Garcon

Software Requirements Specification

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1. Introduction

This document is Software Requirement Specification for Microsoft's smart campus project, called Garcon.

1.1 Purpose of the System

The purpose of the project is making METU campus smarter than ever. Making the campus an interactive environment for both students and workers. When there is a campus wide security issue, or environment issue students can immediately inform workers of campus with this system. Also, it enables students to get information about campus transportation and food possibilities.

1.2 Scope

1.3 System Overview

This section will give general information about the system.

1.3.1 System Perspective

General purpose of this system is making students life in campus much easier than before. System uses a card reader device for student id cards to authenticate students. Then, waits for the student to talk. When student talks, speech to text service analyses the speech and decides whether student opening an issue or asking for an information. After this stage, Garcon will do whatever students want automatically. If an issue opened , mailing service activated; or if an information asked, then Garcon will get the information to the student from various services.

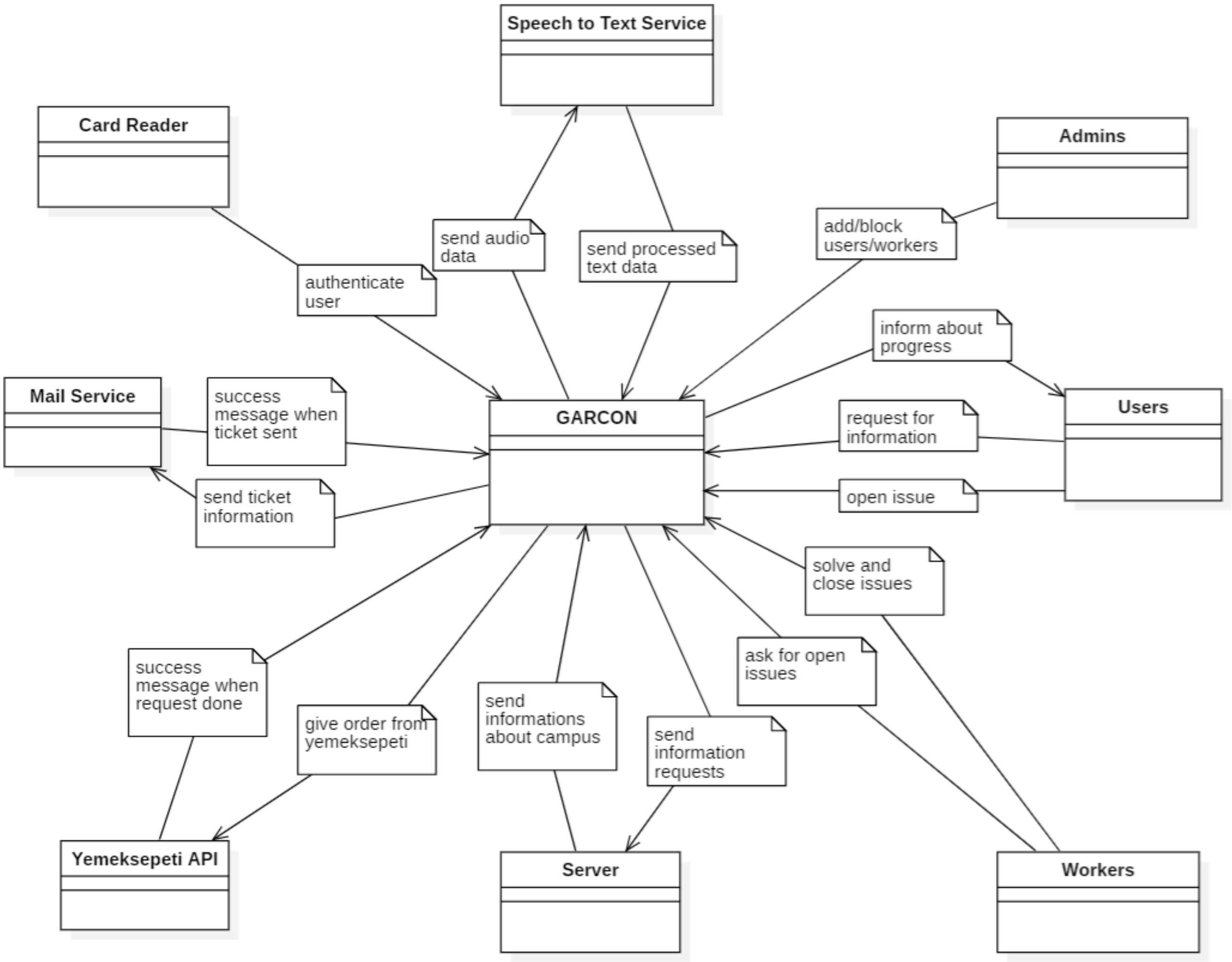

Figure 1: Context Diagram

1.3.2 System Functions

1.3.3 User Characteristics

1.3.4 Limitations

1.4 Definitions

2. References

3. Specific Requirements

3.1 External Interfaces

3.2 Functions

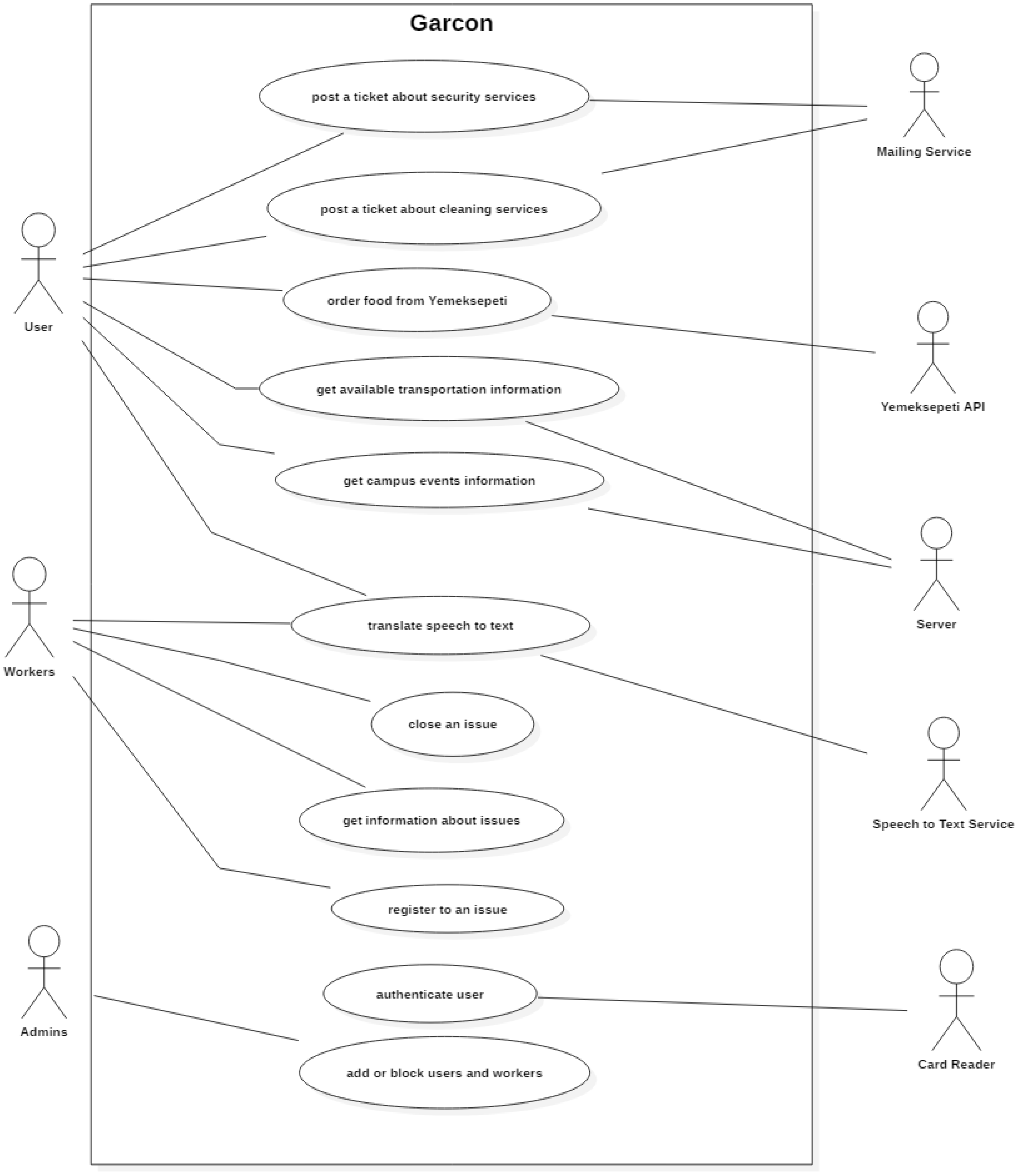
Garcon
post a ticket about security services
post a ticket about cleaning services
order food from Yemeksepeti
get available transportation information
get campus events information
translate speech to text
close an issue
get information about issues
register to an issue
authenticate user
add or block users and workers
User
Workers
Admins
Mailing Service
Yemeksepeti API
Server
Speech to Text Service
Card Reader

Figure 2: Use Case Diagram

Use case name	Issue about security service
Actors	Users, Speech to Text Service, Mailing Service, Server
Description	If a user notices a security issue he/she can notify related workers via Garcon.
Data	Audial input from user
Preconditions	User should be authenticated
Stimulus	User giving audial input about issuing a security request
Basic Flow	Step 1 – User gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Issue is created and server side is informed Step 4 – Processed text of audial input is sent as an email to the related workers Step 5 – User is informed that issue is registered
Alternative Flow	Step 3 – System detects same request already issued Step 4 – Importance level of request is updated Step 5 – User is informed that issue is already registered
Exception Flow	-
Post conditions	An issue instance is created on system and related workers are informed.

Table 1: Open security issue function

Use case name	Issue about cleaning service
Actors	Users, Speech to Text Service, Mailing Service, Server
Description	If a user notices a cleaning issue he/she can notify related workers via Garcon.
Data	Audial input from user
Preconditions	User should be authenticated
Stimulus	User giving audial input about issuing a cleaning request
Basic Flow	Step 1 – User gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Issue is created and server side is informed Step 4 – Processed text of audial input is sent as an email to the related workers Step 5 – User is informed that issue is registered
Alternative Flow	Step 3 – System detects same request already issued Step 4 – Importance level of request is updated Step 5 – User is informed that issue is already registered
Exception Flow	-
Post conditions	An issue instance is created on system and related workers are informed.

Table 2: Open cleaning issue function

Use case name	Order food from Yemeksepeti
Actors	Users, Speech to Text Service, Yemeksepeti API
Description	When user asks for ordering food, the request translated into text first, gets analyzed and then system automatically give an order from Yemeksepeti
Data	Audial input from user
Preconditions	User should be authenticated
Stimulus	User giving audial input about ordering food
Basic Flow	Step 1 – User gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – A request is posted to Yemeksepeti Api Step 4 – Success message shown to the user
Alternative Flow	-
Exception Flow	If any error occurs or restaurant is closed , system will show a log message.
Post conditions	User gives an order from Yemeksepeti.

Table 3: Order food function

Use case name	Get transportation information
Actors	Users, Speech to Text Service, Server
Description	Information service on transformation info. User can get a possible route to a direction from the device he/she is now interacting with and user can get information about transportation schedules.
Data	Audial input from user, current transportation services' data, map data
Preconditions	Worker should be authenticated
Stimulus	User giving audial input about getting informed on transportation
Basic Flow	Step 1 – User gives audial input asking directions Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Best possible route and its transformation information is obtained from the server Step 4 – Information is converted to audio form by Speech to Text Service Step 5 – User is informed
Alternative Flow	Step 1 – User gives audial input asking transportation schedules Step 2 – Audial input gets processed by Speech to Text Service Step 3 –Transformation information on ring, bus, subway services is obtained from the server Step 4 – Information is converted to audio form by Speech to Text Service Step 5 – User is informed
Exception Flow	-
Post conditions	User is informed with best routes and transportation information and information about this query is saved to database to inform further queries faster.

Table 4: Get transportation info function

Use case name	Get campus events informations
Actors	Users, Speech to Text Service, Server
Description	When user asks for available events in campus, server interacts the database and submits events for user’s information.
Data	Audial input from user
Preconditions	User should be authenticated
Stimulus	User giving audial input about campus event informations
Basic Flow	Step 1 – User gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Available events searched in server Step 4 – Available events are converted to audio format. Step 5– Events listed to the user.
Alternative Flow	Step 4 – If no event is available on campus, Garcon will not give any listings.
Exception Flow	If any error occurs, system will show an error message
Post conditions	System shows all events

Table 5: Get event information function

Use case name	Close an issue
Actors	Workers, Speech to Text Service, Mailing Service, Server
Description	Workers close issues they have handled.
Data	Audial input from worker
Preconditions	Worker should be authenticated
Stimulus	Worker giving audial input about closing an issue
Basic Flow	Step 1 – Worker gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Issue is closed and server side is informed Step 4 – Worker is informed that issue is closed
Alternative Flow	-
Exception Flow	-
Post conditions	The issue is marked as solved on system.

Table 6: Close issue function

Use case name	Register to an issue
Actors	Workers, Speech to Text Service, Server
Description	Workers register to an issue to prevent possible conflicts.
Data	Audial input from worker, current registered workers on the issue
Preconditions	Worker should be authenticated
Stimulus	Worker giving audial input about registering to an issue
Basic Flow	Step 1 – Worker gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Current workers on issue are displayed to worker Step 4 – Worker is asked a confirmation after seeing current workers on issue Step 5 – With workers confirmation he is registered to issue (Database update)
Alternative Flow	-
Exception Flow	If worker does not confirm after seeing current workers on the issue the process is aborted.
Post conditions	The worker is registered to issue.

Table 7: Register issue function

Use case name	Getting informations about issues
Actors	Workers, Speech to Text Service
Description	Worker scans his/her id card and Garcon gets activated. Then waits for worker to talk to decide what to do.
Data	Audial input from worker
Preconditions	Worker should be authenticated
Stimulus	Worker giving audial input about open issues
Basic Flow	Step 1 – Worker gives audial input Step 2 – Audial input gets processed by Speech to Text Service Step 3 – Server returns open issues from Database
Alternative Flow	-
Exception Flow	-
Post conditions	Worker can see the whole available/open issues from database.

Table 8: Get issue information function

Use case name	Authentication
Actors	Users, Workers, Admins, Card Reader
Description	
Data	Chip from Id Cards
Preconditions	-
Stimulus	Id Card must be scanned
Basic Flow	Step 1 – User/Worker/Admin holds Id Card to the device Step 2 – Device reads the Card and authenticate
Alternative Flow	-
Exception Flow	Step 1 – Card doesn’t recognized or cannot be scanned Step 2 – System displays a visual error output
Post conditions	Authenticate successful and device gets waiting for audial input to work.

Table 9: Authentication

Use case name	Adding users
Actors	Admin
Description	Admin adds new user to database
Data	-
Preconditions	Admin should be authenticated
Stimulus	Admin giving information about new user
Basic Flow	Step 1 – Admin gives information about user Step 2 – Input gets processed by Speech to Text Service Step 3 – User Id Card Scanned Step 4 – New user added
Alternative Flow	-
Exception Flow	Step 1 – Admin gives information about user Step 2 – Input cant be recognized Step 3 – System gives a warning
Post conditions	New user added to the database.

Table 10: Add user function

Use case name	Blocking users
Actors	Admin
Description	Admin blocks user from database
Data	-
Preconditions	Admin should be authenticated
Stimulus	Admin gives delete command and gives information
Basic Flow	Step 1 – Admin gives information about user to be deleted Step 2 – Input gets processed by Speech to Text Service Step 3 – User deleted
Alternative Flow	-
Exception Flow	Step 1 – Admin gives information about user Step 2 – Input cant be recognized Step 3 – System gives a warning
Post conditions	User deleted from the database.

Table 11: Block user function

3.3 Usability Requirements

3.4 Performance Requirements

3.5 Logical Database Requirements

3.6 Design Constraints

3.7 Software System Attributes

3.8 Supporting Information