# Requirement Documents for

## Dynamic Response to Urgent Maintenance Requests System project

**Version 0.0**

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**Author: Chun F, Chak**

**Group: 12**

# Document Revision History

| Date | Version | Description | Author |
|---|---|---|---|
| 9/24/2017 | 0.0 | Initial draft | Chun F Chak |

# 1 Introduction

## 1.1. The Purpose

Since Maintenance communication is always a deadly problem, it is good to have a complete system to stabilize the completeness of a communication system that allow the maintenance team to work essentially. Therefore, this documentation is to ensure the system to be built for having a good communication between maintenance staff, maintainers, Campus Community Members(CCMs). The Dynamic Response to Urgent Maintenance Requests System (DRUMRS) will give us a new overview for the new communication system that allow us to provide excellent service to the community.

## 1.2. System Overview

The document describes the user requirement for our DRUMRS system in the maintenance team at the University of Minnesota. The design will be covered in more urgent maintenance communication rather than regular maintenance.

# 2 User Requirement Documents for DRUMRS

## 1. software Overview

1.1. The system shall link to a central storage system to allow requests to be stored.

1.1.1. The system shall allow Maintenance staff to have direct access to make changes about the request.

1.1.2. The system shall allow Maintenance staff to access a to-do list to priory different request.

1.1.3. The system shall allow Maintenance to change the status of the request after they had the work done.

1.1.4. The request shall contain status of the request, the person who call for request a fix, the maintenance staff who respond the call, date, location and contact information for the person who call.

1.1.5. The system shall allow the requests to be grouped in different ways, such as grouped by status, grouped by location, grouped by importance etc.

1.1.6. The requests information shall not be deleted.

1.2. The system shall allow Maintenance staff to assign work for maintainers.

1.3. The system shall allow maintainers to sign before and after the maintenance to make sure someone is doing the regular maintenance or special request.

1.4. The system shall notify IT team if there is any sort of system error.

1.5. The system shall be able to cancel the duplicated requests and indicate the rest of the requests have been duplicated.

1.6. The system shall allow maintainers to sign when they finished a request from CCMs.

1.7. The system shall allow maintainers to cancel any requests under approved by maintenance staff.

1.8. The system shall be able to identify different types of person to use the system.

1.8.1. People except CCMs should use U-card to allow the system to recognize them in order to provide advanced accessibility.

1.9. The system shall have two types of operations, Urgent Maintenance and Regular On-demand Maintenance.

## 2. Urgent Maintenance

2.1. They system shall allow Campus Community Members(CCMs) to call Maintenance Staff for request.

2.1.1. The system shall let CCMs talk to Maintenance Staff if CCMs made the call.

2.1.2. The system shall allow Maintenance Staff to file a request that store the information from the users.

- The system shall save users input such as name, email, phone numbers for future contacts.
- The system shall be able to locate where the request is made.

- The system shall be able to record the date of the request is made.

2.2. The system shall alert the CCMs to ensure they want to make the call.

2.3. The system shall send an automatic email to the CCMs if he/she made a request.

## 3. Regular Maintenance

3.1. The system shall alert maintenance if someone is requested for maintenance fix which is not filtered as urgent maintenance.

3.2. The system shall alert maintenances if no one has sign in to do the regular maintenance task.

3.3. The system shall show there is a need to fix even there is no one file an request

3.4. The system shall list as on-demand maintenance if the regular maintenance has last more than two hours.

## 4. On-demand maintenance

4.1. If the on-demand maintenance is requested, the interface shall allow CCMs to specific what kind of maintenance it should be done.

4.2. If the on-demand maintenance is requested rapidly, the system shall notify the system administrators.

4.3. The system shall allow Maintenance staff to file a request that store information from the users. (Req. 4.1.2)

4.4. The system shall allow the CCMs who call for request to notify the status of the request.

4.5. The system shall send a notification to maintenance staff to follow up the request if it is needed.

## 5. Communications

5.1. If there is no one taking the call or the department is already closed, the system shall allow CCMs either transfer call to emergency calls or leave voice message.

- If the call had transferred to emergency calls, the system will file a request and specified as emergency situations.

- If the calls had left a voice message, it shall send a email to staff members that they could be able to follow up the request.

5.2. The system shall be support the attendance of all staff members, maintainers, system administrators.

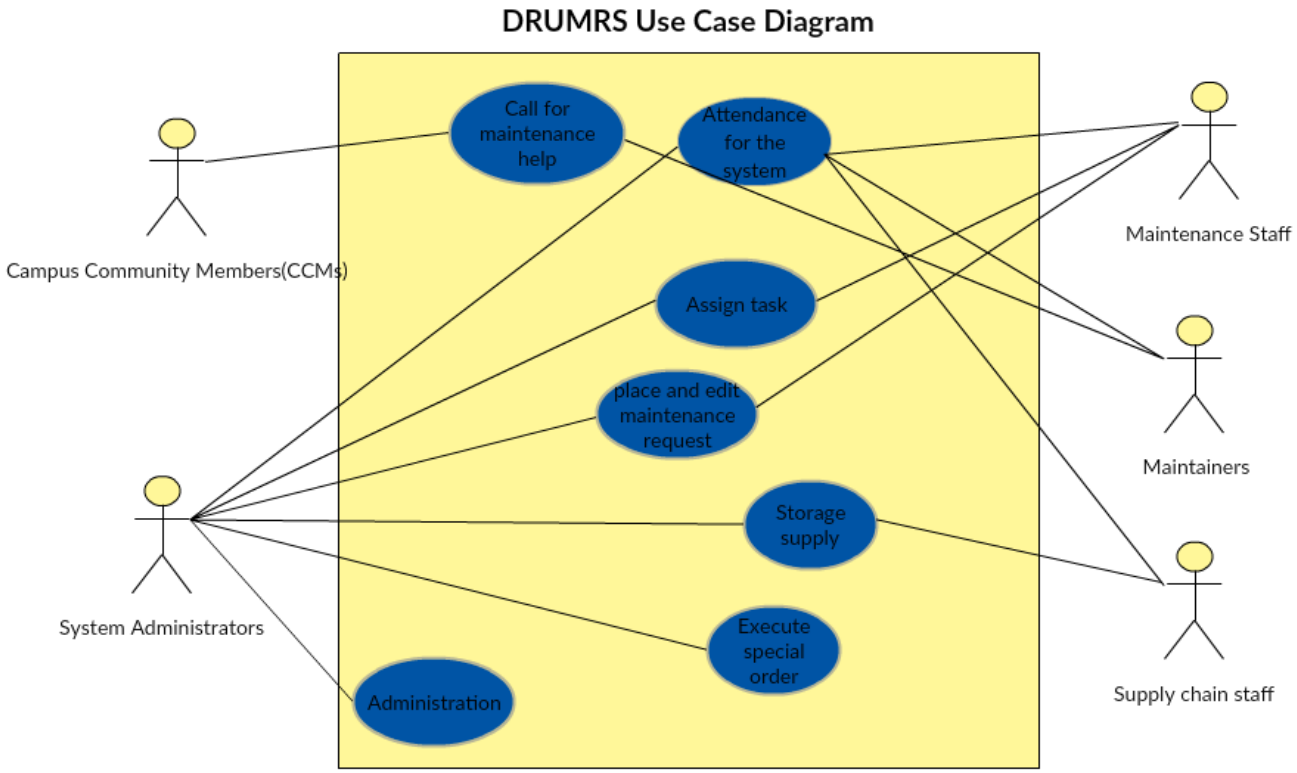
5.3. The system shall notify the storage team if there is a need to stock back the materials that is needed.

5.4. The system shall allow a primary access to add request into maintainers calendar.

5.5. Each majority-used room should have one technique outputs to allow CCMs to call the FCAM facility such as phone, touch screen monitor etc.

5.6. When CCMs is making calls to the maintenance staff, the system shall show to the CCMs that they are calling or anything happens.

# UML Use Case Diagram



## Use Case Name: Attendance for system

**Description:** System Administrators, Maintainers, Supply chain staff, Maintenance Staff should have higher priority access to the system, such as sign in and off at work and doing request.

**Basic Course of Events:**

1. The system required U-card x500 and the passwords in order to log in to the system.
2. The system reads the card.
3. The system asks the users for passwords.
4. The system validates the passwords as well as the U card ID.

**Alternative Paths:** If the system cannot read through the U-card, the system will ask to swipe the card again. If it failed for 3 times, the system will allow to type in your ID number.

**Exception Paths:** If the user enters incorrect password, the system will allow user to enter password again. If it fails on the third time, the system will not accept the card unless under authorization of system administrators.

**Trigger:** A user want to login to the system.

**Assumption:** A user has a U-card ID and a valid password.

**Precondition:** None

**Postcondition:** None

**Actor:** Maintainers, System Administrators, Maintenance staff

**Date:** 9/24/2017

Requirements Document for Maintenance System

**Use Case Name**: Storage Supply

**Description:** The supply chain staff should allow to access to the storage supply and to track down what is need to be replace and refill.

**Basic Course of Events**:

1. Completion of Attendance of the System.
2. An item is needed in order to finish the task.
3. Supply chain staff will transfer the item if there is a stock in the stock room
4. Report the remaining number of item.

**Alternative Paths**: None

**Exception Paths**: If there is not a needed item in the storage room, notify to the system administrators for further.

**Trigger:** An item is needed to replace.

**Assumption**: There is a needed item in the storage room

**Precondition**: None

**Postcondition**: None

**Author**: Supply chain staff, System Administrators

**Date:** 9/24/2017

CHUN F CHAK
9/24/17

Requirements Document for Maintenance System

**Use Case Name**: stored requests

**Description**: stored requests into the server/ centralized library

**Basic Course of Events**:

1. A maintenance staff filed a request for the CCM.
2. The system will upload the requests when a request is filed.

**Alternative Paths**: In Step 3, if the system fails to upload the requests, the will send a notice to maintenance staff that it fails to upload and upload again until it succeeds.

**Exception Paths**: If the system has a file failed to upload to the server at the end of the day, it will notify to the IT department.

**Trigger**: A CCM ask for filing a request.

**Assumption**: Issues is required Maintenance team to fix.

**Precondition**: A CCM called for a request.

**Postcondition**: The requests had been uploaded to the server.

**Author**: System administrators, maintenance staff

**Date:** 9/24/2017

**Use Case Name**: Direct Access
**Description**: Maintenance staff should have direct access to the request and to make changes.

**Basic Course of Events:**

1. Completion of use case of store request
2. A maintenance staff edit the request document.
3. The system will push the new document to replace the older version of the request.
4. Completion of Use case of store request

**Alternative Paths**: None

**Exception Paths**: None

**Trigger**: A CCM called and have additional information or detail to add.

**Assumption**: There have already a request on the database or server.

**Precondition**: A CCM called for editing the request.

**Postcondition**: The request had upload for overwriting the request.

**Author**: Maintenance staff, system administrators

**Date:** 9/24/2017

Requirements Document for Maintenance System

**Use Case Name**: access to-do list

Describption: A maintenance staff should be able to access to-do list in order to arrange task to maintainers.

**Basic Course of Events**:

1. Completion of Use Case Stored Request
2. Access to-do list
3. Assign Request Task for available Maintainers
4. Send an email to CCM that the maintainer team will work on the request.

**Alternative Paths**: If a task is assigned to non-available maintainers, return to Step 3.

**Exception Paths**: If the request had been duplicated, directly go to step 4, to tell CCM that there is maintenance team to follow up the request.

**Trigger**: A CCM asks for filing a request.

**Assumption**: A request is needed to fix and there is maintainer is free to do the request.

**Precondition**: None

**Postcondition**: There is maintainers to follow up the request.

**Author**: Maintenance staff, system administrators

**Date**: 9/24/2017

**Use Case Name**: Cancel Duplicated events

**Description**: The system shall notify the maintenance staff there is duplicated events, and ask for cancelation of the duplicated events.

**Basic Course of Events**:

1. The system identifies there is more than two events happen at the same date with same location.
2. The system notifies to the maintenance staff and ask for permission to cancel the duplicated events
3. The request will be cancel and mark as duplicated in the status of the request.

**Alternative Paths**: None

**Exception Paths**: If the system do not get authorized to cancel the duplicate request, the maintenance staff should have access to access to-do list.

**Trigger**: A CCM called and ask for filing a request.

**Assumption**: A request has been filed.

**Precondition**: A request had occurred before with same date and same locations

**Postcondition**: None

**Author**: system administrators, maintenance staff

**Date**: 9/24/2017

Requirements Document for Maintenance System

**Use Case Name**: Make Call

**Description**: A CCM need to use the system to report a issues regarding maintenance team. They will make a phone call to the maintenance staff.

**Basic Course of Events**:

1. A CCM is facing a problem that need maintenance to solve.
2. A CCM activates the user interface to contact the maintenance staff.
3. The interface ensures the CCM want to make the call.
4. The system will link a phone call to CCM and the maintenance staff.

**Alternative Paths**: In step 4, if the CCM decide not to call to the maintenance staff, the entire event stopped.

**Exception Paths**: None

**Trigger**: A issue occurred and needed to fix.

**Assumption**: A CCM plan to call the maintenance staff to file a request.

**Precondition**: A issue occurred.

**Postcondition**: None

**Author**: maintenance staff, Campus community member, system administrators

**Date:** 9/24/2017