Chapter 63
IoT for Hospitality Industry:
Paperless Buffet Management

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ABSTRACT

Creating and updating meal tags, printing them on small-sized papers raise the costs, cause workload and affect the service quality negatively at the hotels with all-you-can-eat buffet system. Over the last few years, we have seen that many hotels started to make use of tablets to improve the service quality, decrease the costs, provide customers ability to order foods, make reservations, manage their rooms, etc. Going paperless and including more features by adopting new technologies increase the quality of service, help customer's and staff's decision-making processes more effective, improve customer and service personnel experience. In this chapter, authors designed and developed a flexible, cost effective, easy-to-use, customer-friendly and staff oriented paperless buffet management system for the restaurants that have all-you-can-eat buffet. Through this system, they aimed to achieve enhanced customer service, increased efficiency and customer satisfaction; save time, paper and printing costs; provide environmental benefits and efficient buffet management.

INTRODUCTION

A buffet is a system of serving meals by placing them on separate serving tables at restaurants and cafés. Guests are given plates and can approach the serving table to take as much food as they wish. A buffet table often consists of desserts, savory foods, soups, sea food, white and red meat. Many five-star hotels utilize this system for efficiency and simplicity of serving. Currently, most business with buffet systems use written, paper-based solutions to prepare menus, fulfill orders, and present them to their customers.

Prepared meals are placed on buffet tables according to their categories, and the service staff informs the customers about the meals (calorie, allergens, explanations in different languages) by placing paper-based labels next to the them. Guests choose their meals by visually seeing the dishes and reading the labels, selecting the foods that appeal to them. Buffet menus are determined according to the number of guests and the cost, variety and amount of the dishes. These issues are decided in advance and preparations are made accordingly. During peak hours, the meals can be consumed quickly, often resulting in a change of menu items, and requiring the serving staff to update the paper-based labels on the buffet. Current buffet management systems have not adapted to the digital era and still rely on the paper-based methods. These methods are inefficient, and often unreliable as labels are often forgotten, not changed, or mistaken and food items are being rotated in and out of the buffet while serving staff are dealing with a high volume of customers. This information is not reportable, classifiable, and filterable since they are in hand-written text form, reducing the efficacy of the service provided to the customer.

As technology becomes more important and strategic, the pressure on the hospitality industry to remain competitive is increasing. New services and products are being developed to help maintain the competitive edge. These improvements should be monitored (Nyheim, McFadden & Connolly, 2005; Wang & Qualls, 2007).

Serving with a buffet is a method that allows reducing staff and speeding up the service, making it a good commercial instrument for the business. Guests have the opportunity to choose freely from large prepared selections, easing the workload of the kitchen. There are also some notable disadvantages of the buffet system. During the peak hours, there may be a rush of people in front of the buffet, causing confusion. Since the buffet tables are prepared in advance and serving size is not limited, the guests may overeat and the meals may need to be changed frequently. The workload of the kitchen staff may increase during the preparation phase due to the quantities involved. For these reasons, updating, writing and placing the meal information on the buffets becomes even more difficult, burdening the service staff. Since the current system is completely paper-based, problems may arise surrounding the cost of papers, printing and staffing. In the event that people from different nationalities arrive at the facility, the service staff often struggle to prepare text in the languages of these customers.

The impact of the technology on the restaurants is not only about how the food products are prepared, but also about how they are presented on the menus (Bitner, 2001). The font, colors, display and design of the menu also affect the behavior of the customers (Reynolds, Merritt, & Pinckney, 2005). Electronic, Wi-Fi enabled tablet-based menus can be more useful than the conventional paper based menus, due to the ease of updating the information. Use of electronic menus improves the quality of the service, as well as the customer's experience. As a result, integration of the technology into the hospitality industry is indispensable. Most notably, many problems that arise in the buffet system can be eliminated by these new technological solutions.

In this study, researchers developed an Internet of Things (IoT) integrated, context aware, paperless, mobile buffet-management system and instructed the hotel service staff and business administrators in its use. By adopting this new technology, hotels and restaurants can manage buffets wirelessly, and present the meal information in an efficient way that is not possible with the paper-based tags. In the current buffet systems offered by hotels, the only communication between the chef and the hotel customers is via these tags. By using the IoT-enabled digital meal tags, the chef can present allergen information, calories, the quality of his cuisine, ingredients, and receipts more effectively. Additionally, the authors expect that the restaurants that introduce the IoT-enabled digital meal tags and the paperless buffet

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