**Group: 6**

Fire Station Management System

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**Introduction:**

Bangladesh Fire Service and Civil Defense is one of the most active organizations ensuring peoples’ safety. Unfortunately the total management system of this organization is quite manual and inefficient. So, our project is to design a system which will automate some sectors of the organization and make this organization more helpful.

**Subsystems:**

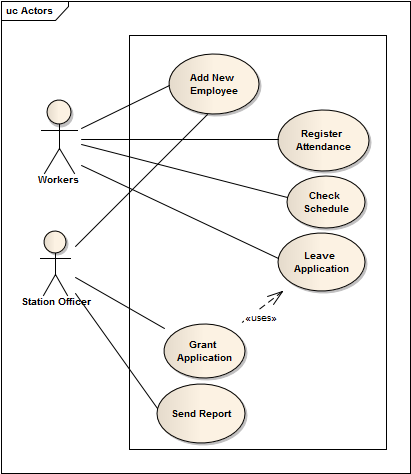
1. Employee Management System
2. Resources and Equipment Management System
3. Fire Response System
4. Post Fire
5. **Use case for Employee management system :**

**Actors:**

1. Station Officer
2. Data Operator
3. Worker
4. Director General Office(DGO)

**Table for Employee Management System:**

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID | Use Case | Participant Actors and roles | System Response |
| 1.1 | Add New Employee | Worker: Joins the respective station | Creates an account for that worker |
| 1.2 | Register Attendance | Worker:  Logs into his account | Automatically keeps record of logs |
| 1.3 | Check Schedule | Worker:  Checks working schedule | System shows his schedule |
| 1.4 | Leave Application | Worker:  Applies for leave to Station Officer | Notifies Station Officer |
| 1.5 | Grant Application | Station Officer:  Grants leave application | Notifies worker about result |
| 1.6 | Send Report | Station Officer:  Sends reports to DGO | Stores and sends report to DGO |

**Use Case Diagram for Employee Management system:**

**Use case Narratives:**

1.1 Add New Employee

Use case id: 1.1

Priority: High

Primary actor: Worker

Trigger: Worker

Typical course of event:

* Worker joins to his respective Station

Documentation:

Conclusion: When system creates worker’s profile

Implementation: Database will be provided to create account

1.2 Register Attendance

Use case id: 1.2

Priority: High

Primary actor: Worker

Trigger: Worker

Typical course of event:

* Worker arrives respective station
* Logs into his account

Documentation:

Conclusion: When Worker logs in

Implementation: GUI will be provided to log into account

1.3 Checking Schedule

Use case id: 1.3

Priority: High

Primary actor: Worker

Trigger: Worker

Typical course of event:

* Worker arrives his respective station
* Logs into his account
* Checks his working schedule

Documentation:

Conclusion: When worker checks his schedule

Implementation: GUI will be provided to show schedule

1.4 Applying For Leave

Use case id: 1.4

Priority: High

Primary actor: Worker

Secondary Actor: Station Officer

Trigger: Worker

Typical course of event:

* Worker Applies for leave
* System notifies station officer

Documentation:

Conclusion: When station officer is notified

Implementation: GUI will be provided to submit application

1.5 Granting leave

Use case id: 1.5

Priority: High

Primary actor: Station officer

Secondary Actor: Worker

Trigger: Station Officer

Typical course of event:

* Station officer checks applications and validity of them
* Takes decision about granting, or not
* System notifies worker the decisions

Documentation:

Conclusion: When worker is notified

Implementation: GUI will be provided to show decision of station officer

1.6 Send Report

Use case id: 1.6

Priority: Medium

Primary actor: Station officer

Secondary Actor: DGO

Trigger: Station Officer

Typical course of event:

* Station officer submits report to DGO
* System notifies DGO

Documentation:

Conclusion: When DGO is notified

Implementation: GUI will be provided to submit and view report

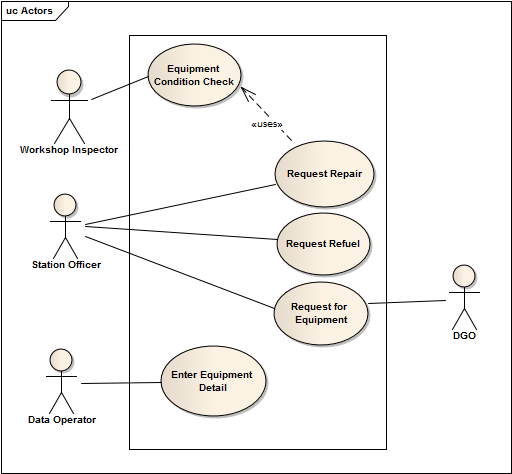
**2. Use Case for Resources and Equipment Management System:**

**Actors:**

1. Workshop Inspector
2. Station Officer
3. Director General Office (DGO)
4. Data Operator

**Table for Resources and Equipment Management System:**

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID | Use Case | Participant Actors and roles | System Response |
| 2.1 | Equipment Condition Check | Workshop Inspector : Checks & Enters Condition of Equipment | Notify Station Officer |
| 2.2 | Request Repair | Station Officer: Sends equipment to workshop | Keeps log |
| 2.3 | Request Refuel | Station officer: Sends car to filling station | Keeps log of fuel |
| 2.4 | Request for Equipment | Station officer: Sends Request for New Equipment to DGO,  DGO: Receives request | Sends notification to DGO |
| 2.5 | Enter Equipment Detail | Data Operator: Enters data of equipment | Keeps and updates description of equipment |

**Use Case Diagram for Resources and Equipment Management System:**

**Use Case Narrative:**

* 1. Equipment Condition Check

Use case id: 2.1

Priority: High

Primary actor: Workshop Inspector

Secondary actor: Station Officer

Trigger: By Workshop Inspector

Typical course of event:

* Check equipment
* Update condition of equipment
* Submit report to station officer

Documentation:

Conclusion: When Equipment check finishes

Post Condition: Inform Station Officer for any problems found

Implementation: GUI will be provided in application to submit & view report

* 1. Request Repair

Use case id: 2.2

Priority: High

Primary actor: Station Officer

Secondary actor: Repair Workshop

Trigger: By Station Officer

Typical course of event:

* Send report to workshop to repair equipment
* Supply necessary data

Documentation:

Conclusion: When Equipment are send to Workshop

Post Condition: Include repaired Resource

Implementation: GUI will be provided in application to submit Repair Request to Workshop.

* 1. Request Refuel

Use case id: 2.3

Priority: High

Primary actor: Station Officer

Secondary actor: Filling station

Trigger: By Station Officer

Typical course of event:

* Check whether fuel is required
* Submit report to Filling station to refuel

Documentation:

Conclusion: When Fire Cars are refueled, Fuel arrives.

Post Condition: keep Log of fuel and cost.

Implementation: GUI will be provided in application to submit & view report to Filling Station.

* 1. Request for Equipment

Use case id: 2.4

Priority: High

Primary actor: Station Officer

Secondary actor: DGO

Trigger: By Station Officer

Typical course of event:

* Check whether new equipment required
* Submit required equipment list
* Provide reason to add new equipment

Documentation:

Conclusion: When DGO is notified about equipment requirement

Post Condition: DGO will check requirement and take necessary action to add new equipment.

Implementation: GUI will be provided in application to submit Equipment request & provide reason

* 1. Enter Equipment Detail

Use case id: 2.5

Priority: High

Primary actor: Data Operator

Trigger: By Data Operator

Typical course of event:

* Keep log of equipment arrives
* Keep log of condition of new equipment
* Update Resource database

Documentation:

Conclusion: When Equipment database is updated

Post Condition: Inform DGO about arrival of new equipment

Implementation: GUI will be provided in application to record  
new equipment details.

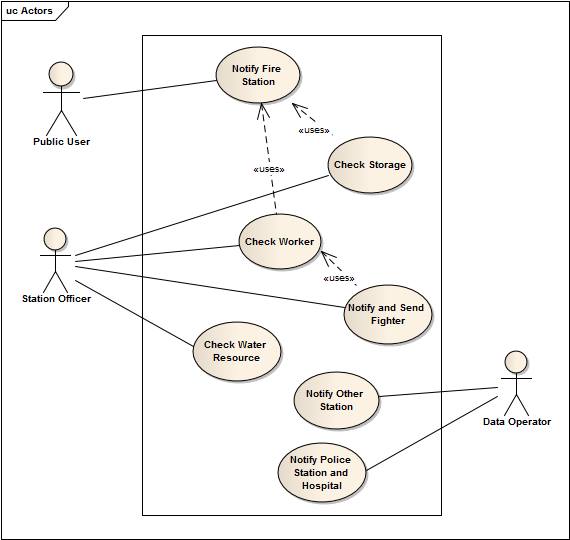
1. **Use Case for Fire Response Management System:**

**Actors:**

1. Public User
   * Notifies station
2. Station Officer
   * Checks available equipment
   * Checks available workers
   * Checks water resources
   * Sends fighters to the spot
3. Data operator
   * Informs other nearest fire station
   * Informs nearest police station and hospitals

**Use-case Glossary For fire Response System:**

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID | Use Case | Participant Actors and roles | System Response |
| 3.1 | Notify Fire Station | Public User: Notifies station | Sends notification to station |
| 3.2 | Check Storage | Station officer: Checks available equipment | Shows storage to the station manager |
| 3.3 | Check Worker | Station officer: Checks available workers | Shows available worker list to the station manager |
| 3.4 | Notify and send Fighters | Station officer:  Notifies and Sends fighters to the spot | Notifies fighters and keeps log |
| 3.5 | Check water resources | Station officer:  Checks available water resources | Shows available water resources nearest from the area to the station manager |
| 3.6 | Notify other stations | Data operator:  notifies nearest other stations | Shows nearest station’s list and other contact information |
| 3.7 | Notify police station and hospital | Data operator:  Notifies nearest police station and hospital | Shows nearest police stations and hospital’s list and other contact information |

**Use case Diagram for Fire Response Subsystem**:

**Use Case Narrative:**

3.1 Notify Fire station

Use Case ID: 3.1

Priority: High

Primary Actor: Public user

Secondary Actor: Station Officer

Trigger: Public user

**Typical Course of Events:**

* Open your App , find the nearest station from the affected area in the map
* Inform the station about the location where to come , about the fire type and infrastructure condition
* The system will forward it to station Officer

**Documentation:**

* Conclusion: When public user notifies the station about the details of fire affected area
* Pre-Condition : notify about the fire type , infrastructure condition
* Implementation: GUI will be provided in the smart phone , a map will come pointing all the current active station , user will tab the nearest station from the affected area , then the station officers cell no and other information will pop up . if the user try to notify the station officer , system will automatically forward the call to him . user will also notify the station about the fire type and infrastructure condition

3.2 Check Storage

Use Case ID: 3.2

Priority: High

Primary Actor: Station Officer

Trigger: Station Officer

**Typical Course of Events:**

* After getting the fire call , station officer will log into the system and will check the available storage in the station

**Documentation:**

* Conclusion: When station officer is informed about the available storage and equipment condition through system
* Pre-Condition : Storage Database must be filled up with necessary information
* Implementation: system will allow station officer to query about the storage and will show the result into the screen of the computer

3.3 Check Water sources

Use Case ID: 3.3

Priority: High

Primary Actor: Station Officer

Trigger: Station Officer

**Typical Course of Events:**

* After getting the fire call , station officer will log into the system and will check the available water resources from the affected area
* He will inform about the water resources to the fireman available then

**Documentation:**

* Conclusion: When station officer is informed about the available water resources near the affected area and informs all the fire man about them
* Pre-Condition : Water resource Database must be filled up with necessary information
* Implementation: system will allow station officer to query about the water sources and will show the result into the screen of the computer

3.4 Check Available workers

Use Case ID: 3.4

Priority: High

Primary Actor: Station Officer

Trigger: Station Officer

**Typical Course of Events:**

* After getting the fire call , station officer will log into the system and will check the available worker and generates a list

**Documentation:**

* Conclusion: When station officer is informed about the available workers
* Pre-Condition : workers Database must be up to date
* Implementation: system will show the station officer current available worker’s list

3.5 notify and send Fire fighters

Use Case ID: 3.5

Priority: High

Primary Actor: Station Officer

Trigger: Station Officer

**Typical Course of Events:**

* Station officer will inform all the current available fire fighters about the fire break out and send them immediately to the place

**Documentation:**

* Conclusion: When station officer informs the fire fighter and send them to the affected place
* Pre-Condition : all workers must be notified , all workers must have a cell phone
* Implementation: system will give all the available fighters a message to come quickly to their phone

3.6 notify other stations

Use Case ID: 3.6

Priority: medium

Primary Actor: Data operator

Trigger: Data Operator

**Typical Course of Events:**

* If the fire condition is severe data operator will notify the other stations through system for their assistance

**Documentation:**

* Conclusion: When data operates informs other station
* Pre-Condition : other station’s necessary information must be logged into system
* Implementation: system will give data operator necessary information about other stations

3.7 Notify Police Station and Hospitals  
Use Case ID: 3.7

Priority: High

Primary Actor: Data operator

Trigger: Data Operator

**Typical Course of Events:**

* Data operator informs the nearest police stations and hospitals about the fire accident

**Documentation:**

* Conclusion: When data operators informs nearest police station and hospital
* Pre-Condition : Nearest police station and hospitals database must be kept up to date in the system
* Implementation: system will give data operator necessary information about nearest police stations and hospitals

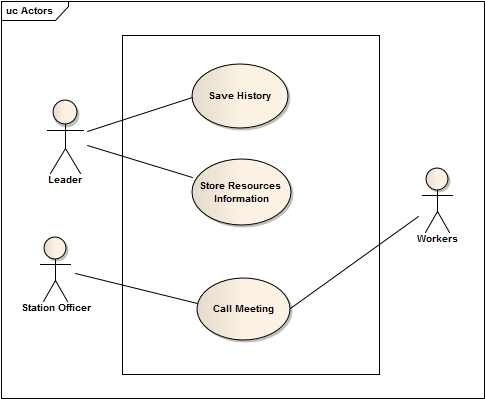
**4. Use Case for Post Fire Management System:**

**Actors:**

1. Leader
2. Station Officer

**Table for Post Fire Management System:**

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case ID | Use Case | Participant Actors and roles | System Response |
| 4.1 | Save History | Leader: After fire operation enters all info | Stores history of Fire operation |
| 4.2 | Store Resources Information | Leader: Stores description and location of Water resources | Stores and updates details of water resources |
| 4.3 | Call Meeting | Station Officer: Calls meeting with workers | Notifies workers |

  
**Use Case Diagram for Post Fire Management System:**

**Use Case Narrative:**

* 1. Save history

Use case id: 4.1

Priority: High

Primary actor: Leader

Trigger: By Leader

Typical course of event:

* Submit report about recent fire break out
* Submit information about new water source
* Submit information about location where fire broke out
* Submit description of problem faced

Documentation:

Conclusion: When history is updated

Post Condition: Inform Station Officer about problems and source condition

Implementation: GUI will be provided in application to submit report about fire breakout, location, water source and problems.

* 1. Store Resource Information

Use case id: 4.2

Priority: High

Primary actor: Leader

Secondary actor: Station Officer

Trigger: By Leader

Typical course of event:

* Enter information about new water source
* Update information about old water source

Documentation:

Conclusion: When water source database is updated

Post Condition: Use information in next emergency

Implementation: GUI will be provided in application to submit and update resource information

* 1. Call Meeting

Use case id: 4.3

Priority: Medium

Primary actor: Station Officer

Secondary actor: Workers

Trigger: By Station officer

Typical course of event:

* Notify Workers about meeting
* Notify workers about schedule

Documentation:

Conclusion: When meeting finished

Post Condition: Update report of meeting and keep log

Implementation: GUI will be provided in application to call meeting and view meeting schedule, information