Requirements for a Mobile Service Model on a Personal Bio Record System for the elderly[1]

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Abstract. The elderly people have to make an effort to exercise and dietary prescription to maintain health continuously. There are new healthcare service and application developed. However the personalization to a user will be needed in order to be more effective service. This paper presented a mobile healthcare service model and requirements for the application. And the requirements defined in this paper will be going to a further study like designing and implementation a mobile health application for the elderly.

Keywords: Mobile health, eHealth, the elderly, personal bio record

1   Introduction

The health of the elderly plays an important role to quality of life, because mental and physical activity of the elderly is limited to chronic diseases [1]. Health insurance costs for individuals and nations are increasingly greater the financial burden. Therefore the elderly have to make an effort to treat and prevent disease with exercise, dietary prescription, and medical examination before becoming the elderly [2].

New personalized healthcare service, dietary prescription service, and daily activity control service are currently developed due to new fusing technology from medical and IT technology [3][4]. However, the new services are insufficient to the elderly which have much chronic diseases in their 60s into their 80s [5][6]. Especially, the market and services for the old age are very small like a barren zone although a lot of mobile devices have been spread in the world [4]. Enterprises in the world are trying to secure the elderly and infants layer as a new target market to overcome crisis about saturation of the mobile device market [4][7]. Therefore, research needs services and its platform for the elderly people at the mobile health service.

In this paper, I propose the requirements of the mobile health service and its application for the elderly, taking some factors related to old age into account. One of the most important consideration is the UX/UI interface, and the voice interface as browsing and searching in the application on mobile device. Because they have a little recognition, visual acuity, and readability, the mobile application has to provide

some capabilities such as voice navigation, good information architecture, and large font size.

2   Mobile based healthcare service for elderly senior

In this paper, a scenarios of the service model for mobile health presented is described in figure 1. The elderly enter biomedical data such as blood pressure, glucose, weight through facility of medical examination on a mobile display. Application has to support audio interface when user enter bio data, because voice recognition is very useful for them. There are some audio open API like a speech recognizer class in Android SDK for audio mobile application [8]. Moreover, doctor write his medical note on a mobile screen after he screen patients' bio data on the display. Doctor leave his medical note to mobile device after he reviews patients' bio data on the display. As it is hard to write a medical note on small mobile device, the application supports to use predefined notes, so that the doctor selects one of the predefined notes simply.

Fig. 1. Mobile based healthcare service model

Dietitian simply checks the medical note of the elderly, so that he can easily facilitate the dietary prescription. Dietitian also searches information of the elderly from the platform server by name order of theirs or by order name of senior care center, before he searches dietary prescription effectively. He have to check their health condition first. In order to provide the service, it requires mobile health application for each user.

User authentication is necessary to all user as shown table 1. Their function related to authentication are subscription, sign in, sign out, reset password, and searching identifier. In addition, configuration setting needs commonly for all users. For an application of the elderly, the function of medical examination requires to recognize by voice as well as typing blood pressure data, glucose data, and weight data, for

better convenience. Pop up message is more effective way to inform to the elderly when a doctor's note is ready to be shown to him. It is difficult to type on mobile devices than on the desktop computer input. Therefore, mobile devices require the configuration menu and to provide a search function to identify and take advantage of a function information. For this reason, the search for a medical memo or dietary prescription is designed to provide the ease of use. In addition to that, reading glasses function should be provided to enhance a readability when the elderly read information in small font text. After he activate the function of reading glasses, the text will be enlarged whenever he drags some area on a mobile display by finger.

Table 1. Functionality for each user

#	The elderly	doctor	dietitian
1	authentication	authentication	authentication
2	medical examination for health	health monitor for the elderly	health view for the elderly
3	View of medical note	Management for medical note	View of medical note
4	healing dietary prescription	my pages	healing dietary prescription
5	health community	setting	my pages
6	reading glass		setting
7	setting		

3   Conclusions

In order to maintain healthy life, some efforts such as exercises, diet control, medical examination, are required to prevent diseases and to treat the diseases. Thus mobile health application are being reflected to these needs.

In this paper, I presented a mobile health service model for the elderly and defined the requirements of the application for ongoing health maintenance by utilizing mobile devices.

This paper presented the requirements accordingly about the user interface and functionalities, having a consideration for most user are more than 60 years old. It is necessary to support customized service in healthcare. Thus I will develop the service and the application to apply the requirements defined at this paper in the future.

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