

# Business Requirements Document [BRD]

## **Parking Management**

DWIT Parking allocation System

Deerwalk Institute of Technology

Version 1.0

*Pankaj KC*

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## VERSION AND APPROVALS

| VERSION HISTORY  |             |                   |                          |
|------------------|-------------|-------------------|--------------------------|
| <u>Version #</u> | <u>Date</u> | <u>Revised By</u> | <u>Reason for Change</u> |
| 1.0              | 06/21/2014  | Pankaj KC         |                          |
|                  |             |                   |                          |
|                  |             |                   |                          |
|                  |             |                   |                          |

This document has been approved as the official Business Requirements Document for <Book First>, <Book First- The DWIT Book Reservation System>, mentioned as BF hereafter, and accurately reflects the current understanding of business requirements. After approval of this document, requirement changes will be governed by the project's change management process, including impact analysis, appropriate reviews and approvals.

| DOCUMENT APPROVALS   |                     |                                      |             |
|----------------------|---------------------|--------------------------------------|-------------|
| <u>Approver Name</u> | <u>Project Role</u> | <u>Signature/Electronic Approval</u> | <u>Date</u> |
| Craig Appl           | Mentor              | <i>Craig Appl</i>                    | Mm/dd/yyyy. |
|                      |                     |                                      |             |
|                      |                     |                                      |             |

## Glossary of Terms

| <u>Term/Acronym</u> | <u>Definition</u>                |
|---------------------|----------------------------------|
| DWIT                | Deerwalk Institute Of Technology |
| TBD                 | To be determined                 |

## PROJECT DETAILS

|                           |                                                         |
|---------------------------|---------------------------------------------------------|
| <b>Project Name</b>       | Parking Management                                      |
| <b>Project Type</b>       | <b>NEW INITIATIVE(e.g. New Initiative or Phase II)</b>  |
| <b>Project Start Date</b> | mm/dd/yyyy                                              |
| <b>Project End Date</b>   | mm/dd/yyyy – Place end date as sometime in IV Semester. |
| <b>Project Sponsor</b>    | Deerwalk Institute of Technology                        |

## EXECUTIVE SUMMARY

Every Employee and the Students of DWIT gets a free parking spot to park their vehicles. No specific plots are divided for parking so anybody can park anywhere, but soon demand for the parking spot is likely to increase. In this situation there is complexity on identifying the free plot for parking if the respective person is lucky then he/she may find the free plot. Otherwise there is always a conflict between the Vehicle owners for parking. In the present situation there is no one to manage the parking.

The Parking management will help every person at Deerwalk to tackle the parking problems inside the Deerwalk complex. Every information regarding parking spots and as well as information regarding to parked vehicle owner will be available, which ultimately results in better parking for all at Deerwalk. Finally, it will help every Deerwalker (Employees & Students) providing facility to park their vehicle in a manner based on the parking system, every person will acquire equal opportunity to park their vehicle. This system can help to standardize Deerwalk parking and help every person at Deerwalk.

## DOCUMENT RESOURCES

| <b>Name</b>                      | <b>Business Unit</b>                      | <b>Role</b>                                                                              |
|----------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------|
| Students and Employees           | All the student and employees in Deerwalk | Students and Employees are end users who use this system to allocate their parking spot. |
| Security Guard/ Any other person | Any who will manage the parking           | Scan the ID card of every vehicle owner of Deerwalk to allocate the parking spot.        |
| Admin                            | One who manage this system                | Configure this system.                                                                   |

## VISION AND SCOPE

### 4.1 Project Overview and Background

It is too difficult to identify the parking spot at Deerwalk because there is an increasing number of employees and students who own their own vehicles. Firstly, every morning either employees or students get involved in conflicts for parking spot.

Currently, there isn't any management process to manage the parking. Everybody is free to park anywhere at parking spot. No vehicle counting system that how many vehicles currently at the Deerwalk compound.

After introducing the parking management system in Deerwalk, one can specifically reserve a parking plot/spot for parking according to the priority based i.e. who will reserve the plot first? , Notification from the parking management system to a display screen that how many free parking spots are available at the moment. If the parking is full it will also indicate that it is full. If suddenly even a single spot gets available then according to priority the parking space will be allocated to the one. The process continues in the same way. This way, all the people inside Deerwalk will follow the systematic parking system and the problem will be handled genuinely.

### 4.2 Scope of Initial Release and Future Releases

| <b><u>Feature</u></b>                                | <b><u>Initial Release</u></b>                                 | <b><u>Future Releases</u></b>                   |
|------------------------------------------------------|---------------------------------------------------------------|-------------------------------------------------|
| Configure the system                                 | Admin                                                         |                                                 |
| Login/Logout                                         | Parking Handler                                               | DWIT team/Deerwalk Services Employess/ Visitors |
| See updates on Available/Non Available parking spots | On a Digital system to Employees of Deerwalk/Students of DWIT | ID card scanning to allocate the parking space  |

#### 4.2.1 Limitations and Exclusions

| Limitations                          | Exclusions                               |
|--------------------------------------|------------------------------------------|
| It will be only focusing of managing | This release will only focus for running |

|                                 |             |
|---------------------------------|-------------|
| and allocating the parking spot | on Desktop. |
|---------------------------------|-------------|

### 4.3 Project Dependencies

- To allocate the parking spot from the user ID card of either student/employees of Deerwalk must be scanned.

### 4.4 Stakeholders and their Profiles

The following comprises the internal and external stakeholders whose requirements are represented by this document:

|    | Stakeholder                                                      | Major Value                                                    | Major Interests      |
|----|------------------------------------------------------------------|----------------------------------------------------------------|----------------------|
| 1. | Admin                                                            | Configure the system.                                          | Manage the system.   |
| 2. | Students/Employees                                               | Get informed regarding the free parking spot if available/not. | Saves a lot of time. |
| 3. | Security Guard/Any other who will handle the parking at Deerwalk | Can allocate the parking spot to students and employees        | Input to the system  |

### 4.5 Project Timeline

|    | Phase                        | Timeline   |
|----|------------------------------|------------|
| 1. | Write the Software           | mm/dd/yyyy |
| 2. | Develop initial phase        | TBD        |
| 3. | Write BRD and SRS for future | TBD        |

## KEY ASSUMPTIONS AND CONSTRAINTS

### 5.1 User Load

Only a single person who will manage the parking at Deerwalk will activate the system once every day.

### 5.2 Key Assumptions and Constraints

| # | Assumptions                                                                                                               |
|---|---------------------------------------------------------------------------------------------------------------------------|
| 1 | Each day system will be activated and at the end of the day will be deactivated.                                          |
| 2 | All the stakeholders will be comfortable using a parking system.                                                          |
| 4 | All students/Employees will be able to choose their own favorite parking spot every day.                                  |
| 6 | After every parking entry the system will be automatically updated.                                                       |
| # | Constraints                                                                                                               |
| 1 | This is not a fully dependable system that provides end to end solution as need for human interaction cannot be ruled out |

### 5.3 Major Features

| Feature Code | Use Case ID | Feature description                                        |
|--------------|-------------|------------------------------------------------------------|
| FE – 1       | UC – 1      | CREATE A SINGLE USER                                       |
| FE – 2       | UC – 2      | VIEW STATUS OF PARKING & INPUTS THE INFORMATION (MANUALLY) |
| FE - 3       | UC – 3      | UPDATE THE SYSTEM AFTER EACH TRANSACTION (AUTO)            |

## USE CASES

### Use Case Narrative

|                |                      |                    |            |
|----------------|----------------------|--------------------|------------|
| Use Case ID:   | UC -1                |                    |            |
| Use Case Name: | CREATE A SINGLE USER |                    |            |
| Created By:    | ADMIN                | Last Updated By:   | ADMIN      |
| Date Created:  | MM/DD/YYYY           | Date Last Updated: | MM/DD/YYYY |

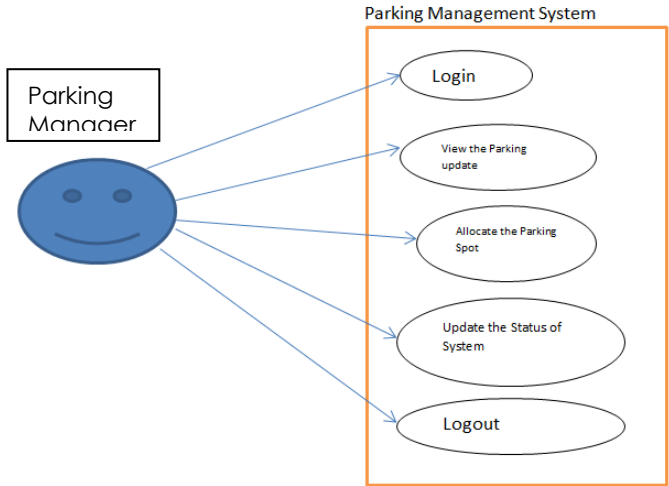
|                 |                                                                                                                                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Actors:         | ADMIN                                                                                                                                                                                                                             |
| Description:    | CREATE SINGLE USER TO LOGIN TO THE SYSTEM(For System Startup)                                                                                                                                                                     |
| Preconditions:  | System Opened on Desktop                                                                                                                                                                                                          |
| Postconditions: | -                                                                                                                                                                                                                                 |
| Normal Course:  | <ol style="list-style-type: none"> <li>1. Open System</li> <li>2. Login to the system.</li> <li>3. Configure the user &amp; make necessary changes. Logout.</li> <li>4. Admin is responsible for maintaining any Error</li> </ol> |

|                       |                                                                                                                                                                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | occurring in the system.                                                                                                                                                                                                                                                                                |
| Alternative Courses:  |                                                                                                                                                                                                                                                                                                         |
| Exceptions:           |                                                                                                                                                                                                                                                                                                         |
| Includes:             |                                                                                                                                                                                                                                                                                                         |
| Priority:             | HIGH                                                                                                                                                                                                                                                                                                    |
| Frequency of Use:     | MEDIUM                                                                                                                                                                                                                                                                                                  |
| Business Rules        |                                                                                                                                                                                                                                                                                                         |
| Special Requirements: | <ul style="list-style-type: none"> <li>Accessible at Working Hours</li> </ul>                                                                                                                                                                                                                           |
| Assumptions:          | Workable 18 Hours Per Day                                                                                                                                                                                                                                                                               |
| Notes and Issues:     |                                                                                                                                                                                                                                                                                                         |
| Use Case Graphics     | <pre> graph LR     Admin((Admin)) --&gt; Login(Login)     Admin --&gt; Create(Create A Single User)     Admin --&gt; Maintain(Maintain the System)     Admin --&gt; Logout(Logout)     subgraph "Parking Management System"         Login         Create         Maintain         Logout     end </pre> |

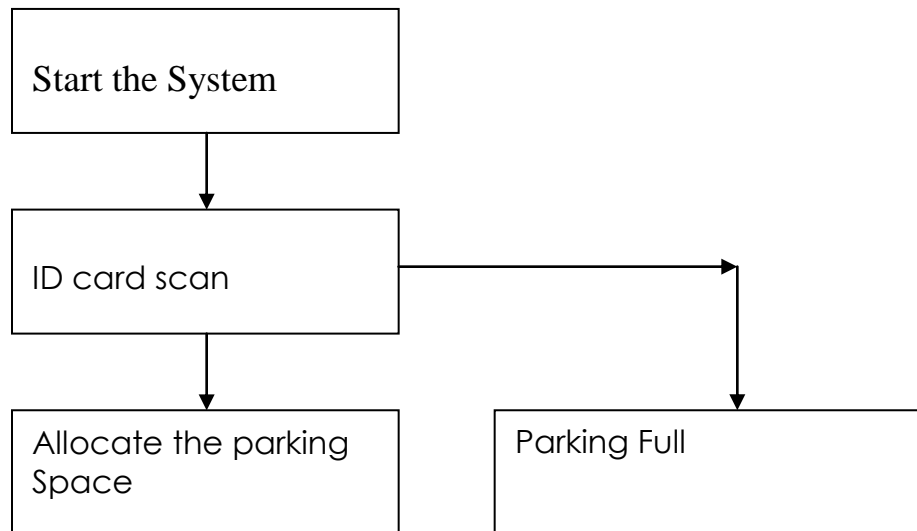
|                |             |                    |            |
|----------------|-------------|--------------------|------------|
| Use Case ID:   | UC - 2      |                    |            |
| Use Case Name: | VIEW STATUS |                    |            |
| Created By:    | ADMIN       | Last Updated By:   | ADMIN      |
| Date Created:  | 06/22/2014  | Date Last Updated: | MM/DD/YYYY |

|                               |                                                                                                                                                                        |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Actors:                       | Respective Parking Manager                                                                                                                                             |
| Description:                  | This use case describes that how the viewer can see the parking status.                                                                                                |
| Preconditions:                | Viewable at Desktop.                                                                                                                                                   |
| Postconditions:               | -                                                                                                                                                                      |
| Normal Course:<br>NORMAL USER | <ol style="list-style-type: none"> <li>1. System must be active.</li> <li>2. Only the viewers(Employees and Students)</li> <li>3. Allocate the Parking Spot</li> </ol> |



|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      | 4. Update the System after each transaction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Alternative Courses: | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Exceptions:          | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Priority:            | Medium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Frequency of Use:    | Infinite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Business Rules       | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Assumptions:         | Only one will view the status for others.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Notes and Issues:    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Use Case Graphic     |  <p>The diagram illustrates the Use Case Graphic for the Parking Management System. On the left, there is an actor labeled "Parking Manager" represented by a blue circle with a smiley face. To the right, a large orange rectangle represents the "Parking Management System". Inside this rectangle, there are five use cases represented by ovals: "Login", "View the Parking update", "Allocate the Parking Spot", "Update the Status of System", and "Logout". Five blue arrows originate from the "Parking Manager" actor and point to each of the five use cases, indicating that the manager can perform all these actions.</p> |

## BUSINESS REQUIREMENTS



## Business Rules Catalog

Instructions: Use the following template for each business rule.

|                     |                                                                                           |
|---------------------|-------------------------------------------------------------------------------------------|
| Business Rule Name: | Allocate the parking Space                                                                |
| Identifier          | BR2                                                                                       |
| Description         | By default the vehicle owner gets a free parking spot and spot remains with His/Her name. |
| Source              | Parking Manager                                                                           |
| Related Rules       | Parking by sequencing order of Plots                                                      |

|                     |                                                                                                           |
|---------------------|-----------------------------------------------------------------------------------------------------------|
| Business Rule Name: | Parking Full                                                                                              |
| Identifier          | BR3                                                                                                       |
| Description         | Red Notification for full, If the parking gets full the system will no longer take any input transaction. |
| Source              | Parking Manager                                                                                           |
| Related Rules       |                                                                                                           |

|                     |              |
|---------------------|--------------|
| Business Rule Name: | System Sleep |
|---------------------|--------------|

|               |                                                                                                      |
|---------------|------------------------------------------------------------------------------------------------------|
| Identifier    | BR4                                                                                                  |
| Description   | After the working Hours of Deerwalk Complex the Parking Manager puts the System to Sleep Mode(Login) |
| Source        | Parking Manager                                                                                      |
| Related Rules |                                                                                                      |