



ISSN: 2349-7300

ISO 9001:2008 Certified

International Journal of Innovative Research in Engineering & Multidisciplinary Physical Sciences
(IJIRMPMS)

Volume 3, Issue 1, February 2015

Smart paper calendar for regular and visually impaired users

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Abstract: Blind people are fundamental part of the society. However, their disorder have made them to have less access to computers, the Internet, and high quality educational software than the normal people. Therefore, they have not been able to improve on their own knowledge. This paper represents the survey on smart paper calendar for regular users and visually impaired users. Even though mobile devices include accessibility features available for visually impaired users, the user interface of the majority of the mobile apps is designed for sighted people. This paper introduces the concept of “Smart Paper Calendar”, which provides a way to access calendar by voice command operated, so that makes it easy call for usage for visually impaired and normal users.

Index Terms: design; mobile App; visually impaired; smart paper calendar; voice command

Introduction

This research work deals about design, mobile App design centered on visually impaired as well as regular users. The idea of designing products to be likely and usable by everyone, regardless of their age, ability or status in life. Because of the growth of Internet, there is a specific section inside computer accessibility dealing with web accessibility. The paper finishes with some conclusion which shows benefits of using design for usability when designing app for visually impaired users. In 1999, the Web Accessibility Initiative (WAI) proposed the Web Content Accessibility Guidelines WCAG, to improve the accessibility of the web for people with disabilities or disorders. Due to the appearance of mobile devices, human computer interaction has changed significantly, appearing new techniques for usability evaluation. The usability tests evaluate the user interface and navigation issues in multiple environments. A drastic changed has occurred since the development of touch screen based mobile devices, such as the iPhone, iPad or Android devices. In less than a couple of years, gesture based interaction has become an effective and standard on the majority of mobile devices.

It is come into view in area of research since touch displays are more and more present in our everyday life. Touch screens provide a better flexibility and a direct access to controls and information, but on the other hand, the physical feedback is lost, making them less accessible to visually impaired and blind users. The goal of our research work is to provide services to low vision users the interaction with devices that use this kind of displays. So, this paper deals about design. Design of touch and voice command based mobile apps usable by visually impaired people as well as regular users. Despite the great effort of hardware manufacturers to include accessibility features in their touch and voice based mobile devices, they are not good enough to obtain a good visually impaired user experience. Since most of the existing apps are designed for normal users, the accessibility features are not always adequate to obtain a reliable result.

Design for usability for visually impaired users

Some basic concepts needed in order to design specific mobile apps for visually impaired users. A User Experience is One of the best ways to evaluate the effectiveness of a product design is to obtain a good user experience. User Experience is about how a person feels or experience about using a product, system and application. User experience underlined the experiential, affective, meaningful, useful and valuable aspects of human-computer interaction. As its name indicates, user experience focused on the user. These guidelines are oriented to design apps for regular users. Usability describes the quality of user experience. Accessibility is a general term used to describe the degree to which a product, device, service, or environment is available to as many people as possible. As example, Voice Control, Speak auto-text, tactile buttons, giant fonts, hands-free speakerphone, audible, visible and vibrating alerts or assignable ringtones.

If we want to design apps for visually impaired people, instead of adding accessibility features to apps that are not initially conceived for visually impaired users. Specific apps are needed for visually impaired users in order to acquire the best user experience. Even for those general apps, such as contacts or phone, a specific design app will increase dramatically the usability and user experience for visually impaired users.

Smart paper calendar

The main goal of our project is to create a mobile App for visually impaired users as well as regular users. This project will create an app that is helpful for easy access of calendars and date events with reminder task. Efficiently used by normal users and blind users equally due to voice command module of program. The key algorithms of voice interpretation and output providing will be implemented. This app will be used online and offline. We can set/update/modify/delete events and reminder. Voice based enquiry optimization with keywords and word synthesizer. Making mobile apps oriented to visually impaired people is not a novel idea. There are already some mobile apps on the market for visually impaired users like smart cane, remote assistance and navigator system. The main difference between these mobile apps and our proposed *Smart Paper Calendar* is that our app is based on voice command. Thanks to app, low vision users can access easily to a wide variety of Apps specified design for them. This application is based on new android technologies for service based on calendars for usual and visually impaired users. This application is voice command operated so that makes it easy call for usage for usually challenged and normal busy user. This application sync during wifi access for auto google based calendar and timezone event and date access. Alarm for task to-dos and day based remainders can be triggered for easy access and timely reminders of execution. GPS based reminders can be added in this app for getting the task to done while in certain location. This app is very useful program that take care of all calendar/time-zone based task and list of actions to be performed.

Figures and tables

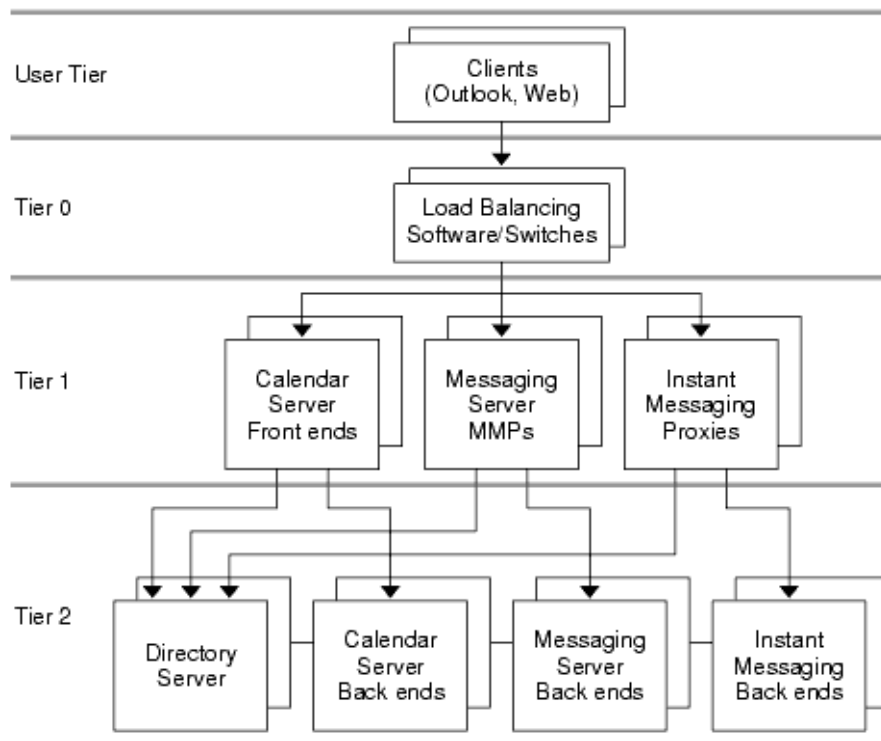


Fig.1 System Architecture

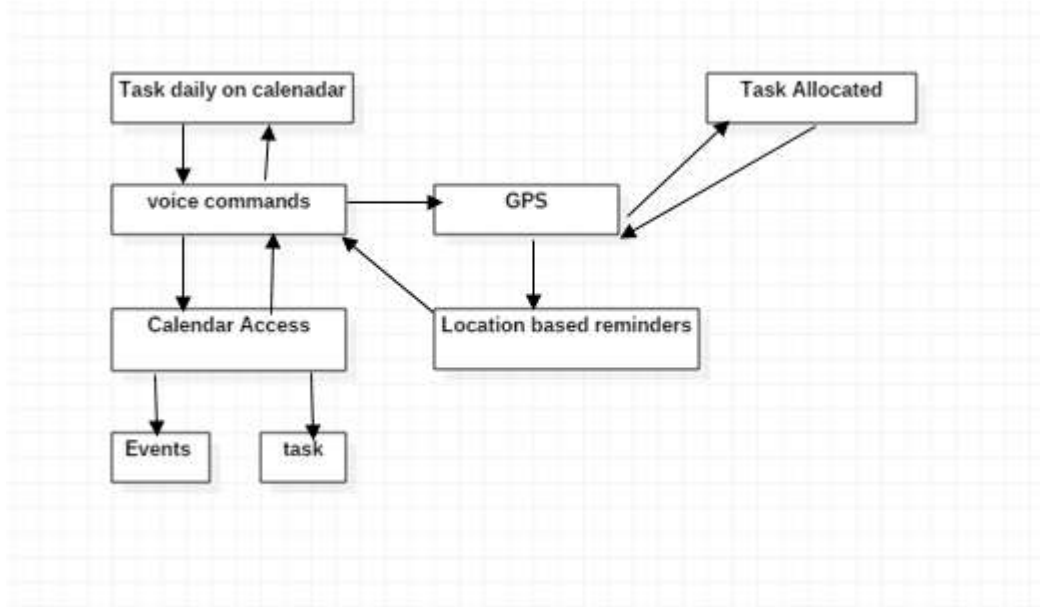


Fig2. Block Diagram

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