



Smart Kitchen Assistant

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Synopsis

The most common question in any household is "What's for dinner?" Up until now, for someone to determine what they should cook, it has been a time consuming process of checking what food they have in stock in the cabinets, finding a recipe in a recipe book, and then going to the store to pick up the missing ingredients. This headache becomes even more cumbersome if a member of the family has dietary restrictions, such as diabetes, requires a low sodium diet, or is attempting to lose weight. Weeding through recipes and keeping track of what is eaten is almost impossible. In addition, if (as most families are), they have a hectic schedule of driving kids to and from events, and slaving away at the office, they have little time to plan ahead, and clip coupons that could help save themselves significant money.

The solution to this problem is the Smart Kitchen Assistant (SKA). This device will help revolutionize the kitchen, by keeping track of items purchased, provide recipes that both adhere to dietary restrictions, and make full use of the food items you already own. In addition, by knowing what your purchasing habits are, and what you have already consumed, the Smart Kitchen Assistant can gather coupons for you from online sources, and develop a shopping plan based on a grocery store layout to minimize the time spent in the store.

System Design & Architecture

The Smart Kitchen Assistant will be designed so that it can be embedded into the kitchen of a house without the feel of a large, clunky computer system. By being built inside of an attractive picture frame that is hung on the wall, it will allow for the system to function as a digital picture frame, and display artwork when the system is not in use for it's primary function.

Once dietary concerns are added into the Smart Kitchen Assistant, it will take them into account while looking up recipes online. Selected recipes will be bookmarked for easy later retrieval, and the dietary information, such as calories, sugar, and fat content will be stored. This recording of what is being eaten will allow for easy integration with 3rd party nutrition and fitness programs, such as the new Xbox 360 Kinect Fitness games "Your Shape Fitness Evolved Kinect", or "The Biggest Loser Ultimate Workout Kinect".

An embedded scanner will allow for easy Optical Character Recognition (OCR) reading of grocery store receipts, so the owner does not need to manually type in what was purchased. In addition, the scanner will record manufacturer coupons, and coordinate their use for future purchases.

The Smart Kitchen Assistant will be able to pull information such as recipes and recommendations down from multiple online sources, and combine them with pre-existing likes and dislikes of the family to make recommendations. In addition, it will search online to gather coupons from manufacturer's websites, grocery stores, and popular coupon forums, saving family significant money.

Management of the Smart Kitchen Assistant will be provided through a large touch screen, which allows for interaction with the system, flipping through recipes, managing dietary needs, and posting selected recipes to blogs and social networking sites such as Facebook. In addition, interaction with the system can be performed through voice commands, allowing someone in the kitchen to get their hands dirty baking, and still work with the Smart Kitchen Assistant.

When you are ready to go grocery shopping, you can print a shopping list with a pre-optimized store map, so you know exactly where everything is in the store. If you are not at home, you can simply email the system, and it will reply with your shopping list, and a digital copy of the coupons it has collected for you. If you do not want to deal with the hassle of shopping at the store yourself, you can easily submit your shopping list to any number of integrated grocery shopping services, such as those provided by Giant, Safeway, or Harris Teeter.

System Input

The Smart Kitchen Assistant will utilize multiple input mechanisms to collect data and make recommendations for meals.

Touch Screen: The touch screen is one of the main interfaces for the Smart Kitchen Assistant, and will allow for quick viewing of recipes, food inventory, and the updating of personal dietary preferences. When not in use, the touch screen will default to displaying works of art, so as not to appear unattractive in a kitchen.

Microphone: In addition to being able to control the Smart Kitchen Assistant through touch, the system will also allow navigation through simple voice commands, enabling the family to keep their hands busy with dinner, and still work with it.

Scanner: The use of a small document scanner embedded in the Smart Kitchen Assistant will allow for the easy recording and inventorying of purchased items in the store, as well as the coordination of scanned in coupons. In addition, the device can be used to read in and digitize and record favorite recipes that were handwritten by Grandma, or clipped from a magazine.

Internet: Because you are not always at home right before you decide to go to the store, the Smart Kitchen Assistant will allow you to email it, and request either the ingredients for a specific recipe, or an entire shopping list. The requested information, along with scanned images of any coupons will be sent to your Smartphone. This enables any member of the family to easily swing into the grocery store on the way home from work and pickup exactly what is needed.

System Output

The Smart Kitchen Assistant is designed so that interaction with the family is extremely simple.

Recipe Presentation: A family member can browse through both recipes selected by the SKA System, and ones previously saved or scanned in. Recipes can be both displayed on the large interactive screen, allowing for easy readying to see what ingredients you need to grab from a cabinet, or can be read aloud, freeing you up from standing in front of the screen so you can get your hands dirty. If you prefer to work from paper, or are taking a favorite recipe to a friend/relatives house, you can simply print it out and take it with you.

Printed Shopping Lists: By printing either the ingredients required for an individual recipe, or a list of items that need restocking from the pantry, the Smart Kitchen Assistant makes grocery shopping a breeze. By combining this shopping list with a set of coupons clipped from online, and scanned into the system, the SKA will save the family money at the store. A printed store map, with each item on the list highlighted will help save time browsing up and down the aisles.

Email Integration: If you are away from home, the Smart Kitchen Assistant will allow for access via email, providing lists of ingredients for recipes, entire shopping lists, and even scanned images of coupons that you can access at the grocery store from your Smartphone.

Store Integration: Through a combined use of web services and partnerships with various grocery stores and merchants, a family can easily submit all or part of their shopping order to any number of grocery shopping services, such as those provided by Giant, Safeway, or Harris Teeter. Many of these companies offer both home delivery, and pickup of pre-ordered selections, making running through a crowded market a thing of the past.

Conclusion

As can be seen, the Smart Kitchen Assistant is the perfect answer to the timeless question "What's for dinner?" By easily managing your food inventory, and dietary needs, as well as finding and leveraging coupons, the Smart Kitchen Assistant is able to provide a family with healthy, cost effective eating options. The ability to interact with the system from anywhere via email enables you to spend more time with your family, and less time running around.