

2017 年臺灣國際科學展覽會 優勝作品專輯

作品編號 190021

參展科別 電腦科學與資訊工程科

作品名稱 EmerApp+: An innovative application for
personal security

得獎獎項 三等獎

國 家 Mexico

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Abstract:

EmerApp+ is software designed for intelligent devices as a personal security database manager. In case of emergencies, it is an application which integrates location, tracking, and communication tools.

It is triangulated between a database to a communication server as well as a second which is NASA server that offers climate and seismic information for Mexico. This application has two sources of communication, SMS messages and a newly created social network. In case of natural disasters, an extension for drones has been developed for this application, enabling rescue teams to delimit the land boundary where the disaster struck. In order to speed up the search and rescue operations a triangulation of network-drone- smartphone is completed.

Introduction:

The project named “EmerApp+” is an intelligent application designed for smartphones and smart watches with the purpose of communicating emergencies. It was developed to offer performance and user-friendliness. EmerApp+ integrates functions which can be found separately in the market such as SkyAlert [1], Motorola Alerta [2] y SOSmart [3]. Different options are provided: message exchange to emergency services, it alerts people who belong to the security social network any risk situations and delivers emergency numbers according to the place of residence.

Emergency numbers are difficult to recall when undergoing stress and restlessness, stated by Alejandro Martí [4], an activists who presides ‘México SOS’. Due to this necessity, five options of contingencies and their prompt notifying counterpart are unfolded by EmerApp+: intelligent traceability, medical emergency, auto accident, general mishap and natural disaster.

It has an initial interface that gives a menu with the following choices: communicate the emergency via direct calls to the required service; 2) enable the GPS location and send it by SMS message; 3) monitor natural events and review first aid measures. These roles increase the emergency services response and provide better control from the user’s security circle.

In the following paragraphs the methodology used for the project is explained, results are shown and a final discussion is given.

Method:

Subjects: In order to test the utility of EmerApp+, 41 persons were asked to be participants as users who accepted and gave their views on the ease of use.

Techniques and instruments: The startup was to acquire a platform for developing Android applications. Prototypes were designed for each menu's interface with their respective operating flow charts. In order to achieve full development of the mobile device application an array of information technologies were used, four programming languages: Java, Java Script, PHP, Python; two label languages: HTML and XML; one structure consulting language: SQL; and two programming principals: ISP interface segregation principal and SDP [5] stable dependency principal.

A web site, visual interfaces with information for each section, and web site file loading using Dreamweaver CS6 and a file transfer protocol were also developed.

Results:

The application was tested by 41 users and they participated in a performance and user-friendliness survey, which proved that it delivers a useful device which innovates personal security.

In what way are the interfaces of EmerApp+ easy to manage were analysed. The main screen, the movement through launchers and the arrangement of icons, were welcomed by users who mentioned that integrated tools are helpful and useful. Functionalities were appraised: calls from app, SMS messages, GPS geographic location and tracking natural events. EmerApp+ includes tools which makes it attractive: clasified emergy phone numbers, first aid instructions, speed up access and being able to use it in smart watches.

The operating system was checked, the architecture was examined using computerised means and a precise analisis was carried out to upgrade the application. The project's object was achieved, to communicate emergencies and improve personal security.

Discussion:

The inclusion of information technology in fields where it had not been applied such as overall personal security is a break through. Currently 57% [6] of the mexican population has smartphones or smarwatches, the creation of EmerApp+ facilitates the use of these devices to help users notify emergencies and it enhances the possibilities to maintain physical integrity for those that incurr in contingencies.

During natural disasters the application has the following advantages: the sight of virtual maps showing location and land boundary of the event makes tasks of rescue brigades easier to look for survivors and provide quicker mayday aid measures. Since the newly created social network specializes on emergencies, calls or messages from users are attended immediately and assistance becomes more effective.

The starting point of the project was to search for a way to aid the mexican population, particularly those living at the state of Tamaulipas, which has been exposed to difficult circumstances and violent situations. Technological advancements were putt to work and the goal was accomplished, giving cell phones a different use, personal security.

Appendices:

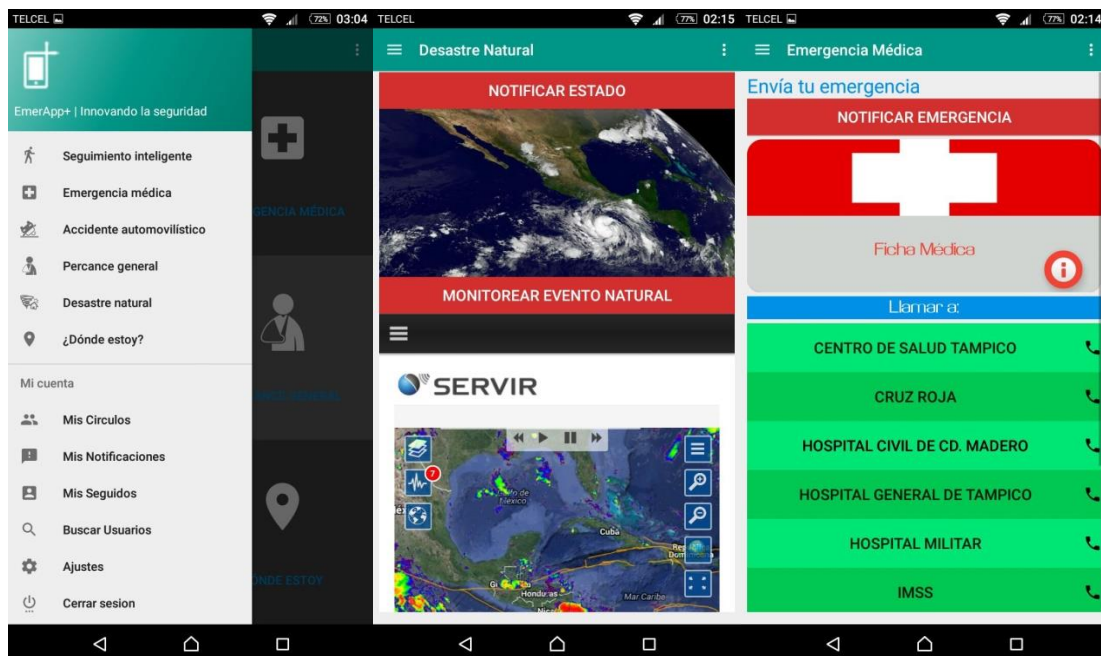


Image 1: Screens of different applications (from left to right): initial screen, natural disasters category and type of medical emergency.

References:

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- [3] SOSmart SpA, «SOSmart detección de accidentes de tránsito automática,» SOSmart SpA, 2015. [En línea]. Available: <http://www.sosmartapp.com/inicio.html>. [Último acceso: 19 Enero 2016].
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【評語】 190021

The project focuses on the design of the user interface for a communication application on the mobile device.

The project is complete. The students may consider the effects for different design of the user interface.

Intel 特別獎評語：

1. 很好的應用，很實際地解決現實生活中的問題。
2. 同樣的演算法也可以應用到中文及其他語言的輸入法。
3. 建議可以直接找輸入法業者，將使演算法放到輸入法中。
4. 書寫的精確度也可加強。