1920aGroup3 – ParkingLot1

Requirements Document for Parking-Lot Project

Version 1.0 (PURPOSE):

The purpose of the Parking-Lot project is to allow vehicles to enter and exit the parking lot while supporting all the complex situations.

The parking-lot is considering every possible situation such as VIP vehicles entering the parking lot, full parking-lot, multiple vehicles want to enter the parking lot.

~~We assign reserved spaces for VIP vehicles (Ambulance, Doctors etc.). The parking lot has several entries.~~

Main Assumptions:

1. Vehicles of any type are allowed to enter the parking lot while there is space.
2. Eventually, a vehicle needs to exit the parking lot. Therefore, there is no situation where the parking lot is always full.
3. Eventually, every vehicle which wants to enter the parking lot will enter and not disappear.
4. Vehicles may enter the parking lot only when the gate is open.
5. ~~In case a VIP vehicle enters the parking lot and all reserved spaces are occupied one of the VIP vehicles shall exit the parking lot.~~
6. ~~Cars in the parking lot shouldn't collide.~~

Main Guarantees:

1. We support FIFO principle for cars parking. (The meaning of FIFO in our project regards the gate – which means the first car that will reach the gate will be the first one to enter the parking lot)

2. If a vehicle wants to enter the parking lot and there is space, eventually the entrance gate will open.

3. If a vehicle wants to leave the parking lot, eventually the exit gate will open.

4. ~~If there is an emergency in the building all VIP spots turn into regular ones.~~

5. ~~If a parking spot is under maintenance, it's color will turn into red which means that the spot isn't available for vehicles.~~

6. ~~A parking spot can be under maintenance only if there isn't a car in it.~~

7. ~~We allow several cars driving in the parking lot in the same time.~~

Requirements:

ID	Priority (H/M/L)	Description
1	H	Parking cars mechanism
~~1.1~~	~~H~~	~~Safe parking mechanism – no collision between cars~~
1.2	H	Fair car parking mechanism (FIFO)
1.2.1	H	Every vehicle wishing to park will park eventually in the parking lot.
~~2~~	~~H~~	~~VIP cars parking mechanism~~
~~2.1~~	~~H~~	~~VIP cars get parking spot priority. (They have special spots)~~
~~2.1.1~~	~~M~~	~~Full occupation VIP parking spots mechanism (Make one parking VIP vehicle leave the parking lot)~~
~~3.~~	~~M~~	~~Closed parking spot situations~~

4	H	GUI
4.1	H	~~Design~~
4.1.1	M	Parking lot design
~~4.2~~	~~M~~	~~UX~~
~~4.2.1~~	~~M~~	~~Environment Control Panel~~
~~4.2.2~~	~~H~~	~~Action Screen~~
4.3	H	Connection with the controller API
4.4	H	Clearing parking lot before playing
4.5	H	GUI System mechanism
4.6	H	GUI core
4.7	H	Spectra assumptions and guarantees
4.8	H	Motion mechanism
4.9	H	Controller's states and environment synchronization

Scenarios:

Scenario #	Nickname	Description
0	Inception	One car enters and exits the parking lot.
~~1~~	~~Tel Aviv~~	~~It's rush hour and the parking lot is full.~~
~~2~~	~~VIP~~	~~VIP vehicle wants to park and all the VIP parking spots are occupied.~~
~~3~~	~~Stupid~~	~~Vehicle wants to enter the parking lot when it is closed.~~
~~4~~	~~Caesarea~~	~~More than one vehicle wants to enter the parking lot.~~
~~5~~	~~The winner takes it all~~	~~All reserved spots are occupied but one and more than one VIP vehicles wishes to park.~~