere from under \$100 to several thousand, Depending on the features required.

3. History of Windows Phone Platform(Smartphone)

The 'Windows Mobile' (Microsoft's term for its range of smartphones) became the next hardware platform after the Pocket PC to run Windows Mobile, and debuted with the release of Pocket PC 2002. Although in the broad sense of the term "Smartphone", both Pocket PC phones and Microsoft branded Smartphone's each fit into this category, it should be noted that Microsoft's use of the term "Smartphone" includes only more specific hardware devices that differ from Pocket PC phones. Such Smartphone's were originally designed without touch screens, intended to be operated more efficiently with only one hand, and typically had lower display resolution than Pocket PCs. Microsoft's focus for the Smartphone platform was to create a device that functioned well as

a phone and data device in a more integrated manner. Smart phones are interoperable between cellular networks and the Internet and have the potential to be dangerous conduits for threats from the Internet to the telecom infrastructure, in the figure(2) explain the relation between internet and network for mobile device[4, 5]

4. Pocket PC Identification and Appearance

Pocket PC, abbreviated P/PC or PPC, is also known by Microsoft as a 'Windows Mobile Classic device'. It is a hardware specification for a handheld-sized computer (Personal digital assistant) that runs the Microsoft 'Windows Mobile Classic' operating system. It may have the capability to run an alternative operating system like NetBSD, Linux, Android or others. It has some of the capabilities of modern desktop PCs. Currently there are thousands of applications for handhelds adhering to the Microsoft Pocket PC specification, many of which are freeware. Some of these devices also include mobile phone features. Microsoft compliant Pocket PCs can also be used with many other add-ons like GPS receivers, barcode readers, RFID readers, and cameras.

In 2007, with the advent of Windows Mobile 6, Microsoft dropped the name Pocket PC in favor of a new naming scheme. Devices without an integrated phone are called Windows Mobile Classic devices instead of Pocket PCs. Devices with an integrated phone and a touch screen are called Windows Mobile Professional devices and devices without a touch screen are called Windows Mobile Standard devices [6].

5. SDK Microsoft Windows and .NET Framework

Are software development kits from Microsoft that contain header files, libraries, samples, documentation and tools required to develop applications for Microsoft Windows and .NET Framework. The difference between these three SDKs lies in their area of specialization: Platform SDK specializes in developing applications for Windows 2000, XP and Windows Server 2003. .NET Framework SDK is dedicated to developing applications for .NET Framework 1.1 and .NET Framework 2.0. Windows SDK is the successor of the two and supports developing applications for Windows Vista, Windows 7, Windows Server 2008, .NET Framework 3.0 and .NET Framework 3.5. It contains extensive documentation and nearly 1000 samples[7, 8].

6. Propose System for Data Management and Protection Based on Mobile Network

Proposed System for HTC phone data management works on special customers' database for financial application (Bank), this database contains personal information about several customers. Each customer has full access to his own information (Account Name, Account no., ID card no., Credit Card, Visa Card and etc.).

When the customer want to log in the system, an important check step must be done that is the protection system step ask him to give an authorized log in password to verify the customer registration. The information in the

system database is protected as an encryption data by using block cipher method. The decryption process of the encrypted data is accomplished so to make the customer information clear to read through using the **customer password** as a decryption key.

In the proposed system, SQL mobile server will be used to connect the system database to mobile device, this database have special extension that knows as "SDF" (Smart Device File). The system has a special manager page to manage the basic operations of the overall system as show in the figures (3). The HTC smart mobile device is used to implement the proposed system as a client.

7. The proposed System DMPM Description

The proposed system consists of three basic steps as a formal sequence of tasks which describe the overall execution of each customer request or job. The check form step is the first step that is used as an authorized process to check if the user (customer) is permit to log on or not. The second step is called the update form step which is used to make the necessary updating operations to the system database but according to the access control to each log in customer. While the third step is designed to contain time by time any initial customer information and updating information of each customer that member to the system database, therefore this step is named the user form step according to the process of the step.

7.1 Check Form Step

Through the implementation of this step and the algorithm such as(initialization

and check). The following section describes the work of (initialization and check).

Initialization

- *S* as password used in encryption, decryption and authentication key.
- *T* as a register to record the number of log on tries the system.
- *A_i* as database that used to keep the users data.
- *F* as flag to check the event

Algorithm Check to enter system

INPUT: Password, (number of try)

OUTPUT: Enter to system

Step 1: For each record in database do

Step 2: If $T \leq 3$ then (no. of try enter to system)

If $S = A_i$ (password = record.field) then

$F = 1$

Enter to system

Else $T = T + 1$

Step 3: Else exit from system

7.2 Update Database Form Algorithm

The algorithm is describing the update operation that can be done in the database such as add, delete and search.

Algorithm Update Database

INPUT: Command choose

OUTPUT: Update database

Step 1: if the customer chooses add command then

- Create new record
- Add new information in record
- Update A_i

Step 2: if the customer chooses delete command then

- Find the record in A_i

- Remove the record from A_i

7.3 User Form Step

This step describes how the customer can access and show his privacy information via the smart mobile device (HTC).

8. Proposed System DMPM Implementation

The proposed system is implemented in VS.net environment and use the mobile device HTC as a client. All information are transceivers, update, search and displaying between server database and mobile devices in real time. The following figures represent the system implementation steps via VS.net environment because the real implementation pages through the HTC mobile device cannot be printed as a print screen operation.

Conclusions

Several conclusions are reached through the system work steps. The following items represent the important conclusions which are drawn from the proposed system:

1. The using of the mobile device as a client is helped and provide an easy way for the customer to enter to the server data, and the personalized data be known to him (her) through the system authenticity.
2. It is possible to apply various banking applications or special customer data through the using of the Wi-Fi techniques instead of the internet and apply them around an office or business building.
3. The properties of the smart devices is affect on the assumption application that is, when the

assumption application is executed through modern languages (such as vs.net), the proposed system becomes more compatible and preferred.

4. The repeated used of the customer password gives the system a high level of security to keep data, therefore one of the important aims of this work is to make multilevel of authentication.
5. The Microsoft office access not supports to link database with smart phone. So SQL mobile smart device files (.SDF) are used as assistance tools to complete that.

References

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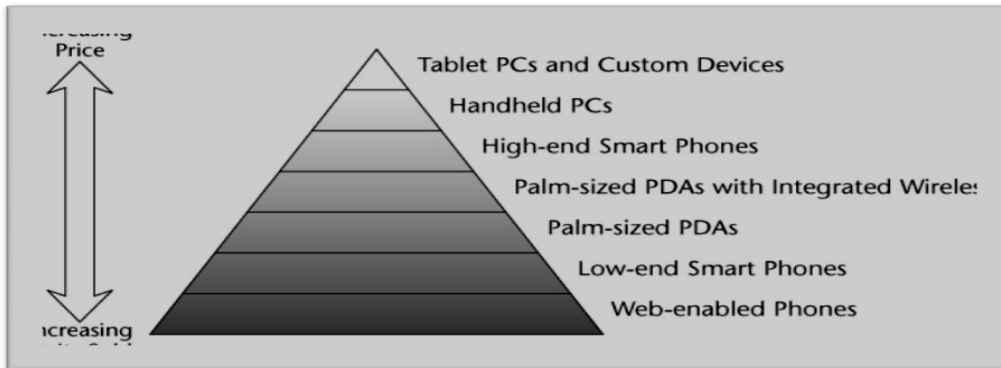


Figure (1) Mobile Devices Classification

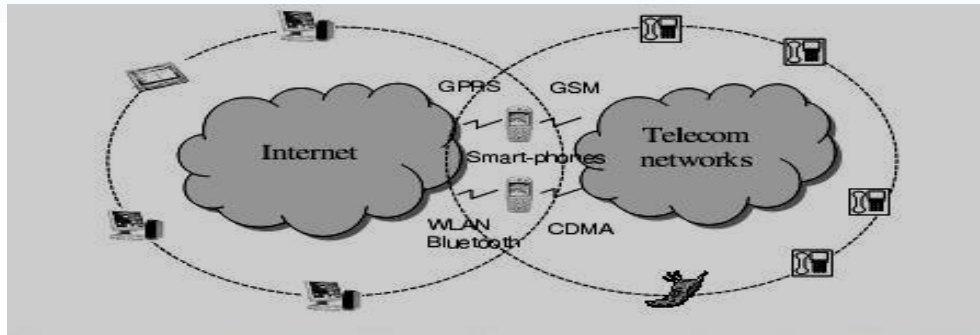


Figure (2) Smart – Phones Become end – points of both the Internet and Telecom Network

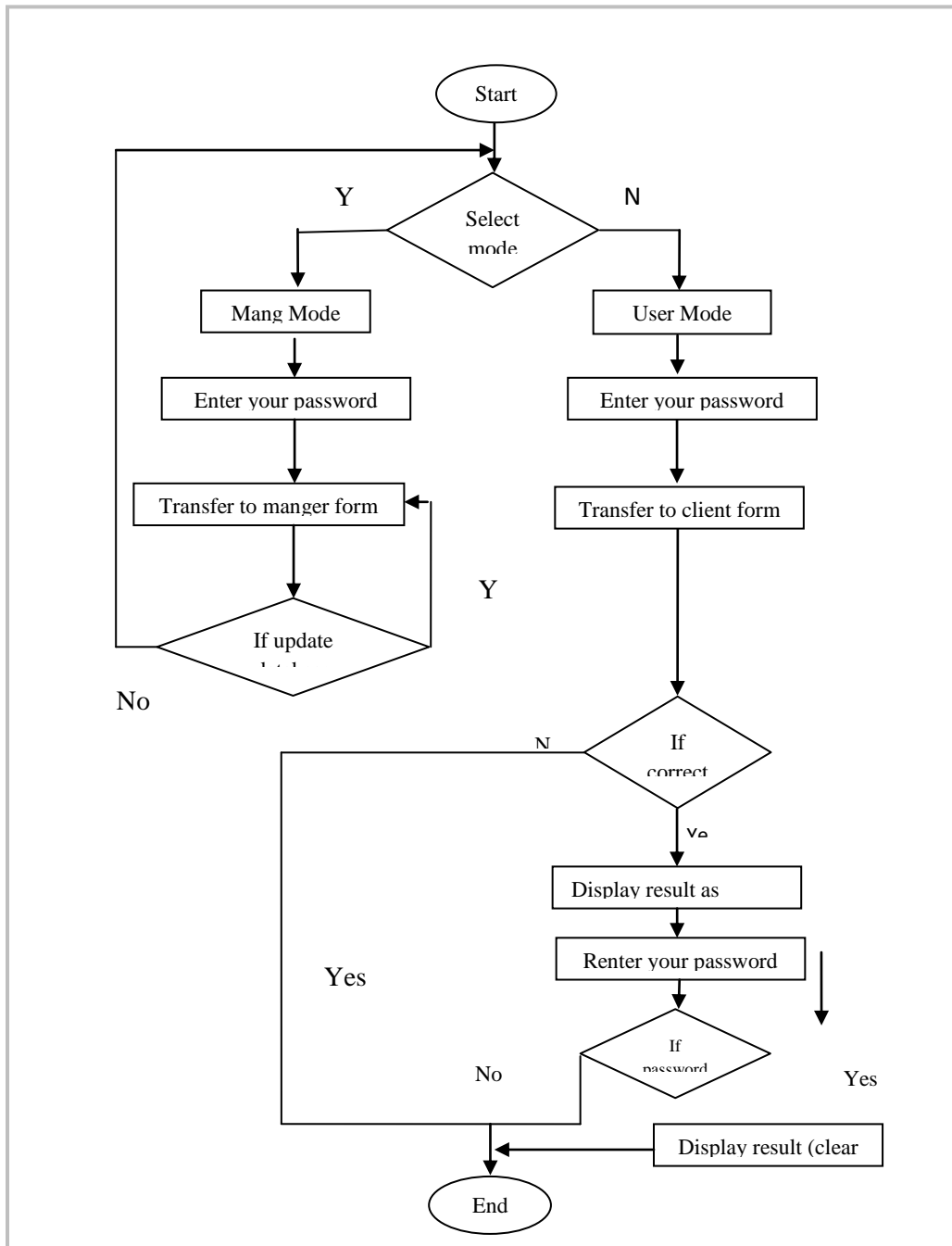


Figure (3) Flowchart of Proposed



Figure (4) the Start Page

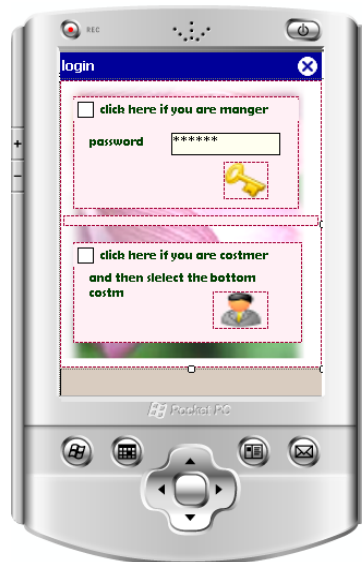


Figure (5) Login

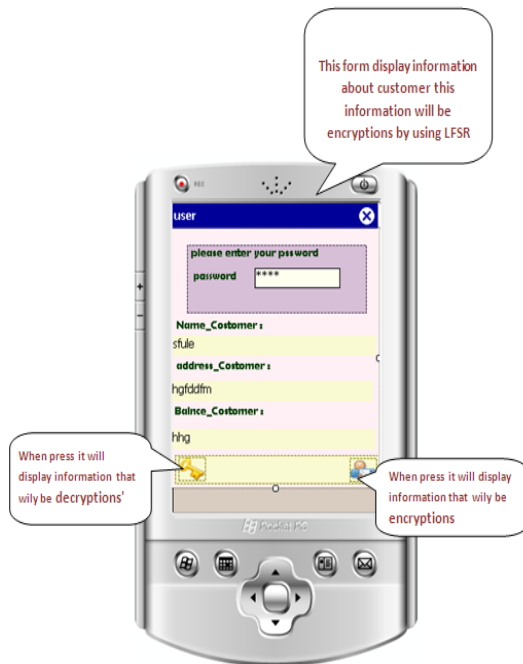


Figure (6) Information Form

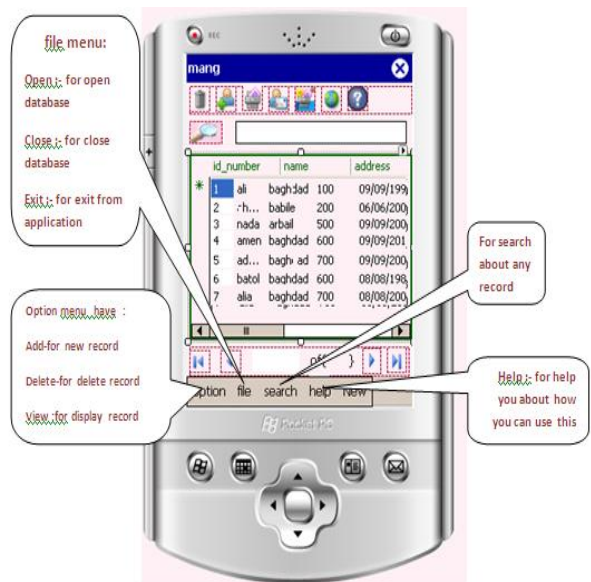


Figure (7) Guide Form



Figure (8) Information Form

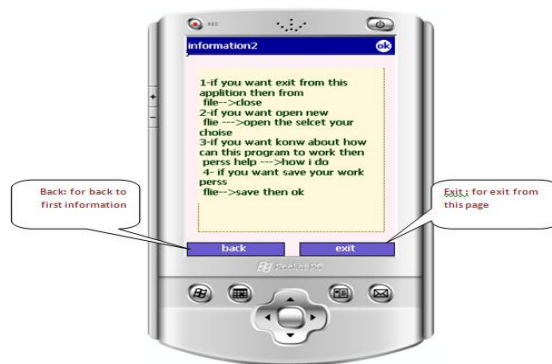


Figure (9) Guide Form



Figure (10) About Form

This form display the summary information about record



Figure (11) Summary Form

This form display the summary information about record and edit if you want



Figure (12) Edit Form