

CastOven: A Microwave Oven with Just-in-time Video Clips

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ABSTRACT

In this paper, we propose a novel microwave oven called CastOven. CastOven is a microwave oven with a LCD display that enables people to enjoy videos while they are waiting for the completion of cooking. Current media contents force us to adjust our schedules to enjoy them. Media contents, especially movies, take specific time durations to watch them, but it is not easy to squeeze in time to do so in daily life. The system identifies the idle time in daily life and delivers an appropriate amount of media content to the user to enjoy during their idle time.

Author Keywords

Ubiquitous Computing, Everyday Computing, Interaction Design, Home Appliance, Mash-up, Context-Aware,

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, Human Factors

INTRODUCTION

Current media contents force us to adjust our schedules to enjoy them. Media contents, especially movies, take specific time durations to watch them, but it is not easy to squeeze in time to do so in daily life. On the other hand, there are abundant amounts of movie content available today on the Internet (e.g. YouTube). It is getting more and more difficult to enjoy these abundant amounts of content in the traditional way (explicitly select a content and allocate a time for it), and we need new ways for enjoying these contents.

We are proposing a system that automatically delivers media content for the idle time in daily life as an alternative way of enjoying digital media (fig.1). The system identifies the idle time in daily life, such as when the user is waiting for a train or the completion of automatic washing, and delivers an appropriate amount of media content to the user to enjoy during their idle time. This approach frees the user from manually selecting target media content, and also frees the user from allocating specific time for it.

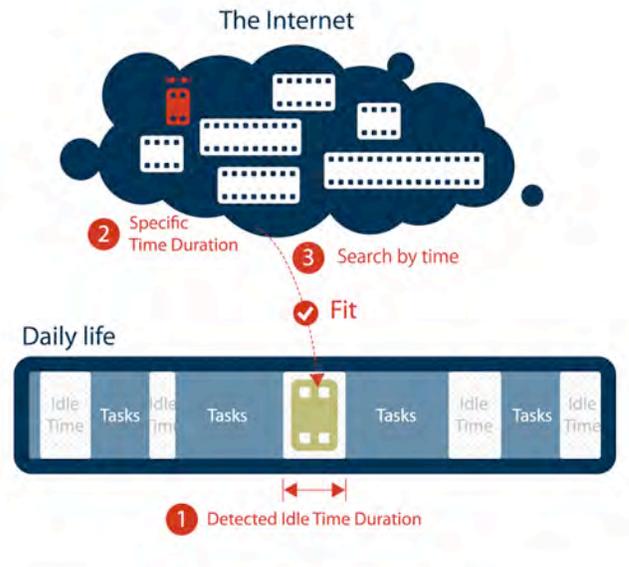


fig 1 Concept: Automatically delivers media content for the idle time in daily life.



fig 2 CastOven is microwave oven with built-in LCD display on door. The system reads the cooking time from the control panel and retrieves a corresponding video from YouTube.

We present the CastOven as a prototype system to introduce the above vision. CastOven is a microwave oven with a LCD display that enables people to enjoy videos while they are waiting for the completion of cooking.

Various information friendly home appliances have been proposed in the past. ZUNE is a bread toaster that enables the user to print pictures with a burn mark on the bread [1]. AwareHome is a life-oriented smart home project [2]. They have proposed some appliance prototypes. A kitchen with information technology was proposed in [3]. Our work is unique in that we focus on the idle time in a daily activity.



fig 3 Images of use of CastOven. 1) The user puts food into the oven. 2) The user sets the cooking time. 3) The system shows a random video clip whose duration is equal to the cooking time. 4) The end of the video notifies of the completion of cooking.

CASTOVEN

CastOven is a microwave oven with an LCD display (Fig. 2). The user cooks food just like with a standard microwave oven (Fig. 3). The user first puts a cup or dish into the oven. Then, they set the cooking time using the control panel and push the start button. The CastOven then plays a random video from YouTube whose duration equals the cooking time. The user enjoys the movie while they are waiting for their food to finish cooking. The end of the movie is a notification that the cooking time has finished. The user then takes their food from the oven.

Hardware:

The CastOven is a commercially available microwave oven (M-E10B) with a 10.4-inch LCD display (Fig.4) affixed to its door, and a set of speakers. This microwave oven has a control panel to set the cooking time.

The system reads the cooking time from the control panel and sends the information to the host PC via a serial

communication. The LCD display is also connected to the host PC.

Software:

The CastOven software running on the host PC receives the cooking time from the control panel, retrieves a video from YouTube, and shows the video on the LCD display.

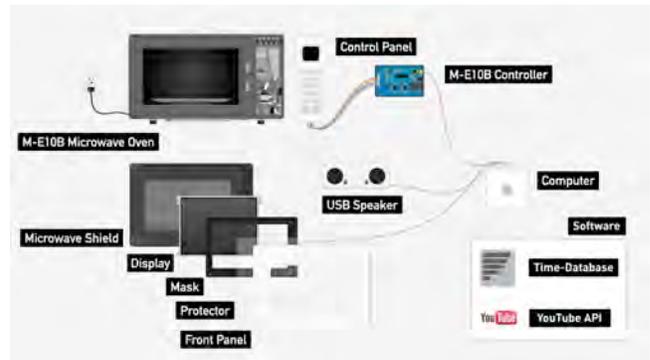


fig 4 System composition of CastOven. CastOven is embedded LCD display and speaker. Software requests YouTube API and collects movies informations.

It uses YouTube API to obtain the movies, but YouTube doesn't support the search by the given duration. The duration is only available after we retrieve the movie. We, therefore, constructed a Time-database of movies indexed with their durations in a pre-computation. An entry in the database consists of the movie URL, movie duration, title, and thumbnail URL.

Our current database contains movies whose duration ranges from 5 seconds to 10 minutes. The system identifies a set of movies whose durations are within ± 3 seconds of the cooking time and randomly picks one of them.

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