Smart VideoCooKing: A Multimedia Cooking Recipe Browsing Application on Portable Devices

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ABSTRACT
This demo presents “Smart VideoCooKing” which is a multimedia cooking recipe browsing application on portable Android devices. A multimedia cooking recipe is a cooking recipe where each cooking operation is associated with a corresponding video clip describing it, aimed to facilitate the understanding of cooking operations. In combination with third-party applications, “Smart VideoCooKing” provides useful functions such as playing cooking video clips describing cooking operations quickly, searching information of ingredients easily, and reading aloud cooking directions.

Categories and Subject Descriptors
H.5.2 [Information Interfaces and Presentation]: User Interfaces

General Terms
Design

Keywords
cooking support, multimedia cooking recipe

1. INTRODUCTION
Recently, the number of cooking recipe texts posted on the Web is increasing. For example, “Cookpad” is a Japanese recipe-based social networking service where users can post original recipes and also report results and comments. However, most of such cooking recipes on the Web are text-based and do not have enough visual descriptions. Although some cooking recipes may be accompanied with images, they are not always sufficient for the understanding of individual cooking operations.

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Focus on this point, we have proposed the concept of synthesizing a multimedia cooking recipe from a text-based recipe [1]. As shown in Fig. 1, a multimedia cooking recipe is a cooking recipe where each cooking operation is associated with a corresponding video clip describing it. Compared with an existing text-based cooking recipe, the multimedia cooking recipe makes each cooking operation more understandable with a visual description.

On the other hand, in recent years, there are many users of smart phones and tablet PCs such as Android-based phones and iPhone. Modern smart phones (especially Android-based phones) are highly customizable for various purposes, and have excellent performances in portability and operability. In addition, smart phones enable us to watch videos on the Web easily without bulky devices such as desktop or notebook PCs. YouTube is one of the most famous video-sharing Web site, and provides us with numerous kinds of videos including cooking videos. Motivated by the above infrastructures, we implemented “Smart VideoCooKing” for portable Android devices. Such devices are suitable to support cooking activities, since they can be easily placed in a cramped kitchen (e.g. put on a wall). We hope that this concept forms the basis for a future cooking style.

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1 Currently at Brother Industries, Ltd., Japan.
### 2. DEMONSTRATION

“Smart VideoCooking” mainly has the following functions.

- Recipe search across recipe-based social networking services (in combination with a Web browser)
- Quick search of information about ingredients which appear in the cooking recipe
- Automatic association between each cooking operation in the cooking directions and video clips describing them
- Speech synthesis of the cooking directions (in combination with a text-to-speech application)
- Easy search of video clips describing the cooking operations which appear in the cooking recipe (in combination with a YouTube video player)

The view transition of “Smart VideoCooking” is shown in Fig. 2, and screenshots of the views (a)–(f) are shown in Fig. 3. First, a user inputs keywords, and chooses a cooking recipe provider (Cookpad\(^5\) or “Today’s cooking for everyone,”\(^5\)) (Fig. 3(a)). Next, the user selects a cooking recipe from the search results (Fig. 3(b)). Then, the user can browse the dish image and the recipe text including the ingredients, the cooking directions, and so on. From the ingredients list (Fig. 3(c)), the user can quickly search information about the ingredients which appear in the cooking recipe via an external Web browsing application. From the cooking directions (Fig. 3(d)), the user can select a cooking operation. After selecting, the user can choose an ingredient-operation pair in the dialog (Fig. 3(e)), and selectively watch video clips describing the cooking operation via an external video player such as the YouTube application (Fig. 3(f)). In addition, when the “Play” button for each cooking direction is pushed, the corresponding direction is read aloud by speech synthesis like the Nintendo DS software\(^6\).

This process is realized by applying a morphological analysis and grammar-based association to the descriptions of the ingredients and the cooking directions. Although this demo application is currently implemented for Japanese cooking recipes, the approach should be able to be applied to other languages.

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