Software Requirements Specification

The Guest Streamliner 9000™

Prepared by Chris Adams, Marshall Brister, Oren Cummings, Jason Jenkins, Emalee Keesler and Ruben Orozco

The McJore's Software Engineering Firm of Fun™

September 2019 - December 2019

Table of Contents

Name	Date	Reason for Changes	Version
Rough Draft	9/27/19	N/A	1.0
First Edits	9/28/19	Small corrections	1.1
Diagrams	9/28/19	Incorrect / Changed	1.2
Fixed TOC	9/29/19	Incorrect	1.2.1
Appendixes	9/30/19	Needed	1.2.2

I. Introduction

I.I Purpose

The purpose of the Guest Streamliner 9000™ is to streamline the guest experience at Ivancic's Italian by allowing guests to make online or over the phone reservations and storing them in a system that will automatically manage them and allow the host/hostesses to mark them as "completed" after the guests are sat or "no show" if the guest does not show up within 15 minutes of their reserved time. The Guest Streamliner 9000™ will also be used to allow customers to order and pay from their tables, to further enhance the guest experience by giving them the choice to not wait on their server. The Guest Streamliner 9000™ will also allow workers to see what tables available and what tables are needing to be cleaned to minimize the guest's wait time and improve overall guest experience.

I.II Document Conventions

* Denotes a reference within the diagram found in Appendix B
[] Denotes an outside reference that is described in * I.IV References

I.III Intended Audience and Reading Suggestions

This document is intended for developers of the software, whatever admin will be making changes, anyone upkeeping the software, and to anyone else that will be marketing or testing this software. The table of contents will be the reader's best way to find what they are looking for within the document and assist them with reading the document in whichever order is best for them. We recommend that developers and documenters read this document in its entirety.

I.IV References

[1]:
This was a reference on how to format this document correctly and to assist in writing each segment. It served as an outline to put the ideas of this team on paper for any clarification that could be needed in the future for The Guest Streamliner 9000™ and its functions.
https://d2l.sfasu.edu/d2l/le/content/259857/viewContent/3199959/View?ou=259857

[2]:

Apple was used as a reference for the products that The Guest Streamliner 9000™ will be implemented on for Ivancic's Italian.
https://www.apple.com

[3]:
The mySFA system for making appointments with an advisor was a good tool to demonstrate a similar system to what the reservation system would need and appear like. This system allows students to select a date and time and shows how many slots are available, then allows them to select the time they would like. This is similar to what the reservation system would include, with a few changes, such as: number of guests. However, the time slots are a very good representation of what the reservation system would model after.
https://sfasu.campus.eab.com

[4]:
The current Point-of-sale software being used by Ivancic's Italian that contains the menu, table numbers, an ordering system, and payment system.
https://pos.toasttab.com/

[5]:
PayPal Chip and Tap Reader
https://us.paypal-here.com/paypal-chip-and-tap-card-reader/

II. Overall Description

II.I Product Perspective

This product will be a new self-contained product that will be implemented in a restaurant.

II.II Product Functions

Function 1: Reservation

- Allow guests to create and cancel reservations
- Should allocate guests to new time slot if their requested time slot is not available
- Software should integrate with already existing website

Function 2: Standard Ordering

- Should allow for customers to order drinks, entrees, and desserts speaking to a server and the server inputting the order in one of the POS stations (iPad - see II.IV)
- Physical menus should be available at each table for customers to browse.

Function 3: Order at table

- Should allow for customers to order drinks, entrees, and desserts from their table kiosk (iPad - see II.IV)
- Should allow for customers to see menu items and to scroll through like they would a physical menu - separated by sections

Function 4: Pay at table

- Allow users to order and pay from their table
- Accept card payments
- Allow for tips

Function 5: Available / Unavailable Tables

- Allow waiters to check if a table is available or needs to be cleaned
- Allow for waiters/waitresses to move tables around on P.O.S system
    - Allow for waiters/waitresses to lock the position of tables
      * See Figure 3 and 4 for reference
- Timer showing how long a table has been there to increase table turnover and get more guests served

II.III User Classes and Characteristics

- Customer:
    - Customers can access the menu from the system designated to the table they are seated at.
- Employee:
    - Employees interact with the tables in the system. They are able to manually change the status of each table
- Manager:
    - Managers have the ability to do the same things as customers and employees but can also manage the reservation list and edit or change tickets if needed.
- Admin:
    - Admins are allowed the highest privilege in the system. They have all the privileges that the other classes have. They are the only ones allowed to make any changes to any menu item in the system.

II.IV Operating Environment

➔ iPad minis running IOS 13 for customer access from tables [2]

➔ The customer iPads have PayPal Chip and Tap Reader [5]

➔ 12.9in iPad pros running IOS 13 for wait staff access from POS stations that will run the current POS system [5]

- ➔ 12.9in iPad pro running IOS 13 for greater to access reservation information, to view current table status, and to view wait list. [1]
- ➔ Computer system in kitchen area connected to a flat screen to show current orders [1].
- ➔ Computer system in Owner/Manager office (if available) to make changes to menu items, update the system, and change/add/remove user access. (Admin control)
- ➔ Epson ReadyPrint T20 for printing tickets

II.V Design and Implementation Constraints

The software will have to integrate with an already existing website, because of the new information being collected, the database should be updated to hold the new information. Once released it will be Ivancic's Italian responsibility to maintain the software and to contact our cooperation if major problems arise.

II.VI User Documentation

There will be a tutorial video provided to train current employees and any new ones with a test that they must pass at the end, a user manual that comes with all the iPads, and they can call our helpline if any problems or questions occur during the first year of use.
The video tutorials for software training and use will be through the Ivancic's Italian website, and we will provide a hard copy via flash drive.

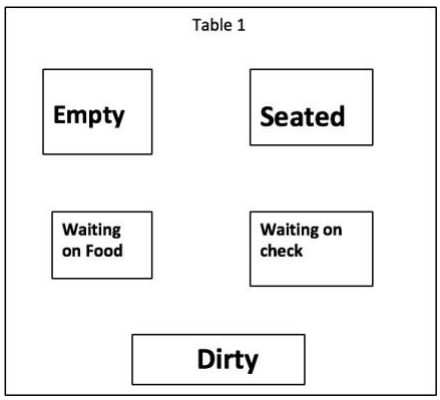
II.VII Assumptions and Dependencies

Software assumes restaurant has a working and functioning website and database that can be easily modified to hold new data collected.

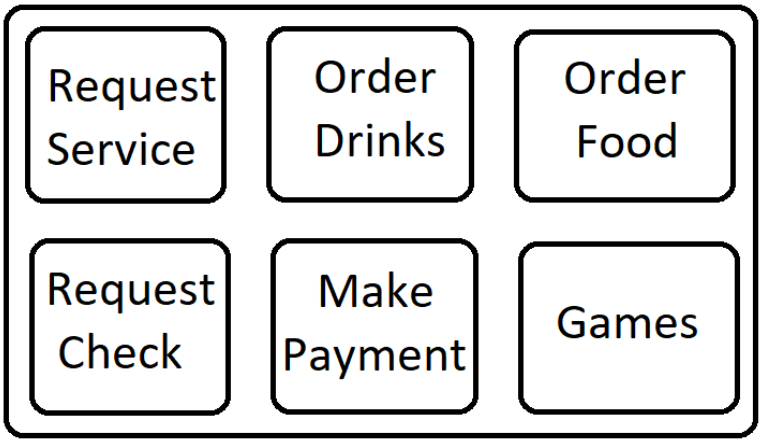
III. External Interface Requirements

III.I User Interfaces

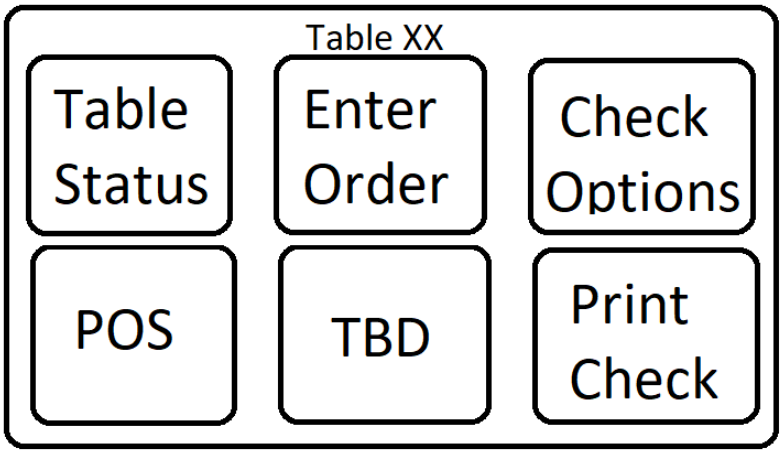
This is a sample of the UI when an employee touches a table to change its status.



Sample UI for the standard screen at customer tables.



Sample UI for Waitstaff table options.



III.II Hardware Interfaces

Each table will have its own iPad Pro, the iPad will run on its own proprietary application that's curated just for this restaurant. The iPad will be able to take orders, call wait staff to the table, and give patrons

the ability to pay whenever they're ready to leave. The iPads will also have PayPal Chip and Swipe Readers attached on their backs which will connect to the iPad via Bluetooth.

Each Point of Sale station has a screen that has a list and map of each table and the tables are color coded based on their status. Their status could be:

- Empty (Available)
- Seated
- Waiting on food (Waiting)
- Waiting on check (Ticket)
- Dirty

III.III Software Interfaces

There will be a rough outline of restaurant, *see Figure 1.
There will be the ability to move tables and chairs around, *see Figure 4.
The tables and chairs will change colors when table is sat (hostess clicks on table at the system at the host stand)

- Tables change color / status when food order is placed in the POS system [4] for that table
- Tables change color when food is brought out to table
- Tables change color after check has been brought - to dirty status
- Tables change back to empty status when bus boy cleans table and clicks on that table at any pos screen.

For a key of colors, *see Figure 2.

III.IV Communications Interfaces

POS systems will connect over the private local wireless network. The POS system will also connect to the company's website to get reservation data.

IV. System Features

IV.I Reservation Service

IV.I.I Description and Priority

As this was one of the bigger problems that Ivancic's Italian was facing, it has earned a high priority. If the reservation system did not work, then the other systems would not matter, as there would be no customers sad.

The benefits to this are that it will save time by allowing customers to make reservations themselves when the hostesses are busy, or the phone lines are occupied. The risk to this is that if it ever went down, the restaurant would have a hard time with managing the reservations.

IV.I.II Stimulus/Response Sequences

1. The customer will visit ivancicitalian.com/res
2. The customer will select a date from the drop-down menu and a number of guests for the reservation
3. The customer will then select an available time slot that they would like
4. The customer will then put in their name, phone number, and the date, time and number of guests for the reservation will be carried over from the search parameters.
5. The customer will then get a text or email with a confirmation of their reservation with a reservation ID.

IV.I.III Functional Requirements

REQ-RES1: Customer should not be able to select an already reserved slot.

IV.I.IV Use Case Diagram

Name: Make a reservation
Description: Customer/Person who answers phone can make a reservation
Precondition: There are available chairs to fit the party, it isn't 30 minutes before closing. The reservation isn't within the next hour.
Postcondition: Customer has a table reserved.
Alternate Execution: There are not enough chairs available for selected time, offer times that are closest to the requested time. Restaurant closes in <=30 minutes, offer them a reservation for the next day. They want a reservation sooner than an hour away, offer them to walk-in, or suggest a later time.
Assumptions: Customers and Wait staff make reservations the same way, should be through the same form.

IV.II Standard ordering.

IV.II.I Description and Priority

This function will be the standard server/customer interaction, it is a high priority feature because it is the normal operation of the restaurant, and the guests may prefer not to not use the table ordering system.

The benefits to this are that it will provide customers with a person to person interaction if they prefer not to use the automated system.

IV.II.II Stimulus/Response Sequences

1. The customer is seated at their table and table status is changed (see IV-V).

2. The server of the section approaches table and takes drink/food order.
3. The order in placed into the system by the server at one of the POS stations.
4. The tables status is changed to waiting. *see Figure 3
5. All food items and all options are sent into the kitchen system and table ticket is updated.

IV.II.III Functional Requirements

REQ-SOR1: Customer should be able to place drink and food orders with server.
REQ-SOR2: Server should be able to insert the customer's order into the system at one of the POS stations.

IV.II.IV Use Case Diagram

Name: Standard Ordering
Description: Customer is able to place an order with the server.
Precondition: Customer must be seated, and table status must be set to seated.
Postcondition: Food order is sent to the kitchen and table ticket updated.
Alternate Execution: TBD
Assumptions: Customer does not want to use the automated system.

IV.III Ordering from table

IV.III.I Description and Priority

While this function would help customers and servers, it is not a high priority feature because the server can still wait on the guest, and the guests may prefer to not use this system.

The benefits to this are that it will save time by allowing customers to order food and beverages themselves when the server is busy, or when they are first seated to decrease wait time.

IV.III.II Stimulus/Response Sequences

1. The customer accesses the tablet at their table and selects the Order Drinks or Order Food option.
2. The selection of drinks or food is displayed on the screen much like the standard menu to make it easier to find.
3. The customer touches the item the want and the screen continue to a list of options for the selected item.
4. After selection options a conformation screens shows the item selected and all options for the customer and a larger "Place Order" button.

5. The tables status is changed to waiting. *see Figure 3
6. All food items and all options are sent into the kitchen system, drink items are sent as notifications to the waitstaff attending the table, and table ticked is updated.

IV.III.III Functional Requirements

REQ-TOR1: Customer should be able to place drink and food orders from the table at their table without the assistance of the waitstaff.
REQ-TOR2: Full menu should be available for customer selection

IV.III.IV Use Case Diagram

Name: Ordering from table
Description: Customer is able to make an order at their table.
Precondition: Customer must be seated, and table status must be set to seated.
Postcondition: Drink order is sent to waitstaff and food order is sent to the kitchen.
Alternate Execution: Option for item is not on the list of item specific options. The Customer will have the option to page/call a server to make any special requests.
Assumptions: Customer is seated, and table status is updated.

IV.IV Payment

IV.IV.I Description and Priority

While this function would help customers and servers, it is not a high priority feature because the server can still check out the guest, and the guests may prefer to not use this system.

The benefits to this are that it will save time by allowing customers to pay themselves when the server is busy and to decrease wait time.

The harm in this is that it could decrease tipping, but on the other hand - it could increase tipping by having “tip suggestions” of 10%, 15%, and 20%.

IV.IV.II Stimulus/Response Sequences

1. When the customer is ready, they may choose to press the “Pay Now” button on their system.
2. The system prints out all items ordered to verify their receipt.
3. Customer is then allowed to press the “Pay with card” button to finalize payment.
4. System asks customer to insert or swipe their card.
5. Payment is processed and finalized.

IV.IV.III Functional Requirements

TBD

IV.IV.IV Use Case Diagram

Name: Payment
Description: Payment process at customer POS Terminals
Precondition: The customer has a tab waiting to be paid
Postcondition: The customer's card has been charged and the table's status has been set to paid.
Alternate Execution: The charge fails
Assumptions: The customer's complete order is already in the system. The network is online.

IV.V Table Availability

IV.V.I Description and Priority

This function carries a higher priority than functions IV.II, IV.III, and IV.IV because it will be implemented throughout the entire restaurant. This function will be used by hosts/hostesses, servers, busboys, and kitchen staff.

- Hostesses will mark "available" tables as "seated" to allow the server to know to greet their guests.
- When food is put in for a table through the POS system [4], then the table is changed to "waiting".
- When the food leaves the kitchen, the kitchen changes it to "ticket".
- When the ticket is printed out at the POS, the table changes to "dirty".
- When the busboy cleans the table, he changes it to "available" and the process will restart itself.

*See figures 2 and 3 in Appendix B for clarification on table statuses

IV.V.II Stimulus/Response Sequences

1. When customer arrives and reservations are checked an available table is marked as seated when the customers are seated at it.
2. Customers can either wait for their server or place an order on their tables POS system after which the table should be set to waiting.
3. After customers receive their orders the table status will change to ticket until another order is placed or customer pays.
4. When ticket is paid the table status will be changed to dirty.
5. When table is dirty status, the busboy will change table status to available after the table is cleaned.

IV.V.III Functional Requirements

TBD

IV.V.IV Use Case Diagram

Name: Table Availability
Description: Changes statuses of tables.
Precondition: Table has an initial status of available.
Postcondition: Tables status is changed.
Alternate Execution: Table status stays the same
Assumptions: Employees will update statuses of tables.

V. Other Nonfunctional Requirements

V.I Performance Requirements

Local systems need to display updates as fast as possible (or at most within 2 minutes) so customers are not kept waiting and miscommunication does not occur. All successful reservations trigger an update to the reservation list. Admins, managers, and employees will be able to see the updated reservation list in real time. After customers complete payment process, their table's status will be changed to dirty. Any time a table's status is changed, all employee systems are synced to view the status update.

V.II Safety Requirements

Each tablet must be mounted to a table in a fashion where it is impossible or difficult to steal without the incident being noticeable by employees.
During the reservation process, the only information requested and stored is contact information.

V.III Security Requirements

Restaurant must have security for their website that will be linking with the software so neither gets compromised but the software itself should be secure. Software will have its own security to prevent unauthorized write/delete access from within the restaurant. There is no restriction on read access for any level of user. Each iPad does not directly store or manipulate any banking information. All payment information is encrypted and is not available for outside access.

V.IV Software Quality Attributes

The software should be easily maintained and easy to use. The software is somewhat adaptable and has a wide variety of functions that can be used in a lot of different situations. The system is tailored to the needs of those with little or no technical background. All interfaces and communications with the system are geared towards simplicity and ease of access.

V.V Business Rules

Only the admin should be allowed to change anything with the software. The employees and customers should only be able to use the software and contact a manager to report to the admin if something goes wrong.
Customers are restricted to only read access on the menu items. Customers are not allowed to view anything related to other tables. Customers can order from their tables and are able to pay when they please.
Employees are only allowed to make changes to table's statuses. They are also allowed to view the reservation list without making changes.
Managers and Admins are the only ones allowed to make edits to the reservation list.
Admins are the only ones allowed to make menu changes.

VII. Appendix A: Analysis Model

Figure 1

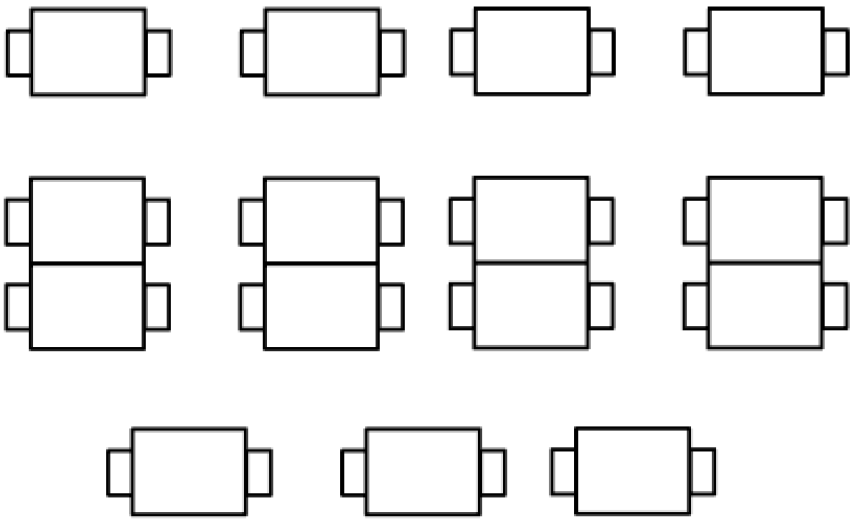


Figure 2

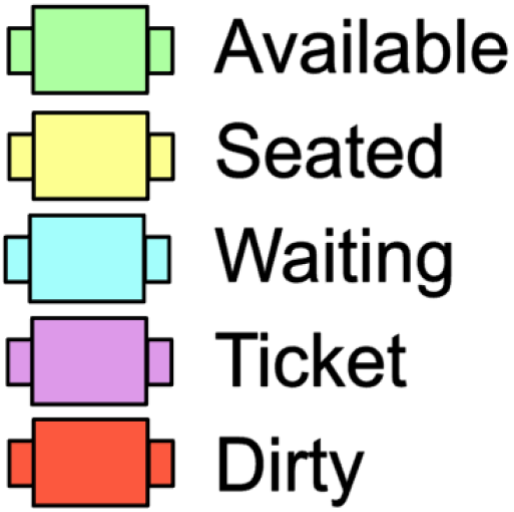


Figure 3

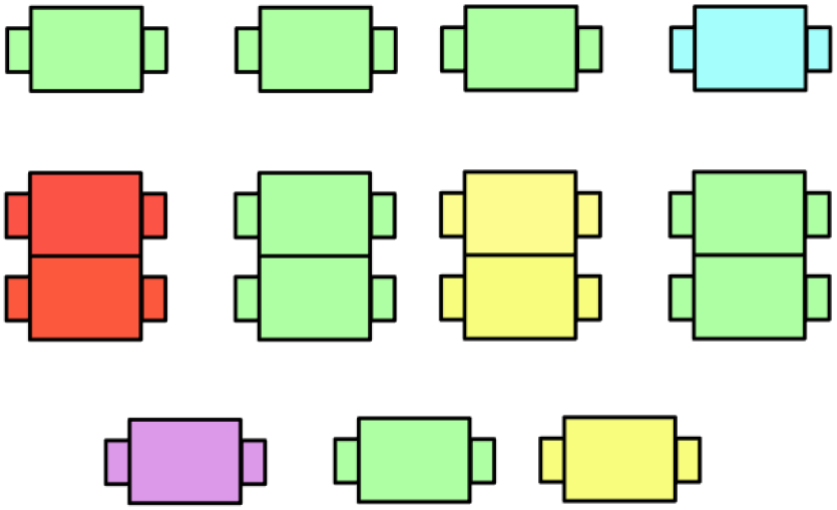
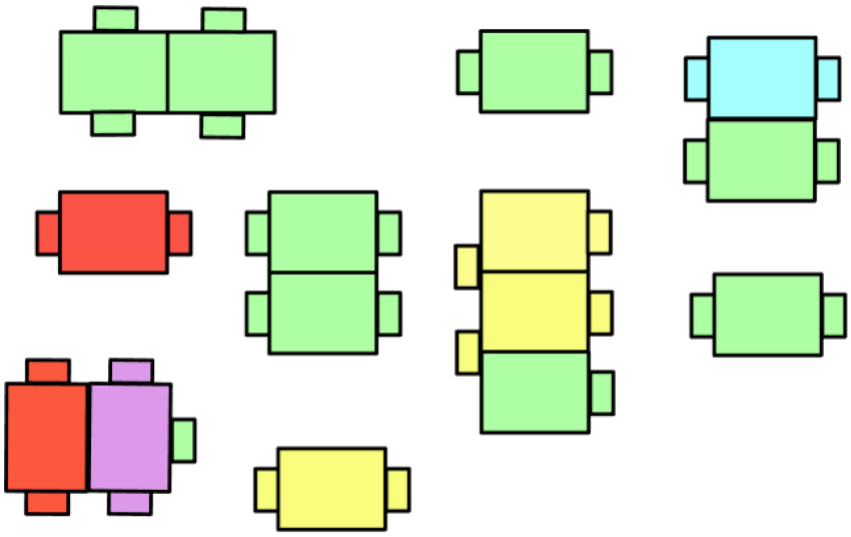


Figure 4



VIII. Appendix C: To Be Determined List

To Be Determined:

- Alternate Execution for ordering
- Functional Requirements for Payment
- Functional Requirements for Table Availability