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Personal Emergency Notification Application for Mobile Devices

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Abstract: In most recent years, many interesting applications for mobile devices are designed to improve our living quality and deal with house care issues under Android framework. In this paper, an emergency notification application for mobile devices will be designed. In the application, the position function of GPS and an easy used interface capable for sending emergency notification messages or recording systems are included. The application implements a location awareness system which gives the user's current location, sends this location using SMS (Short Message Service) plus sharing location with friends and family and save the voice recording for future reference. Users can take benefit of this application in emergency situations by using emergency feature of this application. To get the location coordinates, application is using GPS (Global Positioning System) as location provider. The application design has five parts: a mobile client, a application server, a database, GPS system and a map service. A mobile client which consists of a mobile and GPS receiver finds the location of the user to get aware of his location. In order to share this location the mobile client sends this location to the application server from where other users can get this location if they have the authentication provided by the user. Personal emergency notification system is an important tool for personal security and safety.

INTRODUCTION

A **personal safety app** or **SOS app** is a mobile application which can be used to aid personal safety. Personal emergency notification system is an important tool for personal security and safety. Recently, there are two kinds of common emergency notification systems. One is designed to allow the user wearing a designed button with a connection to the device host at home [1]. Another is specially designed single-function phone (the phone for elders) whose back has an SOS button [2]. When unexpected something happen, users
just need to push the button to secure, systems could send a message to some specific institutions or people setting in advance. However, these two kinds systems mostly do not embed GPS functions and information may not clear enough in an emergency, which motivates this project. In this paper, an emergency notification application for mobile devices will be designed. In the application, the position function of GPS and an easy user interface capable for sending emergency notification messages or phone calls are included. Users can quickly push the designed buttons for help via sending (short) messages and instant messages, both of which automatically include position information, to default emergency corresponding people or institutions.

LITERATURE SURVEY

A mobile app is a computer program designed to run on smartphones, tablet computers and other mobile devices. Apps are usually available through application distribution platforms, which began appearing in 2008 and are typically operated by the owner of the mobile operating system, such as the Apple App Store, Google Play, Windows Phone Store, and BlackBerry App World. The popularity of mobile apps has continued to rise, as their usage has become increasingly prevalent across mobile phone users. Developing apps for mobile devices requires considering the constraints and features of these devices. Mobile devices run on battery and have less powerful processors than personal computers and also have more features such as location detection and cameras. A **personal safety app** or **SOS app** is a mobile application which can be used to aid personal safety. Such apps received increased prominence in the media in recent times, since, cases of molestation and mistreatment of women and the crimes against elderly people have increased. The apps include various features, including sending text messages, e-mails, IMs, or even Tweets to close friends (containing approximate location, audio snippets and pictures) or emitting a loud intermittent "shrill whistle" in the manner of an emergency alarm. Some apps allow customizing the alert message sent and the ringtone that signals the reception of a new alert.

They normally include different triggering mechanisms to cope with different emergency situations. Common triggering mechanisms include pressing and holding the phone's switch button for a few seconds, shaking the phone vigorously, tapping on an alert button, and even loud screaming sound which the app can detect. Many available apps simply send an SMS or an instant message using the internet services of the mobile phone. This trend can be cause of problem in the case where the number's account is out of usable balance. Also, if the phone's internet data is unavailable, the app will be unable to send the emergency message. Hence, we will try to provide a mechanism such

that the app can access both the modes for sending message. We will try to correct the above drawback in our project.

The other drawback that we try to overcome will be to provide a mechanism to record the customer's surrounding by capturing the video recording of the of the mobile device the instant the emergency message is sent.

The major software applications under study are BeSafe app and the VithU app. The first app is widely used all over the world. The latter on the other hand has been developed by a famous Indian television channel.

SYSTEM ARCHITECHTURE

A. SERVER

A **server** is a running instance of an Application (software) capable of accepting requests from the client and giving responses accordingly. Servers can run on any computer including dedicated computers, which individually are also often referred to as "the server". Servers operate within a client-server architecture. Servers are computer programs running to serve the requests of other programs, the clients. Thus, the server performs some tasks on behalf of clients. It facilitates the clients to share data, information or any hardware and software resources. The clients typically connect to the server through the network but may run on the same computer.

B. DATABASE

A **database** is an organized collection of data. The data is typically organized to model aspects of reality in a way that supports processes requiring information. For example, modelling the availability of rooms in hotels in a way that supports finding a hotel with vacancies. **Database management systems** (**DBMS**s) are computer software applications that interact with the user, other applications, and the database itself to capture and analyze data. A general-purpose DBMS is designed to allow the definition, creation, querying, update, and administration of databases.

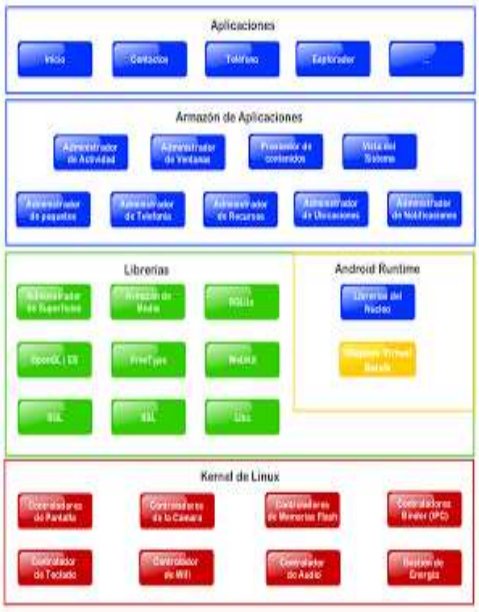
C. MOBILE CLIENT

The user interface, in the industrial design field of human–machine interaction, is the space where interactions between humans and machines occur. The goal of this interaction is effective operation and control of the machine on the user's end, and feedback from the machine, which aids the operator in making operational decisions. The design considerations applicable when creating user interfaces are related to or involve such disciplines as ergonomics and psychology

D. GPS SERVICE

The **Global Positioning system** (**GPS**) is a space-based satellite navigation system that provides location and time information. GPS has become a widely deployed and useful tool for commerce, scientific uses, tracking, and surveillance. GPS's accurate time facilitates everyday activities such as banking, mobile phone operations, and even the control of power grids by allowing well synchronized hand-off switching.

I. IMPLEMENTATION



As part of the development process, mobile user interface (UI) design is also an essential in the creation of mobile apps. Mobile UI considers constraints & contexts, screen, input and mobility as outlines for design. The user is often the focus of interaction with their device, and the interface entails components of both hardware and software. User input allows for the users to manipulate a system, and device's output allows the system to indicate the effects of the users' manipulation. Two mobile clients will be used. The android application will be installed on the user mobile client. The application on the mobile client interacts with the application server. The application server interacts with the database to access any previously stored data as well as to save newly entered data. The application is uses the application server to send messages using short messaging service and instant messages in case of emergencies. The application will provide alarm service and automatic video recording which can be stored in the database using the application server.

II. CONCLUSION

This application can overcome the problems faced by independent women and old people who live alone. The project can be useful to the users. The application can help the users in maintaining their health records with the help of health charts. The application provides location awareness using GPS. It will help users to stay connected to their friends and family. The application can send messages along with the location details in case of any emergency. The application server can interact with the mobile device and send the message accordingly. The application can provide immediate video recording in case of any emergency situation. This will help the user for future use if any crime occurs.

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