# A Task-Oriented User Interface for Smartphones

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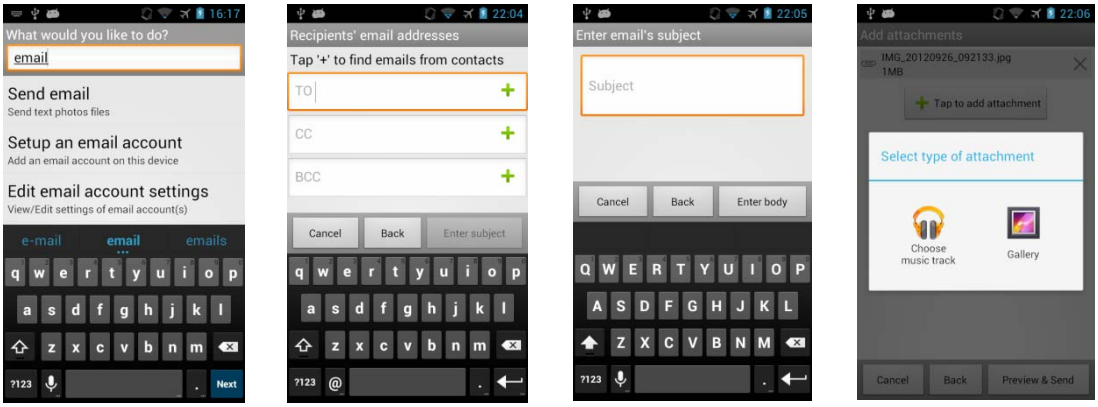
The current interface for users to interact with smartphones is oriented around applications. Smartphones are increasingly added with more features which enable many useful applications (e.g., Maps, Email, Camera, Bluetooth, NFC, Wi-Fi, Tethering hotspot, VPN, GPS, Gallery, Music Player, Contacts, Web Browser, Messaging, Barcode Scanner, Calendar, Calculator, and much more). According to a report published by Nielsen in 2012[1], the average US smartphone owner has 41 applications on his/her phone. When more applications are installed on a smartphone, more tasks become possible on the phone. However, the increasing number of applications could become cumbersome for users, especially because smartphone users are often occupied by real-world tasks. Currently, to accomplish a task, a user must go through a series of screens and menus to find the right application and to access a specific target within the application.

Our research [1] instead orients the user interface for smartphones around tasks which a user can accomplish on the phone. We call this user interface a *task-oriented user interface*. Our general idea is that, smartphones can present a searchable list of possible tasks to the users (see Fig. 1a). The system uses XML-based predefined specifications of task models to generate user interfaces and to provide users with step-by-step instructions for accomplishing those tasks. Fig. 1b, 1c, and 1d illustrate several user interfaces which instruct the user to accomplish a sending email task.




(a) (b) (c) (d)

**Fig 1**. A Task-oriented user interface for smartphones. (a) is a task list. (b), (c), (d) illustrate the step-by-step instructions for accomplishing a task of sending an email.

We've designed a basic RNC[2] schema for specifying task models[3]. We've developed a task server to validate and store task models. The system will update the task list on the smartphones automatically when the task server updates task models (e.g., add, modify, and remove a task model).

Our research aims to evaluate the usability of our proposed task-oriented user interface for smartphones. We are completing the prototype implementation of the system which can support a number of tasks. Then, we will conduct a user study to evaluate our approach. The participants will be asked to accomplish a number of tasks on smartphones with and without our task-oriented user interface. We will measure and compare the times, the errors, and the numbers of clicks which a participant produces when he/she executes each of the tasks.

## REFERENCES

**Vo, C.C., Torabi, T., & Loke, W.S.,** TASKCOM: From Task Models to Task-Oriented User Interactions with Smart Environments, *Submitted for review to Journal of Pervasive and Mobile Computing*, 2012.

[1] http://blog.nielsen.com/nielsenwire/?p=31891

[2] http://relaxng.org/

[3] The latest RNC schema and samples of task models can be found at http://homepage.cs.latrobe.edu.au/ccvo/task/descriptions/