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E-Community: Mobile application for reporting incidents of public services of a city


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E-Community: Mobile application for reporting incidents of public services of a city

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Resumen. This paper reports the mobile application call E-Community, an application of a social nature with the objective that the civilian population in the city of La Paz, Baja California Sur, Mexico, have an alternative to report incidents that deal with services public. Generally, citizens reported by telephone different types of incidents such as traffic accidents, water leaks, lighting shabby, fire, garbage collection, however sometimes the phone is not attended for various reasons so regularly only remains in the record attempt. E-community, is a mobile application that aims to make ads via a click, registering the report in a database making use of Geographical Positioning System (GPS) and a smartphone with the option to write a message describing details of the this information, this message is routed through the operations center to the appropriate authority depending on incident.

Palabras Clave: Smartphone, Social network, Geolocation, Java, Android.

1 Introduction

We are in a new age of technology that is driving new ways to work and interact, including the concept of mobility as a technology that is pointing up to use with applications that have been exploited in various sectors (government, industry, education) on the other hand, the creation of online communities to exchange ideas and information with the potential to increase productivity opportunities in every way.

This set of mobility and social network connects people and promotes communication without limits, presents the opportunity as a whole as an ideal way to do business, deal with emergencies, inform people, support education, science and government.

This is all possible thanks to the use of Internet as a starting point for their efforts, creating new products and services specifically designed to exploit the capabilities of the media [1].

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The use of social networks such as Facebook, Twitter, Google+ to name a few, have allowed as a group, to achieve or make decisions that could hardly be taken into account individually, more and more people are connected and sometimes sharing solving situations that only through this type of media can be resolved.

Furthermore the development of mobile devices with internet access through mobile broadband or Wi-Fi band and the provision of technologies included in these opens a market that is constantly growing, developing mobile applications.

Taking advantage of the growth and love for social networking and features that they offer today known as Smart Device Smartphone is how it came to the idea of developing E-Community.

E-community is comformed of a mobile application that allows reports through a Smartphone using its GPS, which may indicate the type of service to be reported, and the location where the incident is located according to the submitted coordinates. In the same way has a web application that serves as a citizen information portal for monitoring incidents.

In Recent studies first quarter of 2013, the mobile market in Mexico reached 85.6% to 101 million lines, its adoption has shown a decline, mainly due to the continued important growing 7% year over year growth in prices of technology but also by the increased availability of advanced equipment, the expansion in the supply of data plans and social attractiveness of having a high-tech device [2].

The growth in the acquisition of these smart devices enables more people to be part of this great social network, forming a community of persons who may serve as watchmen of municipal services which will have the opportunity to contribute reporting incidents that they can be addressed in a timely manner by the appropriate authorities and thus contribute to a better functioning of the city.

2 Background

2.1 Socials Network

Social networks are dynamic structures that allow interaction between people and organizations, so that, through a process of contact and information transfer, can join forces to enable the achievement of the objectives of common interest. This condition makes a versatile and important for the development of any activity in an organized civilization tool. According Cobo and Romani, social networks described "all those tools designed to create spaces that promote or facilitate the creation of communities and levels of social exchange"[3].
The phenomenon of social media and content generated by the user, has been growing in recent years, websites focused on media sharing information, began implementing social networking features, making much of them in successful cases, such is the case of YouTube, which allows us to share videos online. Another success story is that Facebook started as an entertainment project on the internal network of Harvard University and today has become the most important worldwide social network, with the largest number of registered users since September 2006 allowed registration to any user without restriction [4].

2.2 Mobile Devices

Smartphones are mobile devices capable of providing internet services to the user via Wi-Fi, 3G and 4G, so that the user can access a range of applications such as, email, web browsing. Furthermore, these devices often have integrated a GPS device, which together with the internet, provide the ability to know at any time the current position of the mobile.

Using social networks, thanks to the proliferation of smart mobile devices, there have been a number of applications called geolocation based social networks such as:

Foursquare [5], without a doubt one of the most famous geolocation networks, it is based on the ability to display a set of points according to the position where a user is, for which the user is identified with your account.

Once identified, the user can list a set of points near your location and, if applicable, show promotions made by these places.

Foursquare also has a friends manager that allows to add other users to the contact list by a friend requests. To do this, look for those who have the application installed and can be located by phone address book, Facebook or Twitter. Once a user accepts a friend request, Foursquare lets you view those check-ins made by him, such a case is shown in Figure 1.

Google Latitude [6], is the application provided by Google based on geolocation, able to represent your current geographic position and that of your friends in Google Maps with the intention of facilitating the location of persons.

Google Latitude interprets coordinates, packaged and sent through the Internet connection of the mobile phone, the server responsible for sharing with the group of friends preconfigured. Another way is to use Google Latitude on your computer where you can see with your account the location of your friends.
3 E-Community Development Tools

The mobile application runs on Google's operating system for mobile devices called Android, bases its operation on a set of activities that are processed through a stack, where the last to be executed is shown in the foreground, leaving resting the rest. Google provides tools and APIs necessary to begin developing applications on the Android platform [7].

Android SDK is a set of tools and libraries provided by Google for application development on this platform, it is a mandatory tool for any development.

eXtensible Markup Language, XML is the base for the development of Android screens, as well as information exchange between different internal application processes.

Environment Eclipse Development Plugin ADT is an integrated development environment designed primarily for the Java language, but with the inclusion of the ADT plugin, which is provided by Google with the Android SDK, extends and facilitates the functionalities of environment integrated SDK and additional tools to their environment, offering the possibility to developer exploit all the capabilities of this system.

The web application language used HTML5 and JavaScript client side with JQuery and JavaScript, which executes activities in the user's browser, which provides the ability to dynamically control the presentation of the site, providing additional functionality.

Server side language was used Yii Framework (PHP) a set of tools designed for PHP, which runs server side, for rapid development of web applications.

JSON (JavaScript Object Notation) is a lightweight data format for information exchange between applications. This format is known for its simplicity and low size, making it ideal for the rapid exchange of information.
SQLite allows us to use databases using the SQL language in a simple way and use very few system resources. Store your information in a database is not much more complex than storing them in a file, yet it is much more powerful. SQL is the most widely used programming language for databases to manipulate a database in Android use the SQLiteOpenHelper class that gives us both the creation of the database, such as working with future versions of this database. To create a descendant of this class must implement the onCreate (methods), and onUpgrade () and optionally onOpen (). The great advantage of using this class is that it will take care of opening the database if exists or create it if it does not exist. Even if you upgrade the version decided to create a new structure of the database. In addition, this class has two getReadableDatabase () and getWritableDatabase () to open the database in read-only or read-write. If there is still no database, these methods are responsible for creating it.

4 External description of E-Community

E-community depends on the participation of all people living in a community and has a smartphone geolocation functionality. Taking advantage of performing daily rounds through the city can feed the content of this social application, which as far as you integrate more people will have a better chance of success, even the same incident may have more than one report, making and the authority to exercise the appropriate actions for this to be addressed.

To operate as a member of the Social application, you must install the application on a smart device and this must have GPS. The user must install the application and open an account to be part of the community.

In Figures 3, 4, 5 and 6 we can see an example of the functionality of the mobile tool, different windows needed to make a report and the different ways to view the incidents reported in the community.
Once a user has reported an incident, the GPS coordinates are packaged and sent through the Internet connection of the mobile phone to the server responsible for sharing with the group of friends who make up the community, these reports can be displayed three way, per person, per location on the map and user profile as shown in Figures 3, 4, 5 and 6.
## 5 Conclusions

The benefit of using technology in our community is an investment of time and effort well worth it. E-Community is being tested internally at the university and we are working with teachers and students by testing and working with the application with the intent of detecting usability and operational problems. It is planned for the first half of 2014 release the application to the general public with the support of H. city council of La Paz for diffusion and the commitment to attend the incident reports made by users of E-Community which has been viewed as a valuable tool to improve public service in our community, so in, as users, this may be more effective to increase.

## References

5. [https://foursquare.com/](https://foursquare.com/)