Design and Implementation of a Simple User Interface of a Smartphone for the Elderly

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Abstract—In this paper we present a simple and convenient user interface for the elderly with an open source system platform used in smartphones. This design provides a simplified interface, a large font, a big button and a simple user interface starter for easy operation, and offers the elderly a method for those who are more accustomed to dial phones. Our design includes an improved selective reply text message function, medication reminders, return appointments and a calendar with a list of the simple chores of daily living, and an easy to operate browser for sharing photos with relatives and friends.

Keywords—smartphones; elderly; interface; emergency

I. INTRODUCTION

According to the survey released by one report, smartphone ownership among the elderly has risen only modestly in recent years, from 11% in April 2011 to 18% in September 2013 [1]. In the current open source system platform for a smartphone interface, some will use the built in user choice and select “simple mode”. The purpose is to make the desktop smartphones configurations be more concise. The buttons, graphics and fonts are bigger, but this multi-level switching design with some interface screens are redundant, results in use difficulties for the elderly [2]-[3].

This design develops a single view of an open source system platform user interface for the elderly [4], which contains five functions: 1. Telephone, 2. SMS, 3. Cloud calendar, 4. Cloud photo, 5. One-button emergency. In addition, we propose to include three additional easily used features: (1) Single view, (2) Selective reply, and (3) Cloud application management.

II. SINGLE VIEW

Fig. 1 shows the single view features. Our design also provides easily used figures and a big button interface, in order that a user may make a call more efficiently, and in order to reduce the probability of any false clicks. Fig. 2 shows the simple dial pad.

III. SELECTIVE REPLY

As relatives and friends sometimes will send text messages or notify a sick person of their concern and in order to remind the user of the precautions of their daily life, our design provides choices of an easy answer of one or two words for the elderly to choose in each situation. “Yes, please”, “No, thanks”, and “I understand,” are the three common answer choices as shown in Fig. 3.

IV. ONE-BUTTON EMERGENCY

Most elderly do not make too many demands on the mobile phone. The most important button is the “emergency button”, which can be used to request help when falling, wounded or confused to rapidly and directly contact relatives or SOS units. In addition, when calling relatives, friends or SOS units, this function will also send an SMS at the same time. The contents of the SMS will indicate the elderly’s current location [5]. Fig. 4 shows the dual-way of our one-button emergency function.

V. EXPERIMENTAL RESULTS AND COMPARISON

As we have modified the traditional SMS response, the user need not edit the text and can also quickly answer most messages. When the smartphone receives a message, it will
In this paper, we present a design for the elderly of an open source system platform smartphone application launcher interface, with a simplified design whereby the elderly simply use a single view interface which has all the necessary functions. All options can be completed by simply tapping the screen at the most twice to complete each function. In addition, our design is intuitive, simple, uses big buttons, a big font interface, and has a quick reply function to reply to each SMS. In addition relatives and friends via the cloud can also assist the elderly to easily update the information in a smartphone. Our design provides photo gallery browsing for sharing photos and simple calendar reminder function for medication via the cloud, easy communication between relatives and friends of the elderly. Our design also provides a one-button emergency function, is convenient, and provides benefits for the elderly.

**Table II**

<table>
<thead>
<tr>
<th>Reply SMS ways for elderly</th>
<th>Keypad text input</th>
<th>Handwriting input</th>
<th>Voice input</th>
<th>Our design by selective reply to reply SMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Practicability</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Easy to learn</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**VI. CONCLUSION**

In this paper, we present a design for the elderly of an open source system platform smartphone application launcher interface, with a simplified design whereby the elderly simply use a single view interface which has all the necessary functions. All options can be completed by simply tapping the screen at the most twice to complete each function. In addition, our design is intuitive, simple, uses big buttons, a big font interface, and has a quick reply function to reply to each SMS. In addition relatives and friends via the cloud can also assist the elderly to easily update the information in a smartphone. Our design provides photo gallery browsing for sharing photos and simple calendar reminder function for medication via the cloud, easy communication between relatives and friends of the elderly. Our design also provides a one-button emergency function, is convenient, and provides benefits for the elderly.

**REFERENCES**


