Software Requirements Specification

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Robot automation system as a waiter in a restaurant System

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1. Introduction
   1. Purpose

The purpose of this document is to present a detailed description of the Robot automation System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both the stakeholders and the developers of the system .

* 1. Scope of Project

This software system will be Robot automation system as a waiter in a restaurant System . This system will be designed to maximize the restaurants productivity by providing tools to assist in automating the waiter working, which would otherwise have to be performed manually. the system will meet the restaurants needs while remaining easy to understand and use.

More specifically, this system is designed to allow to manage group of tasks and works that was working it the waiters in restaurants ,included Receive customers and meet their requirements

* 1. Glossary

|  |  |
| --- | --- |
| Term | Definition |
| Database | Collection of all the information monitored by this system |
| Software Requirements Specification | A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document. |
| waiter | The person receiving orders and distributing meals in the restaurant |
| Robot | A machine that mimics human behavior |

* 1. Reference

IEEE. *IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications.* IEEE Computer Society, 1998.

* 1. Overview of Document

The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.

The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

Both sections of the document describe the same software product in its entirety

2.0.Overall Description

2.1 System Environment

Clients and employees interact with the system through a database that they enter data into and get the required results through a touch screen that works with interfaces

2.2. Functional Requirements Specification

This section outlines the use cases for each of the actors separately.

2.2.1. Employee Use Cases

Use Case: Register a reservation

Diagram:

Register a reservation

employee

Brief Description

The employee records a reservation for the customer by entering customer data into the system database

Initial Step-By-Step Description

Where the process is done according to the following:

1- Customer contact with restaurant staff for reservations

2- Then entering the customer's data into the system database along with the table number reserved for him

Use Case:Cancel a reservation

Diagram:

employee

cancel a reservation

Brief Description

The employee cancels a reservation for a specific customer

Initial Step-By-Step Description

Where the process is done according to the following:

1- The customer calls the employee and asks him to cancel the reservation

2- The employee deletes this customer’s data from the system database in addition to removing the reserved table reservation

Use Case:Distribution Meals

Diagram

employee

Distribution meals

Brief Description

The employee delivers the meal to the robot for delivery to the customer's table

Initial Step-By-Step Description

Where the process is carried out according to the following:

1 - The employee enters the table number to which the request is sent to the system

2- Running the robot by the employee, carrying the customer’s food and requests, and taking his own path, referring to the customer’s table number.

2.2.2 Customer Use CaseS

Use Case:Insert His Data Into Software

Diagram

customer

Insert his data

Brief Description

The customer enters his data into the system to take him to the appropriate table

Initial Step-By-Step Description

1- The customer enters his information

2- The system verifies that the customer's name appears in the reservation lists

3- In the event that there is no prior reservation, a message is displayed (there is no prior reservation, please enter the number of visitors) in order for the robot to know them on the appropriate table according to their number

Use Case:Recording Customer Order

Diagram

customer

Recording customer order

Brief Description

The customer registers an order by choosing the meals he wants from the system interface

Initial Step-By-Step Description

Where the process is done according to the following:

1- Display a menu on the Android screen with the types of foods and drinks in the restaurant and next to each type a coding button for this type so that the customer can specify the type he wants in addition to having a price next to each type in the list

2-Then the robot is run from the customer to the employee through its own path where the customer's requests are still specified on the robot screen so the kitchen staff prepares his requests

Use Case: Inquire about the bill

Diagram

customer

Inquire about the bill

Brief Description

The customer inquires about his bill as soon as he chooses his meals, as well as the price of each meal

Initial Step-By-Step Description

The process is carried out according to the following:

1- This is done by collecting the prices of meals that the customer has set

2- Show this total on the screen

2.3 User Characteristics

The system is easy to use and does not need to be its users, whether it is for an employee or an experienced customer. The system contains a few and clear buttons with the writing of a function each button on its side. For this reason, the user does not have features and experience about use.

2.4 Non-Functional Requirements

The robot must be in good speed to be able to serve all customers on time

It should also contain interfaces to facilitate the use of customers and employees

It is better to have great accuracy in order to differentiate customer orders

3.0.Requirements specification

3.1 Functional Requirements

3.1.1 Recording Reservation

|  |  |
| --- | --- |
| Use Case Name | Recording Reservation |
| XRef | Section2.2.1, Recording Reservation SDD,Section7.1 |
| Trigger | The Employee Recording Reservation |
| Precondition | Customer contact with the employee |
| Basic Path | 1- The customer contact with the restaurant employee  2- Entering customer's information into system Database attached to the table number |
| Alternative Paths | None |
| Postcondition | Enter customer information |
| Exception Paths | None |
| Other | None |

3.1.2 distribution meals

|  |  |
| --- | --- |
| User Case Name | distribution meals |
| XRef | Section2.2.1, distribution meals,Section7.2 |
| Trigger | The employee delivers the meals to the robot for distribution |
| Precondition | Receive the list of requests |
| Basic Path | 1- Transfer the customer's requests by the robot to the employee  2- The employee reads the requests appearing on the robot screen and prepares the meals  3- The robot carries the customer's feed and transfers it to the entered table number |
| Alternative Paths | None |
| Postcondition | Enter the table number |
| Exception Paths | None |
| Other | None |

3.1.3 Insert customer Data

|  |  |
| --- | --- |
| Use Case Name | Insert customer Data |
| XRef | Section2.2.2, Insert customer Data,Section7.3 |
| Trigger | The customer Insert his Data |
| Precondition | The system must be aware that there is a reservation for the customer inside or not to act on this basis |
| Basic Path | 1- The customer entered his information  2 - Verify that the customer's name appears in the reservation lists |
| Alternative Path | None |
| Postcondition | Take the customer to the right table |
| Exception Paths | None |
| Other | None |

3.1.4 Recording Customer Order

|  |  |
| --- | --- |
| Use Case Name | Recording Customer Order |
| XRef | Section2.2.2, Recording Customer Order,Section7.4 |
| Trigger | The customer insert his order |
| Precondition | Determine the meal icon |
| Basic Path | 1- Show the types of foods  2- Defining meals  3- Running the robot for the kitchen |
| Alternative Path | None |
| Postcondition | Store the table number |
| Exception Paths | None |
| Other | None |

3.1.5 Inquire about the bill

|  |  |
| --- | --- |
| Use Case Name | Inquire about the bill |
| XRef | Section2.2.2, Inquire about the bill,Section7.5 |
| Trigger | The customer inquire about his bill |
| Precondition | The customer determines the meals he wants |
| Basic Path | 1- Display types of foods and drinks  2- The customer presses the codes of the meal he wants  3- Collect meal prices |
| Alternative Path | None |
| Postcondition | Store the price of the meal that the customer requested |
| Exception Paths | None |
| Other | None |

3.2Detailed Non-Functional Requirements

3.2.1 Speed

The robot system should be fast enough to meet the requirements of all customers without delaying any customer, whether it is taking the customer to his table, meeting his orders or even delivering his meal in a short time without feeling that there is a difference between human and automatic capabilities

3.2.2 Precision

It is imperative that the robot system be equipped with the appropriate parts to provide the greatest degree of accuracy in order not to cause problems and losses to its employees, as it must check the allocation of each order to its applicant without merging the customers ’orders.

THE END