Universitatea Națională de Arte din București

Doctorat thesis:
Communication Design, Digital Interface Design, Interaction Design
Abstract

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CONTENT

ABSTRACT

In this thesis I present the design of a single-function application, calling, for smartphones. This application, intended especially for the elderly, is designed to be easy to understand and easy to use.

Because there are people who have difficulty using their mobile phone, I have explored interface design solutions that can make it easier to use the phone.

The difficulties I refer to are various and can be related to: age, physical disabilities (eg vision problems), lack of motivation to use a new device, reduced technical skills, etc.

Existing interfaces are provided with functions that improve accessibility, for example it is possible to adjust the font (by changing the size and thickness) but these settings are limited for functional and aesthetic reasons, the interface being designed for the average user.

In order to have an informed opinion on the possible directions in which the user interface (UI) design is heading, I started this thesis by researching on the history of interface design, in the chapter named *Selective history of innovations in interface design*. Here I described technologies or products that have contributed significantly in this area.

Then I researched what are the *Innovations in interface design, trends and new technologies in IT*. Here I noticed a trend in all this new ideas, researches, new products and border areas. This trend follows, responds to or anticipates the needs of users whether it refers to increased storage space, expanding the use of the computer by miniaturization or improving the user experience by improving the interface.

In the chapter *Solutions for a more intuitive interface design* I researched how metaphors work in the user interface and compared the advantages and disadvantages of the two major directions in interface design: skeumorphism and flat design.

The interaction of the elderly with the smartphone can be influenced by many age-specific factors. Because it is a niche area, I also analyzed other papers that studied methods of optimizing the user interface for this category (in the chapter *Interface design for the elderly*). These studies helped me to establish more clearly the direction of research, what questions to ask and to find out other opinions on the ratio between ease of use and the number of functions assigned to the application.

In the chapter *Rules for mobile application design* we looked for established methods by which other application developers reach the desired result. Here are some important steps in this process: defining the application, accessibility, dialog structure, how to use metaphors.

In graphical interface design, as in any design project, the documentation part in which we analyze and learn from “the best" is one of the essential steps in achieving the goal. The chapter *Guide for the iOS interface* contributes to the completion and systematization of the information necessary for the design of the *Simple Phone* application. Here are described the specific elements of iOS (operating system) from Apple point of view, in order of appearance: branding, colors, typography (font), icons and graphics, terminology and forms, integration of an application with iOS, application extensions, notifications, sound, VoiceOver, edit menu, undo and redo, keyboards and data entry views, bars, content views.

All this information and research directions were a theoretical support to design and develop the interface design of the *Simple Phone* application. The design of the application is described in the chapter *Simple Phone, application description.*

Simple Phone is an application that simplifies the calling function of smartphones. It is intended especially for people who have difficulty adapting to the use of the smartphone.

It was designed primarily for the elderly but can be used by anyone who wants a simpler way to call.

In the interface design, the user is the starting point of the whole process. In order to respond appropriately to the users' needs, I conducted several interviews within the category I was targeting. The purpose was primarily to discover specific, unexpected

information about how to use the phone, called insights into the language of marketing. The analysis of the answers is in the *Simple Phone, application description* chapter, and the original interviews are attached at the end of the thesis.

When establishing the main functions, I tried not to complicate the application with too many functions. For *Simple Phone* we considered that the functions of phonebook (with call button) and dialing with the numeric keypad are sufficient. They should be translated into a form that is as easy to understand and use as possible; the application should be simple and clear; require a minimum number of steps to dial.

Simple Phone icons are designed to be understood by users in the target segment. Some are customized, and others are similar or specific to iOS to allow them to be upgraded when the iOS is upgraded.

Regarding the appearance of the interface, one of the problems I looked at was: to what extent the graphics should be entirely original or if not, to what extent to approach the appearance of the OS (operating system), with adaptations specific to my application. I have adopted a mixed solution, in which the phone interface part (address book and keyboard) is customized and the technical part (application settings) is subject to iOS rules.

The calendar is the most important function of the application and I built it considering that: it is easy to use, the contacts are recognizable and visible, the interaction with the interface is simple and consistent in terms of movements and position of the buttons.

The contacts can be customized, depending on preferences or to compensate for certain diseases specific to elderly users (sight, memory etc). These interface variants are differentiated by text size, color and image.

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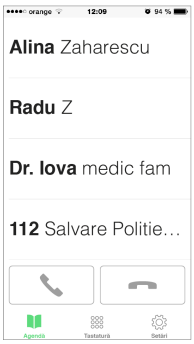

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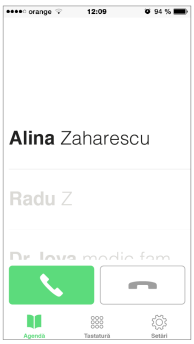

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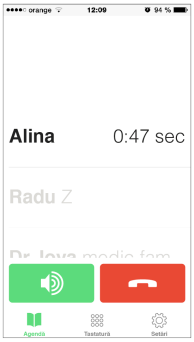

3 Apel si convorbire

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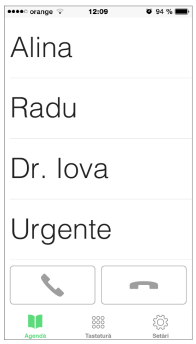

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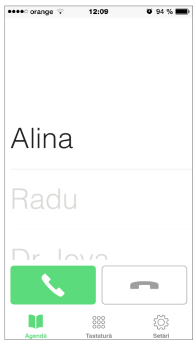

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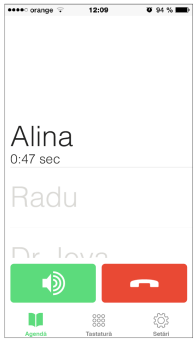

3 Apel si convorbire

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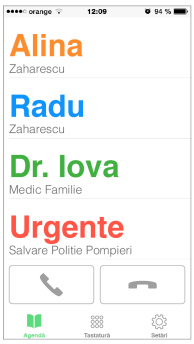

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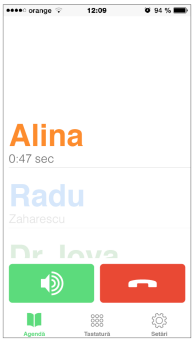

3 Apel si convorbire

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3 Apel si convorbire

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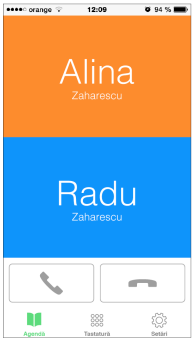

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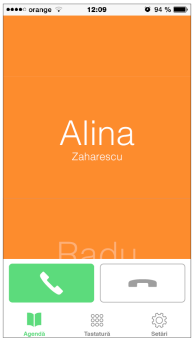

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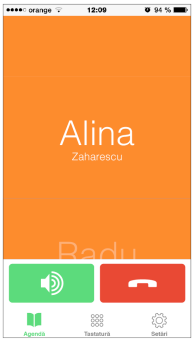

3 Apel si convorbire

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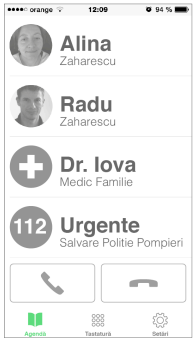

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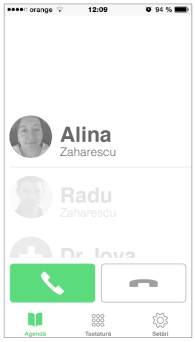

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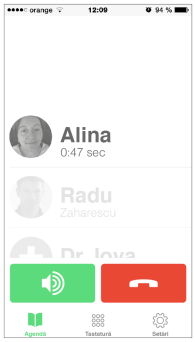

3 Apel si convorbire

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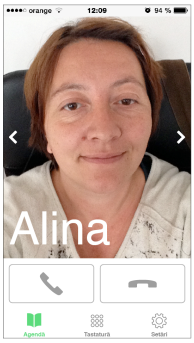

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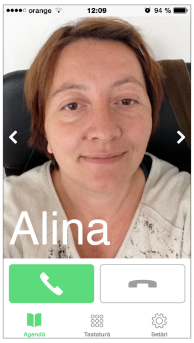

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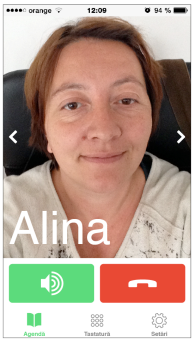
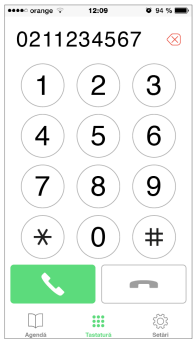


3 Apel si convorbire

In addition to the phonebook, another option is to use the number buttons. The functions and appearance is similar to *Keypad* (iOS app), but not identical.

VAR 3 key 3

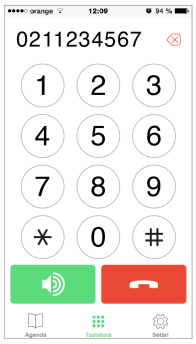
1 Vizual pornire



2 Formare numar

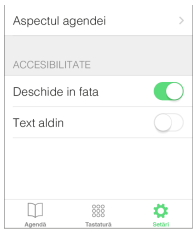
For visibility, compared to a normal telephone keypad, I gave up the alphabet on the numeric keys. For the same reason, the button numbers are thicker compared to iOS.

Below the numeric buttons are the call buttons. These are the buttons specific to the entire *Simple Phone* application and were presented in the *Pictograms and Buttons* subchapter.



3 Convorbire in curs

A secondary function of the application is *Settings*. This section follows iOS graphical rules and is more complex in terms of interface. For this reason, *Settings* feature is not addressed directly to the application user, and can be used by any user familiar with the operating system. The settings allow you to customize the application in the following ways:



- editing the phonebook - contact names, hierarchy, color;
- phonebook layout - agenda pagination templates;
- launching the application;
- bold text.

The application logo is a synthetic representation of the application. When drawing it, I intended to:

- transmit the basic functions of the application,
- be as easy to understand as possible, including the small size (phone icon).

The design for UI (user interface) is similar, as a process, to other areas of design: start from the idea, continue with the research (target group, competition, technologies), explore solutions, make the prototype, perfect it if necessary and realize final product.

The differences in the UI design are related to the technical aspects: knowledge of the host operating system, ergonomics of interaction with the device and programming.

In this thesis I pursued a specialized objective, but I also carried out an extensive part of research, which provides both context and general theoretical support for the field of interface design..

KEYWORDS

User interface
Mobile app
Senior users
Smartphone
Design
Simple Phone