Kitchen Planner

Abstract
In this paper, we propose a touch screen multi-purpose device to assist user with cooking and increase productivity. Since a woman spends a significant amount of time in the kitchen daily, Kitchen Planner is there to make her time more fun and help her in her daily kitchen activities.

Our work focuses on several areas; including developing a robust algorithm which will take user preferences as input and suggest recipes. The algorithm will not just have to do a keyword matching but will also take into account past heuristics to suggest the best possible set of recipes.

We also describe in this paper, other features and functionality of Kitchen Paper like the grocery list, kitchen timer, and games to keep children engaged.

Keywords
Kitchen Planner, kitchen, recipe advisor, timer, wireless, games, grocery list

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.
Motivation
With kitchens becoming more and more hi-tech every day, there still does not exist a device which provides a complete solution to the daily kitchen activities. Most of the time is spent thinking what is it that needs to be cooked. Once decided, there is then need for cooking instructions. Also, people may decide what to cook based on the nutritional values of the ingredients. There is also a need for a grocery list that can be printed easily so the users know what to buy when they go shopping next time. While mothers are busy cooking, they always are in need of something which can keep their children engaged in the meantime. Also is a need for wireless device which can be used to control kitchen appliances like cooking stove, refrigerator.

Requirement Analysis
We did a quick survey to know what features people would like to have on a device. The features most demanded were a recipe advisor and grocery reminder. Following closely were nutritional value, universal remote and kitchen timer.

There were thirty two participants involved and the following five features were most sought for from the list of nine items.

All the top features have been proposed in the Kitchen Planner.

The Device
Kitchen Planner is a touch screen multi-purpose device. A smooth touch screen will ensure better usability while a wide bright LED will enhance readability. This ensures that the product can cater wide age groups.

The device also will be equipped with wireless technology. This makes it more powerful as it can now be used for various functionalities like wireless printing and controlling other kitchen appliances and switches.

The device can run on power but will also have rechargeable batteries which will make it a lot more portable.

The device will have two output forms, video and voice. The advantage of having voice is that the user can simply listen to cooking instructions while they are busy cooking.
Features

Recipe Advisor
The user will select a few preferences listed below based on which the Kitchen Planner will come up with different suggested recipes, their nutritional information and cooking instructions [1]. The system will show any videos if available.

- Ingredients like fruits, vegetables etc
- Cooking time
- Texture – Gravy, dry, saucy etc
- Taste – Spice, sweet, tangy
- Specific Nutrition value desired
- Output type – Text, Video

Grocery List
The system can store several grocery lists which can be updates entering the items to the system or sending them wirelessly. Once done, the grocery list can be printed using a wireless printer.

Universal Remote
Since Kitchen Planner is portable and will be around the kitchen all the time, it can be used to control other kitchen appliances. This means, when not around, it can be set to switch of the cooking range or lights after a certain time. Additionally, it can be used to provide ambience control [2].

Kitchen Timer
It is equipped with a stop watch and timer. Once the alarm sets off, the powerful speakers will sound to remind the user of the event. Thus is can prevent over cooking or mishaps caused due to negligence.

Interactive Games
While the mother is busy cooking, it is very essential to keep the kids engaged in some activity so they do not disturb. With games like matching the fruit image with the fruit name, the kids are not only kept busy but also learn while they play. Mothers will be happy to have them around.

figure 2. The Prototype
Technology
An ideal platform for developing this device is Android operating system [3]. It is very powerful, and provides good support for multi-touch.

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Example citations
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