# Software Requirements Specification

(SRS)

Revision History:

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| --- | --- | --- |
| Date | Auther | Description |
| 2020.3.27 | Hiya | Overall block with Use Cases |
| 2020.4.9 | Hiya |  |
|  |  |  |

1. **Introduction** 
   1. **Intended Audience and Purpose**

This document was written to all entities involved in this product, starting from the developers till the users. The purpose of the document is to give a guideline with all the information needed for each person according to the role that they have in the product.

Therefore, is given the following information to each entity:

Primary Customer – This document shows that all the demands made by the costumer are fulfilled and that it’s explicit on this page. The costumer may find it easily and clearly.

User – The user can understand the goal of the application and the software/hardware needed to run it.

Development team – By reading this document, the development team must confirm all the needs to implement the product.

QA Team – With all the information about the system requirements and the goal of the application, the QA Team must be capable of running some tests to verify that the system is running according to the specifications.

* 1. **How to use the document**

In this document, all the situations that users may face will be found. In the third part, which is referred to the Use of Case part, users will find what they can do in the different situations. When users follow the Use of Case, everything that will happen will be clearly written. For each developer, the information and operations that other groups can provide for you, will be said specifically. When the project is finished, we will also use this document to check if all the requirements can be resolved. If all the people involved agree with what the document has written and after all the developers finish all the tasks, the project will be completed.

1. **System Content**
2. **Use Cases**

**Use cases for the users and the managers**

1. People register his mobile device to be a user

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| --- | --- | --- | --- |
| Use Case | People register his mobile device to be a user | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Cao Xuejiao | | |
| Source | People | | |
| Goals | People register the mobile device and become a user | | |
| Summary | People register the system | | |
| Actors | People | | |
| Trigger | People submit the application of register | | |
| Precondition | People have downloaded the system | | |
| Frequency | Often | | |
| Postconditions | Manager admit the user | | |
| Diagram |  | | |

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| **Basic Flow** | *Actor* | *System* |
|  | Register through the UI |  |
|  |  | Admit as a user |

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| **Alternative Flow** | *Actor* | *System* |
|  |  | Reject the people |

2. User imports the map and Wi-Fi hotspots of one edifice

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| --- | --- | --- | --- |
| Use Case | User imports the map and Wi-Fi hotspots of one edifice | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Cao Xuejiao | | |
| Source | **User** | | |
| Goals | User imports maps and Wi-Fi hotspots from the system | | |
| Summary | User imports maps and Wi-Fi hotspots | | |
| Actors | User | | |
| Trigger | User wants to get the maps and Wi-Fi hotspots he is interested in | | |
| Precondition | People have become a user | | |
| Frequency | Sometimes | | |
| Postconditions | Database stores the maps and Wi-Fi hotspots | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
|  | User sends a command of maps and Wi-Fi hotspots |  |
|  |  | Check the database |
|  | User imports the maps and Wi-Fi hotspots |  |

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| **Alternative Flow** | *Actor* | *System* |
|  |  | Fail searching in the database |

3. User imports the Wi-Fi fingerprints

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| Use Case | User imports the Wi-Fi fingerprints | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Cao Xuejiao | | |
| Source | **User** | | |
| Goals | User imports the Wi-Fi fingerprints | | |
| Summary | User imports the Wi-Fi fingerprints | | |
| Actors | User | | |
| Trigger | User wants to get the Wi-Fi fingerprints | | |
| Precondition | People have become a user | | |
| Frequency | Sometimes | | |
| Postconditions | Database stores the Wi-Fi fingerprints | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
|  | User sends a command of the Wi-Fi fingerprints |  |
|  |  | Check the database |
|  | User imports the Wi-Fi fingerprints |  |

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| **Alternative Flow** | *Actor* | *System* |
|  |  | Fail searching in the database |

4. User wants to get current position of the device

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| Use Case | User wants to get current position of the device | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Cao Xuejiao | | |
| Source | User | | |
| Goals | User gets the current position of the device | | |
| Summary | User gets the current position | | |
| Actors | User | | |
| Trigger | User sends the request. | | |
| Precondition | User has registered his device | | |
| Frequency | Often | | |
| Postconditions | The system calculates positions | | |
| Diagram |  | | |

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| **Basic Flow** | *Actor* | *System* |
|  | Read the current position |  |
|  |  | Detect the fingerprints |
|  |  | Calculate the position |
|  | Get the position of his device |  |

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| **Alternative Flow** | *Actor* | *System* |
| 1. |  | Fail detecting the fingerprints |

5. User gets the past positions of the device

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| --- | --- | --- | --- |
| Use Case | User gets the past positions of the device | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Pang Shengyuan | | |
| Source | user | | |
| Goals | User gets the past position of the device. | | |
| Summary | Manager imports the map to the map management part and the part stores the map | | |
| Actors | User | | |
| Trigger | The manager sends a save request to the system | | |
| Precondition | The system is running | | |
| Frequency | Sometimes | | |
| Postconditions | The system saves the map | | |
| Diagram |  | | |

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| **Basic Flow** | *Actor* | *System* |
| 1. | Send a request |  |
| 2. |  | Receive the request |
| 3. |  | The WIFI fingerprints management detects the WIFI fingerprints of the device |
|  |  | The positions management calculates and records the track |
| 4. | User gets the track of the device |  |
| 5. | User can search the past position during the track on the map |  |

6. Manager stores the map

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| Use Case | Manager stores the map | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Pang Shengyuan | | |
| Source | Manager | | |
| Goals | Manager stores the map | | |
| Summary | Manager imports the map to the map management part and the part stores the map | | |
| Actors | Manager | | |
| Trigger | The manager sends a save request to the system | | |
| Precondition | The system is running | | |
| Frequency | Often | | |
| Postconditions | The system saves the map | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
| 1. | Send a save request |  |
| 2. |  | Receive the request |
| 3. | Import the map to the management part |  |
| 4. |  | save it in the system |

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| **Alternative Flow** | *Actor* | *System* |
|  |  | Not enough space to store the map |

7. Manager draws the inside structure of an edifice

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| Use Case | Manager draws the inside structure of an edifice | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Pang Shengyuan | | |
| Source | Manager | | |
| Goals | Draw the inside structure of the edifice is on top of the map | | |
| Summary | Manager imports the data to the structure part and the part draw the inside structure. | | |
| Actors | Manager | | |
| Trigger | The manager sends a draw request to the system | | |
| Precondition | The system is running and no data errors | | |
| Frequency | Often | | |
| Postconditions | the inside structure of the edifice is on top of the map | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
| 1. | Send a draw request |  |
| 2. |  | Receive the draw request |
| 3. | Import the data of the edifice to the structure part |  |
| 4. |  | Analyze the data and draw the inside structure |
| 5. |  | Put it on top of the map |

8. Manager tracks the changes of registered devices

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| --- | --- | --- | --- |
| Use Case | Manager tracks the changes of registered devices | | |
| Version | V1.0 | Created (date): | 2020.3.27 |
| Author | Pang Shengyuan | | |
| Source | Manager | | |
| Goals | Manager knows the track of the device | | |
| Summary | The system calculates and records the route according to the WIFI fingerprint | | |
| Actors | Manager | | |
| Trigger | Manager sends a track request | | |
| Precondition | The system is running and get the right data | | |
| Frequency | Often | | |
| Postconditions | The system draws a track of the device | | |
| Diagram |  | | |

|  |  |  |
| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
| 1. | Send a track request |  |
| 2. |  | Receive the request |
| 3. |  | The WIFI fingerprints management detects the WIFI fingerprints of the device |
| 4. |  | The positions management calculates and records the track |
| 5. | The manager gets the track of the device |  |

9. Manager redraws the moving path

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| --- | --- | --- | --- |
| Use Case | Manager redraws the moving path | | |
| Version | V1.0 | Created (date): | 2020.3.28 |
| Author | Dong Siyu | | |
| Source | Manager | | |
| Goals | Redrawing the path of registered devices when their positions change | | |
| Summary | Redrawing the moving path | | |
| Actors | Manager | | |
| Trigger | The moving path of registered devices changed | | |
| Precondition | Manager have tracked the changes of registered devices | | |
| Frequency | At any time | | |
| Postconditions | Sometimes | | |
| Diagram |  | | |

|  |  |  |
| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
| 1. | Input the change of the moving path |  |
| 2. |  | Save the change |

10. Manager analyzes and predicts the position in a period

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| --- | --- | --- | --- |
| Use Case | Manager analyzes and predicts the position in a period | | |
| Version | V1.0 | Created (date): | 2020.3.28 |
| Author | Dong Siyu | | |
| Source | Manager and system | | |
| Goals | Analyzing the position changes of registered devices and predicting the position these devices will go through and stay at | | |
| Summary | Analyzing and predicting the position | | |
| Actors | Manager | | |
| Trigger | User sends the request | | |
| Precondition | All of the moving paths have been redrawn | | |
| Frequency | Sometimes | | |
| Postconditions | System has enough data to predict | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
|  |  | Send the moving paths the manager requires |
|  | Write the analyses and prediction |  |
|  |  | Save the analyses and prediction |

11. Manager adjusts the maps

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| --- | --- | --- | --- |
| Use Case | Manager adjusts the maps | | |
| Version | V1.0 | Created (date): | 2020.3.28 |
| Author | Dong Siyu | | |
| Source | Manager | | |
| Goals | Adjust the maps to adapt to the actual circumstance changes and some special needs (e.g. part of the edifice needs to be closed for construction) | | |
| Summary | Adjust the maps | | |
| Actors | Manager | | |
| Trigger | The actual circumstance changes and some special needs arise | | |
| Precondition | The old maps exit | | |
| Frequency | Sometimes | | |
| Postconditions | System have enough data | | |
| Diagram |  | | |

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| **Basic Flow** | *Actor* | *System* |
|  |  | Send the old maps |
|  | Edit the new maps |  |
|  |  | Override the maps |

12. User deregisters

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| --- | --- | --- | --- |
| Use Case | User deregisters | | |
| Version | V1.0 | Created (date): | 2020.3.28 |
| Author | Dong Siyu | | |
| Source | User | | |
| Goals | User deregister the mobile device | | |
| Summary | User deregister the system | | |
| Actors | User | | |
| Trigger | User submit the application of deregister | | |
| Precondition | User wants to quit from the system | | |
| Frequency | Often | | |
| Postconditions | Manager deals with user’s application of deregister | | |
| Diagram |  | | |

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| --- | --- | --- |
| **Basic Flow** | *Actor* | *System* |
|  | submit the application of deregister |  |
|  |  | deals with user’s application of deregister |

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| **Alternative Flow** | *Actor* | *System* |
| 1. |  | Reject the user’s application |