

# CookKing: A King of Healthy, Fun and Social Cooking

## ABSTRACT

In this paper we present a mobile application 'CookKing' that aims at making cooking easy, healthy, fun and social. CookKing targets at young male professionals with a busy lifestyle and stimulates cooking for maintaining a healthy lifestyle. The early results from the evaluation show that users are willing to espouse CookKing because it certainly makes cooking easier, enjoyable and particularly social.

## Categories and Subject Descriptors

H.5.2 [User Interfaces]: User Interfaces

## General Terms

Design, Mobile applications, Human Factors

## Keywords

Cooking, social networks, competition, prototyping

## 1. INTRODUCTION

During their student period, a lot of students move out of their parents' homes and start living in shared apartments where they have to take care of themselves. One thing that is affected by this move is their cooking habit. They have to start preparing their own meals and most of the time the students are neither good at it nor motivated about it, which often results in an unhealthier lifestyle. Young males particularly face this problem. One study [2] indicates that men cook far less than woman and find cooking difficult, boring and time consuming. Another study [1] indicates that men of 25-39 years old cook 1:18 hours a week, woman 4:01 hours a week. When these young students graduate, their life becomes even more hectic since their careers become their primary concern, which results in a continuation of their former unhealthy lifestyle. This unhealthy lifestyle causes many troubles especially overweight [3], which has become an increasing problem in many Western countries [4] in the last few decades. Making the cooking process easier and more pleasant can motivate people to cook more often at home which will result in a healthier lifestyle and will prove to be a preventative measure for reducing overweight problems.

There are a number of commercial applications and research initiatives (e.g. recipe databases, instruction videos, RFID based kitchen devices and simple games, etc.) for solving this problem. Many of these solutions are either too simple and the 'functional' design of these applications do not motivate people to start cooking for themselves or they are just too complicated and require an expensive infrastructure. Furthermore, a number of

such cooking/diet control applications primarily focus on people who already have different health problems. There are relatively less number of applications for assisting normal adults in cooking and maintaining a healthy life style.

## 2. USER STUDIES

In order to get to know more about the cooking habits of our user group we interviewed 11 males (about to finish their studies or in the first year of their job, avg. age 26). These contextual interviews were conducted in the supermarket during shopping (first part) and at home during cooking (second part). The major findings are as follows: 1) More than half of the participants eat fast-food dinner twice a week on average. One participant gave a funny but meaningful remark: "Sports centers are there for a reason...eat whatever you want and then burn it. Let the echo system rock". We observed this attitude in four other participants. They try to compensate their bad eating habits by doing extra sports or yo-yo dieting. 2) Seven participants reported that during weekdays they prepare a quick dinner (e.g. sandwiches, rolls, etc.) and they do not consider it 'cooking'. One participant said: "Cooking is an activity which takes time, last for 'many many' minutes and you enjoy eating what you have cooked. Preparing sandwiches is not cooking". 3) Only three participants showed an interest in cooking more than thrice a week. 4) 5 respondents think that they are eating healthy food or at least trying to eat healthy food. 5) One major reason for eating out is reluctance to cook something at home even when they have sufficient time. 6) As expected majority of the participants reported that they do not like to cook. Eight participants reported that cooking is a boring activity and four participants even mentioned that the cooking is a 'waste of time'. 7) Participants mentioned that it is very hard to prepare something quickly based on their existing stock. One participant said: "What if I have no onions or tomatoes...can I still prepare something good based on what I have? No I cannot! May be it is possible... but then I do not know what?". 8) They also mentioned that there is no one out there to like or dislike what they have cooked. 9) All respondents indicate that it's hard to come up with something new every time, which is delicious, healthy and easy to prepare.

## 3. DESIGN & IMPLEMENTATION

The main purpose of 'CookKing' is to motivate and assist young professionals in maintaining a healthy life style by guiding them through the cooking process and making this process easy, social and enjoyable. The main feature of the 'CookKing' application is that it will run on a mobile phone and will assist users while shopping, cooking and sharing. The application can also run on a big screen (monitor, TV) where all relevant information is presented on the big screen and relevant controls remain on the phone. For making the cooking process *easy*, a recipe database is included in CookKing. Users can easily browse or search recipes and they can also get suggestions based on their preferences (such as fish-lover, vegetarian etc.). When a recipe is selected, all

relevant products used in this particular recipe can be added easily to a shopping list. Users can add new recipes any time using a special format. During the actual cooking, users get step-by-step audiovisual instructions as well as the correct timing throughout the process. If a user spends more than the required time in any particular step then the timer indicates negative time and the system informs the user that he/she should move on to the next step.

*CookKing* makes cooking *healthier* by including nutrition values of every recipe selected by the user. Every user gets its own health profile and users can add and track daily food intakes. Keeping the user's choice in mind, the application suggests recipes that contribute to a healthier profile. If someone consumes a lot of fats during the first few days of the week then the application will suggest low-calorie meals for the rest of the week.

*CookKing* makes cooking more *social* by introducing a mobile cooking community. Every user has its own profile where they can add friends and share recipes. Sharing a recipe can be done via a direct push (friend immediately gets a notification) or via web (shared space for all friends). Users can follow activities of peers and see what others have eaten in the last week. The application also fully integrates with existing social network sites such as *Facebook*. Once a dish is prepared, users can add its picture and relevant details in *CookKing*. *CookKing* can immediately share this information on the *Facebook* profile.

*CookKing* makes cooking more *fun* by introducing a number of virtual and actual competitions. During these competitions people (connected via *CookKing* social network) prepare a meal based on their own recipe and share a picture, recipe or even the actual dish with other users. Users can vote on the others' creations (more points for a new creation) and the winner is crowned '*CookKing*'.



Figure 1: Main screen (Left), health profile (right)

We first developed a low fidelity prototype (with paper, pencil, cardboard, wood etc.) and tested it with 6 users. This session was very interesting specially the last part where 4 participants participated in the design workshop and suggested different features and interface elements for the *CookKing*. Later on, we developed our final prototype using iPhone development kit. The online *CookKing* portal was designed using dynamic HTML.

#### 4. USER TESTING

In the first phase of user evaluations, we invited 4 participants in a common kitchen. In the second phase, we visited 5 participants (Avg. age 25 years) in their homes and they tested this application in their respective kitchens. All participants were familiar with smartphones. We created 12 tasks for testing four different dimensions of cooking (easy, healthy, fun, social). After every task, participant filled a small questionnaire. At the end of each evaluation, there was a general discussion session.

## 5. Results

Almost all participants completed their tasks without problems. Only in two cases, participants were stuck and little help was required to continue. It was due the fact that participants' mother language was Dutch but the application was designed in English. Participants had no problem in using the iPhone and they reported that the touch screen interface was extremely convenient. Participants were much more enthusiastic while using this application in their own kitchens. Seven participants reported that this application will definitely motivate them and they will start cooking at home more often. Three main reasons for this increase in motivation were: 1) Convenience to build their shopping lists (different lists for different stores) based on favorite recipes, 2) easy to follow step by step audiovisual instructions with exact timers and 3) Sharing their prepared dishes (one participant called it "masterpieces") on a social networking site and commenting on each others' dishes. In general, participants appreciated all four dimensions of the application. Participants liked the idea of push-based recipe sharing and found it pleasantly persuasive. They really liked commenting on each other's dishes especially on *Facebook*. One participant said: "Now it seems that I am no more cooking for myself alone. There are so many people out there to look at my *ART* and appreciate it. It is a completely new experience." All participants also appreciated that with one click they can add all ingredients of their favorite healthy recipe in their shopping list. One participant said: "I think it is more than a cooking helper. It supports me throughout the cooking process...from thinking to buying to cooking. This effortlessness motivates me and motivation is what I need." Finally, five participants really liked and explicitly mentioned the 'day and week planning' feature. Using this planner, participants can plan their daily/ weekly food intake (starter, main course, desert, breakfast and lunch etc.) and based on this planning, their weekly shopping list is automatically generated. They also get recommendations for balancing their diet over the week.

During the tests, we also found that the search function was not easy to understand. The search results were not categorized properly and users were not sure where to click after finding many similar items. Finding a particular recipe by the help of the search took most of the time.

## 6. CONCLUSION AND FUTURE WORK

In summary, users appreciated the idea of *CookKing* and they are willing to use this application in a long run. As compare to other cooking applications, they found *CookKing* easy to use, social and especially enjoyable. In future, we would like to develop a fully working version of this application and test it in a longitudinal study.

## 7. REFERENCES

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