**Software Requirements Specification**

**for**

**<File Tracking System>**

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**<version 1.3>**

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**Revision History-**

| **Name** | **Date** | **Reason For Changes** | **Version** |
| --- | --- | --- | --- |
| FTS\_1.0 | 30th September 2017 | Initial SRS | V1.0 |
| FTS\_1.1 | 27th October 2017 | Modifications after understanding | V1.1 |
| FTS\_1.2 | 05th November 2017 | Further modifications after review by Mentor | V1.2 |
| FTS\_1.1\3 | 28th April 2018 | Updated SRS for Integrated System | V1.3 |

# Introduction

The File Tracking System is intended to assist in the tracking and managing of files in our Institute right from the time it is created. It would simplify the process of tracking down a particular file, making the whole movement of the file as transparent as possible.

## Purpose

There exists a lot of time overhead and paper-work involved in the day-to-day file tracking activities. The whole process is quite cumbersome and also inconvenient for any user who wants to know the status of a particular file. With the use of File Tracking System, the whole notion of tracking down a file would undergo a major shift from the paper-work based tracking to online tracking.

The project aims at designing and implementing a user-friendly and secure File Tracking System which addresses the above-mentioned shortcomings of the traditional system, which doesn’t provide any easy approach to tracking a file. It would also cater to the needs of different class of users, i.e. Employee(s).

## Product Scope

The Scope of the File Tracking System includes:

* Providing a user-friendly interface for employees.
* Providing a secure mode for interacting with the system.
* Providing a secured means for creating or processing a file.
* Providing a secured means for tracking status of a file.
* Providing a secured means for visualizing the complete flow of a file.
* Providing secured storage of confidential data on the server.
* Providing appropriate privileges to the different authorities.
* Handling a huge number of files efficiently.

*Providing the authenticated users privilege for changing their account settings, such as registered email address and login password*

## References

Rizwan, Assistant Registrar, Accounts Department.

* Dr. Atul Gupta, Associate Professor, Computer Science and Engineering.

# Overall Description

## Product Perspective

An Employee has a web-based user-interface through which they can interact with the File Tracking System and perform various file operations. There is a login page for the users, from where they can log into their accounts. After successfully logging into the account, the user can perform the available file operations like composing new files, viewing list of draft files, inward files, sent files, forwarding a file and file flow options. These form part of the employee-side interface.

The System Administrator also has a web-based user-interface through which they can interact with the File Tracking System and perform various administrative operations. These consist of creating new user accounts, adding new designations to user accounts, viewing and updating designations, deleting a user account, deleting a designation and changing account settings like email & password. These form the part of the system administrator-side interface.

## Product Functions

File Tracking System provides for online file tracking services to the already registered users, who are the employees. The system would be accessed by both employee(s). It is designed to handle a large number of accounts & files efficiently, with the users having to be registered for the service, which is done by the System Administrator.

Employees are privileged with required permissions to compose a file/document, process a file, view draft files, receive files in Inbox, and send files in Sent Box etc. When an Employee sends a composed file to another employee, the receiver views the description of file and job to be accomplished. An employee who receives a file may forward the file to another employee along with attachments and remarks. A file flow continues like this. A File is sent from one employee to another employee only through designation. Any employee can send a file to any employee in this assumed system. And an employee can appear multiple times in the flow of a file.

System administrator is responsible for performing various administrative operations available with the file tracking system to manage employees. However, system administrators have no privilege to perform any file-related operation. Administrative actions include creation of new user accounts, adding new designations to existing user accounts, viewing the registered set of designations and corresponding details, resetting login password for any user account, deleting a user account, deleting a particular designation from a user account and changing account settings like email and password.

The files involved in the File Tracking System are.

* Soft copies where all files are scanned/soft copies.

**Structure of File:** File contains two parts

1. **Note Sheet:** Note Sheet is a place where details of file like title, description and initial uploader are available. Along with this it contains remarks sent by all employees till present file flow along with data and time of sent and receivers.
2. **Attachments:** Attachments contain all uploaded files by employees involved in file flow data and time wise along with uploader.

**Major Functions of File Tracking System:**

* + **Features accessible to Employee:**
    - Composing a new File/document.
    - View Draft Files
    - Send File (soft copies).
    - Inbox where all received files are displayed.
    - Sent box where all forwarded files are displayed.
  + **Features accessible to System Administrator:**
    - Create a new user or administrator account.
    - Add new designation(s) to a user account.
    - View and update designations & their details.

## User Classes and Characteristics

Following are the users of the module

**Employee:** An employee is a person serving the PDPM-IIITDM Jabalpur in some capacity like a faculty or a staff and should have a PF number and an official institute email id, which should be used for accessing the system.

***Employees***haveprivileges like Composing a File, View Drafts Files, Send File, Forwarding Files, Inbox, and Sent box etc.

**System Administrator:** Generally referred to as an Server-Side Administrator, it refers to a user with enhanced privileges for creating/deleting other user accounts, adding/deleting designations from user accounts and other administrative functions.

## Operating Environment

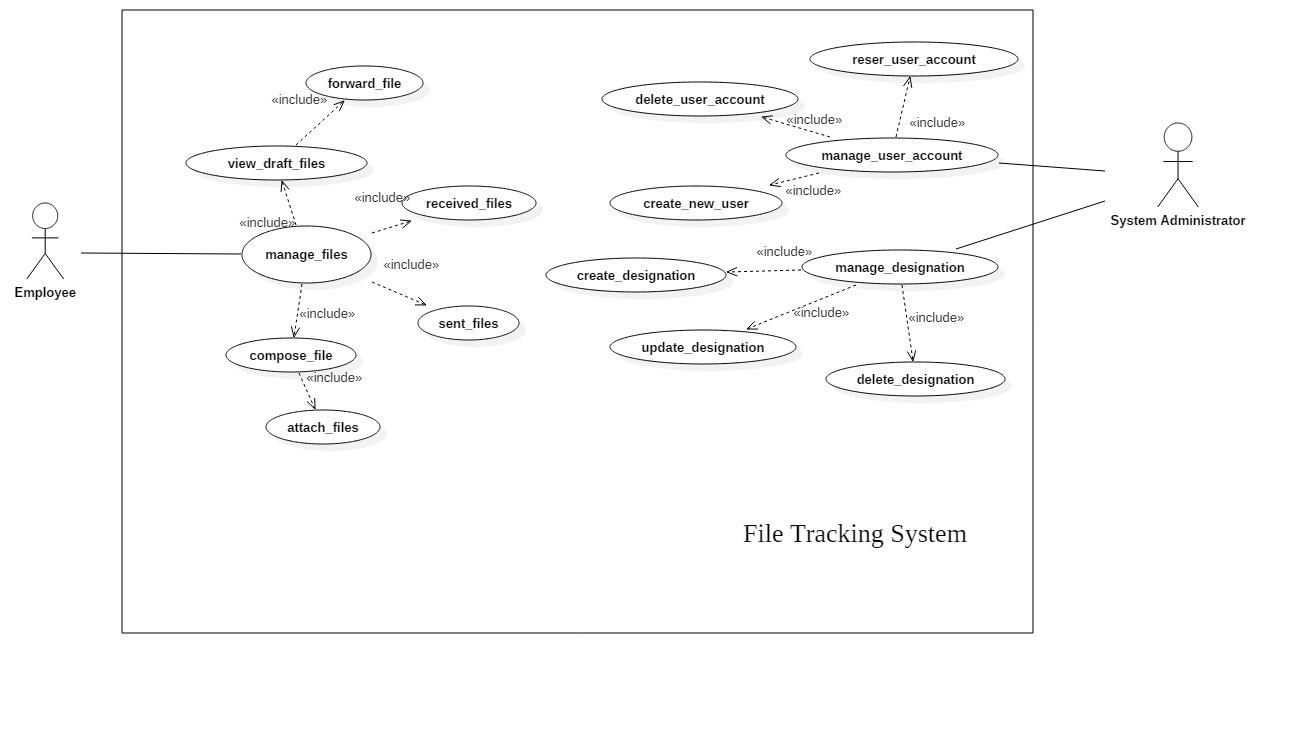
File Tracking System can be accessed over all platforms using the majority of available web browsers.

An Institute employee can only access file tracking system. Any user from outside the Institute will not be able to access the system.

# System Features

## Use Case Diagram

We specify the functional requirements for the module using use cases. The figure represents the use case diagram for the module features.



## 3.1.0 Use Case for Managing Files

* **Use Case #1**

| **UC ID** | UC#1 | |
| --- | --- | --- |
| **Use case Name** | **manage\_files** | |
| **Description** | This use case specifies the managing files of the employee to process the file. For this, the employee can create, send and forward a file. Employee can also view draft files. | |
| **Actor** | Employee | |
| **Precondition** | An Employee must be logged-into File Tracking System | |
| **Main Flow** | **S NO**.  **Description** | |
| **Main Flow** | 1 | A File Tracking System Dashboard is displayed initially to employee after successful login. |
| 2 | The system presents a list of the operations like Compose, Send, View Draft files etc. |
| 3 | An employee selects one of listed options to perform file operations |
| 4 | Following operations can be performed by an employee:  **Compose File** : Creating new file/document. A new file consisting of Reference No. [A1] [S1], Subject [A1], Description of File and Remarks field.  **View Draft File**: An employee can check draft files (files created by user and yet to send) in file work flow.  **Send File**: An employee can send a soft copy file to another employee. [A2]  **Add Attachments**: An employee can add file attachments to file.  **Inbox**: An employee can find all the received soft copy files from another employee by clicking on Inbox file.  **Sent Box:** An employee can find all the sent soft copy files to another employee by clicking on Sent box file. |
| 5 | A successful message is displayed corresponding to file operation. |
| **Post Condition** | After operations are succesully performed, they will be reflected in the database. | |
| **Alternate Flow** | **ID. Description** | |
| **Alternate Flow** | A1 | Reference No., Subject, Destination field cannot be empty. If it is so, error pops up. |
| A2 | If 'cancel' option is selected, then operation will be aborted and system will be redirected to home page. |
|  | **Post-condition –** The system displays the initial screen. |
| **Sub Flow** | S1 | The reference no. is manually entered by composer. |
| **Global Alternate Flow** | GA1 | An employee can ‘cancel’ the operation at any time by exercising such an option. |
|  |  | **Post-condition –** The system returns to the employee ‘Dashboard’ – initial screen. |

**3.1.1 Use Case for Forwarding Files**

* **Use Case #2**

| **UC ID** | UC#2 | |
| --- | --- | --- |
| **Use case Name** | **forward\_file** | |
| **Description** | This use case specifies the forward operation of file to other employee. | |
| **Actor** | Employee | |
| **Precondition** | The user must be logged-into File Tracking System. | |
| **Main Flow** | **S NO**.  **Description** | |
| **Main Flow** | 1 | Employee finds all received files in Inbox. |
| 2 | When employee clicks on Inbox, all inward files are displayed. |
| 3 | An employee can view file by clicking view option of particular received file. |
| 4 | A received file is displayed along with description and attachments to employee. |
| 5 | An employee views file description and attachments and performs his actions like attaching his accomplished files and commenting on tasks to be done by other employee who receives file. |
| 6 | An employee selects receiver and hits forward button. |
| 7 | Then successful message will be displayed. |
| **Post conditions** | After file is successfully forwarded, sender finds file in Sent box and receiver finds file in Inbox. | |
| **Alternate Flow** | **AF ID. Description** | |
| **Global Alternate Flow** | GA1 | An user can ‘cancel’ the operation at any time by exercising such an option. |
|  |  | **Post-condition –** The system returns to the employee ‘Dashboard’ – initial screen. |

## 3.1.2 Use Case for Managing User Accounts (Already implemented in Data Base)

* **Use Case #3**

| **UC ID** | UC#3 | |
| --- | --- | --- |
| **Use case Name** | **manage\_user\_account** | |
| **Description** | This use case describes the management of users accounts by System Administrator. | |
| **Actor** | System Administrator (SA) | |
| **Precondition** | The System Administrator must be logged-in | |
| **Main Flow** | **S NO**.  **Description** | |
| **Main Flow** | 1 | The SA choose the "manage user account" option. Then, three options will be displayed as 'Create New User', 'Reset User Password ' , 'Delete User account'. |
| 2 | In 'Create New User', the SA enters the details for the new user such as PFId [A1], email address [A1], full name [A1], password [A1], confirm password [A2] and indicates whether the new user account is of a new system administrator or not and Clicks 'Create User' button. A success message is displayed back. |
| 3 | In 'Reset User Password ', the SA enters the PFId [A1], new password [A1], retypes new password [A2] and clicks 'Change Password' button. A success message is displayed back to the user saying that the password was reset successfully for the user account [S1]. |
| 4 | In 'Delete User Account', the SA enters the PFId whose account is to be deleted [A1], indicates whether the account to be deleted is a SA's account and clicks 'Delete User Account' button. Then, user account is succesfully deleted. |
|  | 5 | The SA will be redirected to Dashboard. |
| **Post conditions** | The SA processes the user account operations, and corresponding data is reflected in the database. | |
| **Alternate Flow** | **AF ID. Description** | |
| **Alternate Flow** | A1 | PFId, new password and retype new password fields should not be empty and should contain valid PFid, valid password. |
| A2 | The confirm (retype) password and password fields must be same. If not, error pops up. |
| **Sub Flow** | S1 | A mail containing the new password is sent to the email address corresponding to the PFId provided. |
| **Global Alternate Flow** | GA1 | The SA can ‘cancel’ the procedure at any time by exercising such an option. |
|  |  | **Post-condition –** The system returns to the SA ‘Dashboard’ – initial screen. |

## 3.1.3 Use Case for Managing Designations(Already implemented in Data Base)

* **Use Case #4**

| **UC ID** | UC#4 | |
| --- | --- | --- |
| **Use case Name** | **manage\_designation** | |
| **Description** | This use case describes the management of designations by System Administrator. | |
| **Actor** | System Administrator (SA) | |
| **Precondition** | The System Administrator must be logged-in | |
| **Main Flow** | **S NO**.  **Description** | |
| **Main Flow** | 1 | The SA choose the "manage designation" option. Then, three options will be displayed as 'Add New Designation', 'update designation ', 'Delete designation'. |
| 2 | In ' Add New Designation ', the SA enters the details for the new user such as PFId [A1], designation code [A1], designation name [A1], whether the designation belongs to a staff administrator, selects appropriate privileges to assign to the designation and Clicks Add Designation button. A success message is displayed back. |
| 3 | In ' Update designation ', the SA enters the PFId [A1], new designation code [A1], new designation name and clicks 'update designation' button. A success message is displayed back to the user saying that the designation is successfully updated[S1]. |
| 4 | In 'Delete designation ', the SA enters the PFId whose designation is to be deleted [A2], indicates whether the account to be deleted is a SA's account and clicks 'Delete Designation' button. Then, designation is succesfully deleted. |
|  | 5 | The SA will be redirected to the Dashboard. |
| **Post conditions** | The SA processes the user designation operations, and corresponding data is reflected in the database. | |
| **Alternate Flow** | **AF ID. Description** | |
| **Alternate Flow** | A1 | PFId, designation code and designation name fields should not be empty and should contain valid PFid and designation code which doesn't exist already. |
| A2 | SA can 'cancel' delete operation. |
| **Sub Flow** | S1 | A mail containing the new designation is sent to the email address corresponding to the PFId provided. |
| **Global Alternate Flow** | GA1 | The SA can ‘cancel’ the procedure at any time by exercising such an option. |
|  |  | **Post-condition –** The system returns to the SA ‘Dashboard’ – initial screen. |

# Other Nonfunctional Requirements

## Performance Requirements

System should perform efficiently, with all major tasks like updating database

**User response**: The Home Page as well as the other web pages on the website should be able to load in minimum time possible, in which case the page should not be heavy on the network. The system shall respond to any user input within seconds, considering no glitches in the network.

* **Efficiency**: Better component design to get better performance at peak time. The Database accesses should be as efficient as possible. Also, the system will be available to the users 365x24x7 with negligible downtime.

## Security Requirements

Following are the security-related issues to be taken care of:

* Only authorized employees can use the system and no others.
* **Secured Login**: The system will use Captcha Code for filtering automated systems from logging into the system by guessing passwords.
* **Secured Data**: The system will employ complex encryption or hashing algorithm to save confidential user data into the database. It is to be noted that hashing algorithms offer a fool-proof security to store passwords in database.
* System Administrator can only manage user accounts but he cannot do any operations on user data (files).
* An employee can only view files of other employees if and only if he has been granted permission.

## Software Quality Attributes

* **Usability**
  + - **User Interface**: The system shall allow a user to interface with it through mouse/keyboard events on text-fields, check-boxes, buttons and drop down boxes. Also, the user interface should be such that the system is easy to use.
    - **Compatibility**: The user should be able to properly view the web-site in most of the available browsers (Internet Explorer, Firefox and Safari).
    - **Validations**: The user should be flagged appropriate warnings/errors upon invalid input or operations, with specific reference to the error.
* **Correctness**
* Data content in files sent by one employee to other employee must be correct. Incorrect leads to failure of system.
* **Interoperability**
* In file tracking system, files are operated between several employees in file work flow. So, interoperability plays a crucial role in interaction of employees.
* It must ensure that data is exchanged and make use of that information among employees.
* **Robustness**
  + - Interaction between a some employees should not impact on interaction of other employees

## Business Rules

1. System Administrator can only able to manage user accounts, but he cannot perform any operations on their files.

# List of open issues with the module

| **S. No** | **Issue details** | **Category** | **How it can be resolved?** | **Any other relevant information** |
| --- | --- | --- | --- | --- |
| 1. | Auto Increment File ID Department wise | File ID Generation  (Dept/year/month/ID) | Add department field to ‘holdsdesignations’ table in database. | Allot department to each designation |
| 2. | Incomplete Notifications | Notifications | Add Notification Feature | ---- |
| 3. | Sorting Inbox based on designation | Inbox | Using dynamics tabs for each designation in Inbox | Providing tabs in Inbox designation wise. |
| 4. | Form Validations while forwarding file | Form | BY adding form conditions and validations | ---- |

# Some of the issues, problems you faced, lessons you learned during the project.

**Issues and Suggestions:**

We have faced problem in generating automated ID (**Department/Year/Month/File No.**) for file department wise. Suppose an employee has two designations one is assistant professor (CSE) and the other is cc-convener. If employee creates file as assistant professor, then its ID should be named as **CSE/2018/04/#**4. When created as cc-convener its ID is **CC/2018/04/#**1. But there exists no such table in database where designations are categorized department wise. So, we suggest adding required department field to HoldsDesignations table in database.

**Lessons Learned during project:**

We have understood how File Tracking System in Institute works and how file flows from one designation to other designation. We have also got an idea of structure of Institute file. Every file contains two parts, one is **Note Sheet** and other is **Attachments**. In Note Sheet file description and remarks by all employees involved in file are available where as in Attachments, you find all attachments uploaded by employees involved in file. Only Initial uploader can complete file and archive file.