ParkSpot V1: Functional Requirements Specifications

ParkSpot

Full stack Solutions: Tari Mautsa

Contents

1 Introduction

1.1 Definitions, Acronyms and Abbreviations

- MPS- My Parking Spot.
- PS- Parking Spot.
- PS(s)- Parking Spot(s).
- UML- Unified Modeling Language.
- Car Park/ Parking Lot/Parking Space- A designated area to park vehicles of any type.
- Mobile Device- a portable computing device such as a smartphone or tablet computer.
- Bluetooth- This is a wireless technology standard used for exchanging data between fixed and mobile devices over short distances using short-wavelength .

1.2 Purpose

Quite a number of motorists face the challenge of securing a parking spot once they arrive at a parking lot. This results in the motorists wasting time, energy and fuel trying to locate a parking space which may make one late for a commitment, become frustrated or even leave a parking lot and search for another, in the hope to locate a parking spot. Some even end up parking in awkward and unsafe places.

MPS is the solution we have for all motorists as it is a system that searches for available parking spots for the motorist when then arrive or enter into the vicinity of a parking lot, saving the motorist time, energy, fuel and ensuring they get to their destination in time and not in a flustered manner.

1.3 Project Scope

MPS has the following main functions that build up most of the project

- Upon entry of the vehicle into a parking lot, MPS scans the entire parking space for available parking .

- MPS informs the motorist via audio or text for any available PS(s). It displays a route the motorist can follow to reach the PS. If there are not any available PS, MPS informs the motorist to try the next parking lot if there is more than one.

- MPS helps the motorist locate their vehicle if they forget where they parked it. It leaves a landmark of the vehicle or PS on the system where the vehicle would be parked.

- MPS will be able to connect to a vehicle via Bluetooth

- MPS will notify user of close by drive-ins for food, petrol stations and car-washes areas.

2 User Characteristics

2.1 Users

- Motorist
  This type of user should be able to operate and interact with mobile applications on a mobile device. If they are able to interact with applications such as Google maps, Wyze, they will be able to interact with MPS. The user should also be knowledgeable with Wireless Technologies such as Bluetooth and the user will use MPS for the purpose of locating a PS in a Parking lot as well as locating their vehicle.

- Motorcyclist
  This type of user should be able to operate and interact with mobile applications on a mobile device. If they are able to interact with applications such as Google maps, Wyze, they will be able to interact with MPS. The user should also be knowledgeable with Wireless Technologies such as Bluetooth and the user will use MPS for the purpose of locating a PS in a Parking lot as well as locating their motorcycle/ motorbike.

- Cyclist
  This type of user should be able to operate and interact with mobile applications on a mobile device. If they are able to interact with applications such as Google maps, Wyze, they will be able to interact with MPS. The user should also be knowledgeable with Wireless Technologies such as Bluetooth and the user will use MPS for the purpose of locating a PS in a Parking lot as well as locating their bicycle.

3 Functional Requirements

3.1 System Components

- Search - For searching for open available PS(s).
- Notification- For notifying the user of nearby garages, eating places etc.
- Wireless Connectivity- For connecting MPS to a vehicle's Bluetooth.
- Communication - For interacting with the user to inform them of available PS(s) or whether the user needs to check another parking lot.

3.2 Requirements

- R1- MPS will allow for wireless connecting ability with a mobile device.
- R2 - MPS will allow the user to register them self and the type of vehicle they use.
- R3- MPS will perform a search for available PS(s) on the geographic area that associated with the parking lot, upon entry of the vehicle in the vicinity.
  - R3.1 If an available PS is found, MPS will inform the user and provide a route for the user to use to get to the PS.
  - R3.2 Once the user parks, MPS will landmark the PS or the vehicle on the system.
  - R3.3 If there isn't any available PS(s) in the current paring lot MPS will inform the user to try another parking lot if there is more than one parking lot or if its one parking lot, MPS will simply inform the user there is no available parking.
- R4 - MPS will use the landmark to help the user locate where the vehicle is parked if the user forgets.
- R5 - MPS will notify user of close by drive-ins, petrol stations and car wash areas.
- R6- MPS will be able to interact with the user when it needs to connect to the vehicle's Bluetooth, informing the user of available parking spots or whether it needs to search the next parking lot.

4 Non-Functional Requirements

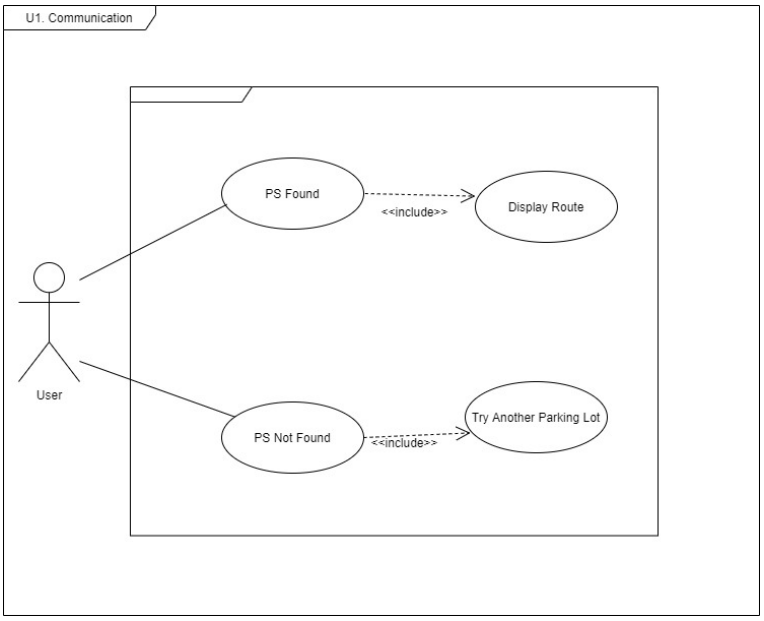
4.1 Quality Requirements

- Reliability
- Usability
- Performance
- Flexibility

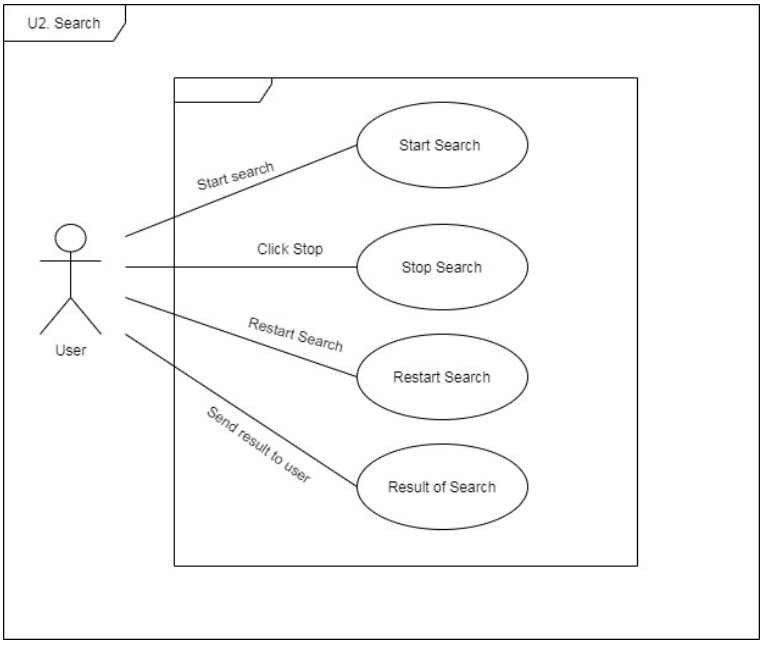
4.2 Constraints

- MPS will not locate a PS in a parking lot when the vehicle will not be in the current parking lot.
- If there are no available PS(s) in a parking lot, MPS will not inform the user in terms of time when the next available PS will be.

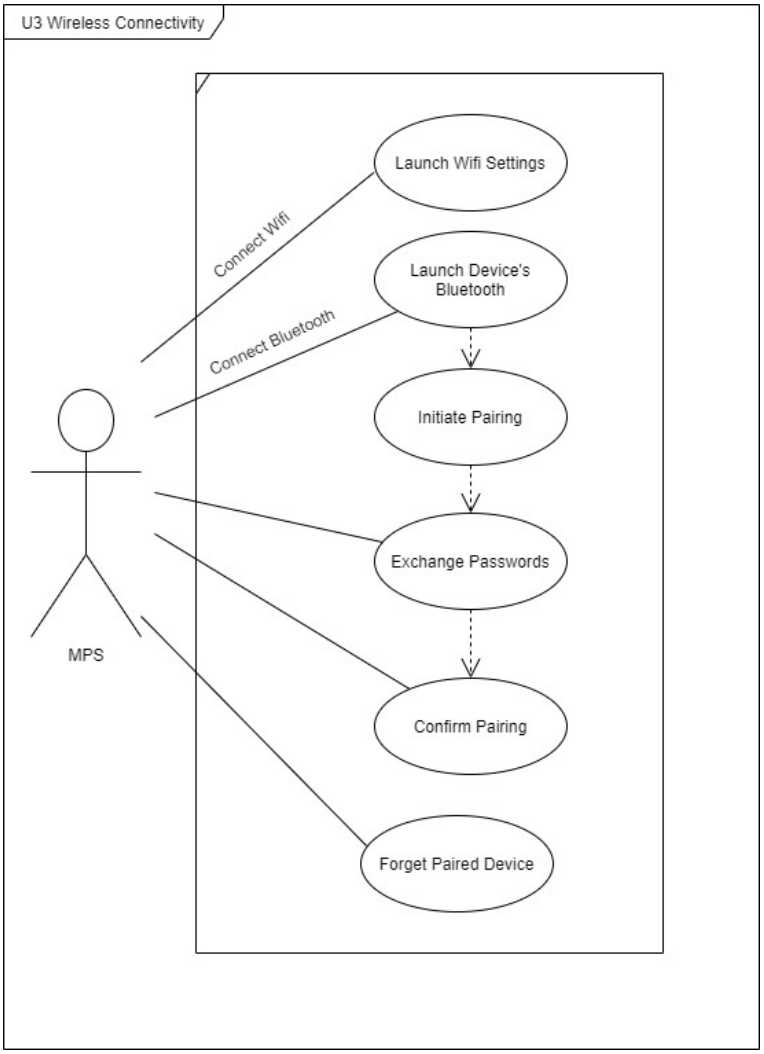
5 Use Case Diagrams



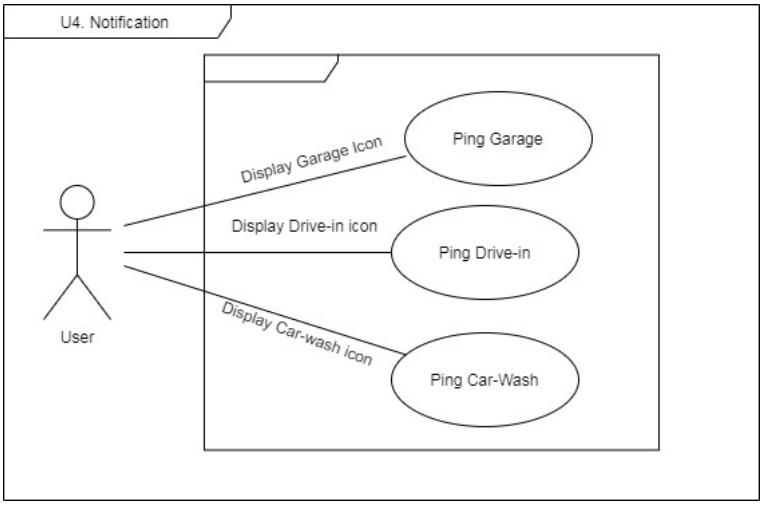
Communication Use Case Diagram



Search Use Case



Wireless Connectivity Use Case

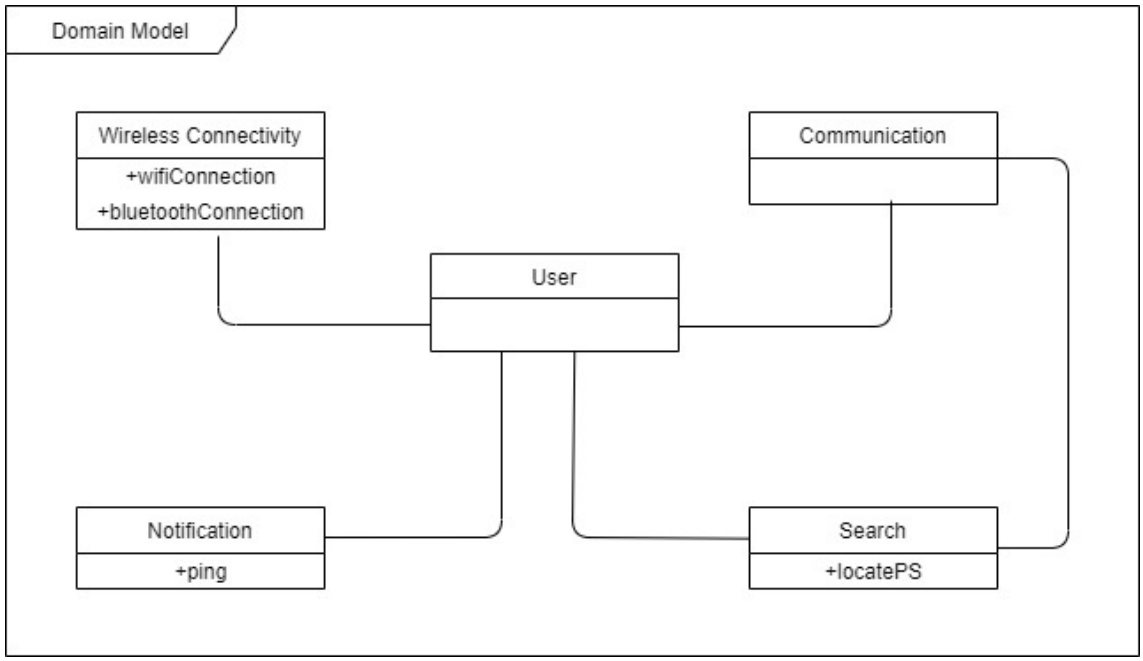


Notification Use Case

6 Traceability Matrix

	Search	Communiation	Wireless Connectivity	Notification	Registeration
R1			X		
R2					X
R3	X				
R3.1		X			
R3.2					X
R3.3		X			
R4					X
R5				X	
R6		X			

7 Domain Model



Domain Model for System