9/30/2016

V-Menu Restaurant Management System

Building the Restaurant of Tomorrow Today

School: University of North Florida

Course: Software Engineering (CEN 4010)

Instructor: Dr. Douglas Leas

Lead Developer: Matthew Boyette

Lead Designer: David Hughes

Developer: William Mejia

Developer: Demetrius Myers

Developer: Slaven Popadic

Table of Contents

Overview

V-Menu is a system designed to turn the day-to-day logistics of managing a restaurant into a problem solvable using distributed computing. By turning the individual human elements of the restaurant into computable problems, we hope to push the boundaries and take the next step toward a completely automated restaurant. Although a fully automated restaurant is still relatively infeasible with today's level of off-the-shelf consumer technology, it won't be long before advances in robotics make such an occurrence not only practical, but also commonplace. There are three primary factors of functionality that must be addressed before robotic employees become ready for mainstream adoption.

- Precision of movement. Tasks like cooking and waiting tables require precise movements, and the objects being moved are designed to be manipulated by a human hand.
- Collision avoidance. A restaurant is usually a bustling place with a great deal of movement (not only by employees, but also customers). Being able to avoid colliding with obstacles is critical.
- Communication interface. Computerized speech recognition still has some ways to go before a randomly chosen customer can reliably communicate their orders verbally to a robotic employee.

Many restaurants currently have similar systems in place already, but the feature-set and overall design is inconsistent. Further, many of these systems focus solely on patrons who want food delivered to an exterior location, or patrons who wish to pick up their food at the restaurant and then take it with them to dine elsewhere (usually a home or office).

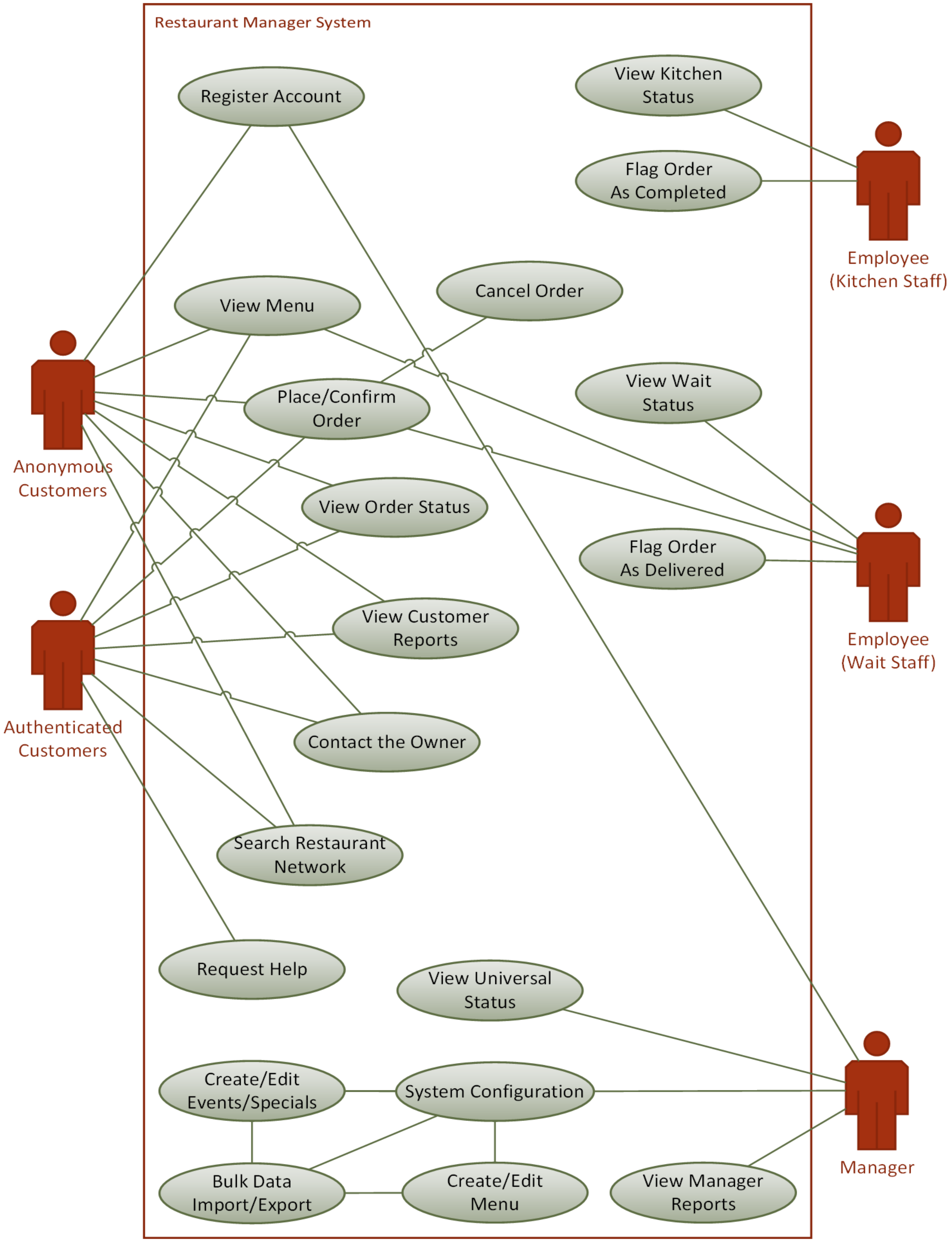
Our goal is two-fold: to serve the needs of those dining inside the restaurant, and to merge the functionality of existing systems for a consistent design and interface which can be easily customized or extended to suit each individual client.

Project Team

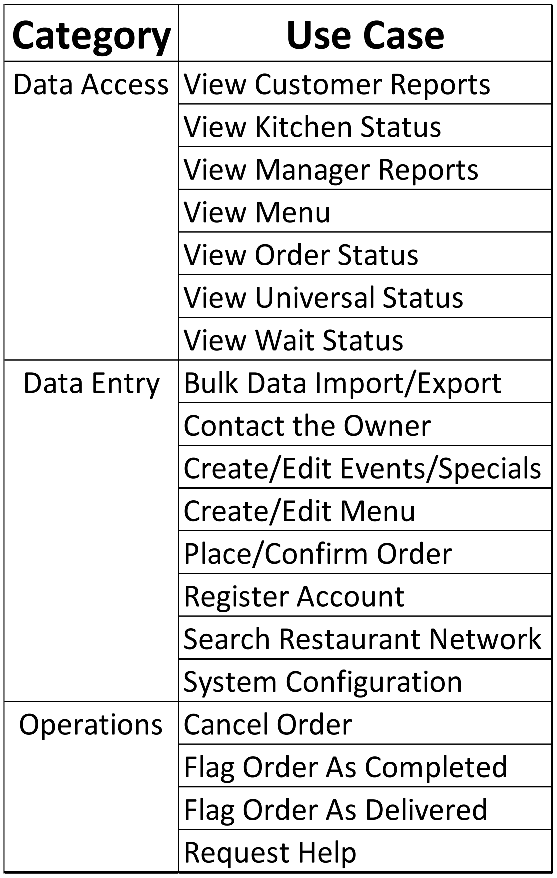
- Matthew is the team leader and lead developer. The parts of this deliverable that he contributed are the title page, table of contents, and the overview (this page). He also participated in the presentation of our requirements to the class.
- David is the lead designer. The parts of this deliverable that he contributed are the individual use-case diagrams. He also participated in the presentation of our requirements to the class.
- William is a developer. The parts of this deliverable that he contributed are filling in use case details.
- Demetrius is a developer. The parts of this deliverable that he contributed are filling in use case details.
- Slaven is a developer. The parts of this deliverable that he contributed are filling in use case details. He also contributed significantly to the slides used in our presentation.

Additionally, every member of the team participated in constructing the high-level use case diagram during our team meetings.

High-Level Use Case Diagram



Use Case Summary



Category	Use Case
Data Access	View Customer Reports
	View Kitchen Status
	View Manager Reports
	View Menu
	View Order Status
	View Universal Status
	View Wait Status
Data Entry	Bulk Data Import/Export
	Contact the Owner
	Create/Edit Events/Specials
	Create/Edit Menu
	Place/Confirm Order
	Register Account
	Search Restaurant Network
	System Configuration
Operations	Cancel Order
	Flag Order As Completed
	Flag Order As Delivered
	Request Help

Use Case: View Customer Reports

Use Case Name	View Customer Reports
Description	Allows customers to view reports that are of interest to them. Things like the top ten most popular menu items and such.
Actors	• Customers (Authenticated and Anonymous)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	None.
Postconditions	None.

Use Case: View Kitchen Status

Use Case Name	View Kitchen Status
Description	Allows kitchen staff to view all orders currently being prepared.
Actors	• Employees (Kitchen Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: View Manager Reports

Use Case Name	View Manager Reports
Description	Allows managers to view reports that are of interest to them. Things like ranking employees by performance, financial reports, how many customers are using the system, average customer wait times, etcetera.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: View Menu

Use Case Name	View Menu
Description	Allows customers and wait staff to view the items available for ordering.
Actors	• Customers (Authenticated and Anonymous) • Employees (Wait Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	None.
Postconditions	None.

Use Case: View Order Status

Use Case Name	View Order Status
Description	Allows customers to view the status of their order(s).
Actors	• Customers (Authenticated and Anonymous)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	User must have previously place an order in order to view its status.
Postconditions	None.

Use Case: View Universal Status

Use Case Name	View Universal Status
Description	Allows managers to duplicate the functionality of both the View Kitchen Status and View Wait Status use cases.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: View Wait Status

Use Case Name	View Wait Status
Description	Allows wait staff to view all of the tables to which they are currently assigned and those tables' associated order(s).
Actors	• Employees (Wait Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Desired information is displayed.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Bulk Data Import/Export

Use Case Name	Bulk Data Import/Export
Description	Allows managers to import and export large quantities of configuration data.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Contact the Owner

Use Case Name	Contact the Owner
Description	Allows customers to contact the owner of the restaurant.
Actors	• Customers (Authenticated and Anonymous)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	None.
Postconditions	None.

Use Case: Create/Edit Events/Specials

Use Case Name	Create/Edit Events/Specials
Description	Allows managers to configure specials and events based on time or date. Examples include things like Ladies' Night, holiday discounts, last call, etcetera.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Create/Edit Menu

Use Case Name	Create/Edit Menu
Description	Allows managers to create or edit individual menu items.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Place/Confirm Order

Use Case Name	Place/Confirm Order
Description	Allows customers and wait staff to place and confirm an order. Customers must pay when confirming their orders. Wait Staff may elect until their customers are finished prior to entering payment.
Actors	• Customers (Authenticated and Anonymous) • Employees (Wait Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	Cannot place an empty order (must have selected at least one menu item).
Postconditions	None.

Use Case: Register Account

Use Case Name	Register Account
Description	Allows anonymous customers to register an account to become authenticated customers. Also allows managers to create accounts for employees.
Actors	• Anonymous Customers • Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Search Restaurant Network

Use Case Name	Search Restaurant Network
Description	Allows customers to search for other restaurants in the nearby area (based on postal codes) that are also using the V-Menu system.
Actors	• Customers (Authenticated and Anonymous)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	None.
Postconditions	None.

Use Case: System Configuration

Use Case Name	System Configuration
Description	Allows managers to configure the V-Menu system.
Actors	• Managers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • User enters any necessary data. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Cancel Order

Use Case Name	Cancel Order
Description	Allows customers and wait staff to cancel orders.
Actors	• Customers (Authenticated and Anonymous) • Employees (Wait Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Action occurs.
Exceptions Paths	User must have previously place an order in order to cancel it.
Postconditions	None.

Use Case: Flag Order As Completed

Use Case Name	Flag Order As Completed
Description	Allows kitchen staff to indicate that an order has been completed.
Actors	• Employees (Kitchen Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Flag Order As Delivered

Use Case Name	Flag Order As Delivered
Description	Allows wait staff to indicate that an order has been delivered.
Actors	• Employees (Wait Staff)
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Use Case: Request Help

Use Case Name	Request Help
Description	Allows customer to request help from the wait staff.
Actors	• Authenticated Customers
Triggers	Initiated by user action.
Assumptions	None.
Basic Course of Events	• User activates the appropriate GUI widget. • Action occurs.
Exceptions Paths	User does not possess required permissions.
Postconditions	None.

Non-functional Requirements

These are our project's non-functional requirements.

- Popular browser support (Chrome, Firefox, Internet Explorer/Edge, and Safari) across multiple platforms.
- Ability to keep track of multiple orders concurrently (minimum 1000).
- Ability to keep track of multiple users concurrently (minimum 100).
- Support for customized username, password, and security policies.
- Order data retention for up to three calendar years.