Making Recipes in the Kitchen of the Future

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INTRODUCTION

A kitchen is not just a place of labor. Throughout history, the activity of preparing food has been accompanied (and even used as an excuse for) social interaction and the development of social bonds. Modern lifestyles and convenience foods have reduced the time and effort required for cooking, but at the same time, have lessened the opportunities for interaction. Our contribution is to demonstrate how a "Kitchen of the Future" can use technology to re-introduce such social interactions, and also enable entirely novel forms of communication mediated by computer. Our kitchen supports the automatic generation of web-ready recipe pages, with other possible applications including actual cooking assistance, and communication or education across distances, cultures and generations.

KITCHEN OF THE FUTURE

The Kitchen of the Future is a computer-augmented kitchen environment that embeds various computing elements into a standard kitchen unit, as shown in Figure 1. Our kitchen has four work areas comprising a sink, cooking stoves, and two preparation spaces. In each work area, we have installed a liquid crystal display (LCD), a camera, a microphone, and a foot switch, and have connected them to a computer system and the Internet.

We are using our kitchen to investigate the new form of interaction and communication facilitated by this environment. As a first application, we have concentrated on automating the creation of web-ready recipes. The

Figure 1. Our Kitchen of The Future. Each work area has an LCD, a camera (the hemispheres under the cupboards), a microphone, and a foot switch (the wooden panels).

Internet has proved popular for the sharing of cooking experiences, and there are recipe-based WWW communities with a million users per month (for example, www.cookpad.com). Our system significantly reduces the difficulty of creating recipe pages while cooking. When a user operates one of the foot-switches, images of the cooking workplace are captured with voice memos into a multimedia recipe.

There is related work [1] that also uses cameras and a (single) display in the kitchen. However, this focuses on the "labor" aspect of the kitchen space, using technology to help cooks remember their actions *despite* interruptions from others. In contrast, we address the *lack* of social interactions in the modern kitchen and try to support it with technology.

We plan to continue exploring the further opportunities for communication and interaction offered by this environment, such as (1) aiding with cooking task scheduling and sub-task instruction using the multi LCDs, (2) online discussion of recipes or cooking techniques between family members or friends at a distance, and (3) educational applications allowing people of different spaces/cultures/generations to communicate through cooking.

REFERENCES

1. Tran, Q., Mynatt, E. "What Was I Cooking? Towards Deja Vu Displays of Everyday Memory." Georgia Institute of Technology Technical Report GIT-GVU-TR-03-33, (2003). http://www.cc.gatech.edu/gvu/research/tr/tr03_33.html