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| Faculty of ACES. 2nd Year. |
| Software Engineering Methods and Concepts. |
| Course Assignment 2015-2016 |



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## 1 Production Function

The Car Park System will perform the following functions:

* Accept tokens and provide services
* Decrements the number of spaces available in the car park when the car enters
* Accepts payments
* Increments the number of spaces available in the car park when the car leaves
* Allow companies to offer discount schemas (e.g. fixed price per day)
* Allow users to insert there coin and apply the discount based on the company they work at
* Shows Available spaces on each floor
* Shows Available spaces on a display’s around the city
* Offer secure car park services
* Allow admin staff to activate an emergency mode if one was occurred
* Allow admin staff in maintenance mode to be notified when they
* Allow staff to see the entrance and exits with cameras

## 2 General Constraints

The following design constrains are for the Car Park System:

* The customer cannot access the car park when it is full or in case of emergencies
* In case of emergencies all cars cannot leave or enter the car park to allow the smooth entry for emergency vehicle.
* In case of emergency all cars parking fees freezes until the emergency situation is over.
* The program will be written in C#
* In case of a lost token the customer must contact the management office with the relevant identification documents to issue a replacement.
* The secure parking requires the driver to be the only driver in that car to enter and exit the car park.
* The secure parking will require the driver’s face to be visible at entrance and exit to the car park.
* The car park staff will have to check the driver if the software detect a different driver is exiting the car park.
* The entry and exit barrier will may not be operational when maintenance mode requiring the staff to manually open the gates

## 3 External Interface Requirements

User Interfaces

The car park system will have the following users:

* The car park user.
* The car park management staff.

Car Park User

**Using the Car Park.**

The customer will enter the car park first and press a button then receives a token. The barrier will the raise to allow the vehicle to enter and decrements the number of spaces available in the car park. The customer will then park into an empty bay and park there. When he wants to leave he inserts the token and chooses a payment method. The customer can then leave the car park and the number of available spaces increments.

Car Park Management Staff.

**Using the Car Park.**

The management and staff acting as customers will use the car park system the same way a typical customer would use the system.

**Internal Operations.**

The car park management staff will be able to raise / close barriers manually which it could be used in emergency situation to allow the emergency vehicle to enter and exit smoothly. They can also issue a token in case the customer lost his token by tracking his/her car plate no, and prevent overcharge if applicable. They can also issue discount card for certain customer that match certain criteria.

## 4 Performance Requirements

The response time for the menu changes will be no more than (2) seconds.

The customer will have 30 seconds to reply before screen goes to main menu there will be warnings message 15 seconds before that happens.

The time to read token should not exceed (3) seconds.

The displaying of the camera feed will not exceed 3 seconds after the user has clicked enter.

## 5 Design Constraints

## 6 Attributes