**Disaster Response and Reporting System**

Table of Contents

[Introduction 3](#_Toc532219384)

[UML diagram 4](#_Toc532219385)

# Introduction

A disaster is an unexpected incident that takes place in an area, causing damage to physical assets and lives of people. A disaster may include incidents such as fire accident, tornado, floods, and a few other natural calamities. Emergency Operation Center (EOC) is a center that works to mitigate the disasters that occur across a county region. Each county will have its own EOC and access to another region EOC’s information with the help of Common Operating Picture (COP). EOC acts as a brain for this disaster management system (DMS). It has a Community Emergency Response Team (CERT) which will comprise of the trained and certified people who visit the disaster-affected area and send information to the EOC. CERT acts as the eyes of EOC. Upon receiving the information from CERT teams about the situation of a disaster, the EOC will send the required teams to the location to deal with the rescue operations. These teams may include the Fire team, Law Enforcement (LE) team, generally referred to as police, & the Emergency Medical Services (EMS) team, generally referred to as the ambulance. These teams act as the Arms and Legs of EOC.

CERT teams will be formed depending upon the capabilities and expertise of individuals. Almost all the CERT members will have had undergone 25 hours training and obtained certification, prior to registering for the CERT membership. The whole idea behind the concept of CERT teams is to make citizens respond to the disastrous situations rather than the victims.

# Problem statement

EOC and CERT members need to communicate to share information between them there are many problems during this communication like:

* EOC would not have a proper visualization of the incident’s impact.
* There would be no proper tracking of historical incidents.
* CERT members may sometimes miss reporting key information like causalities, structural damage, and others.
* CERT members may not provide precise location information.
* Poor Audio Quality since they use walkie-talkies to report.

# Proposed solution

To overcome these problems we decided to create a mobile application for CERT members and a web application for EOC. EOC would be using the web application to deal with applicants, incidents, reports and common operating picture. CERT members would be using the mobile application to signup, register and send reports.

UML diagram

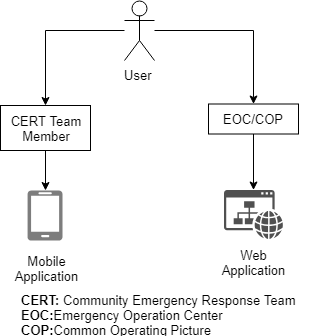


Fig: 1 UML Diagram

# Requirements

**Functional Requirements:**

**Mobile Application (To be used by CERT applicants)**

1. The mobile application shall be able to provide an option to sign up, to be used by CERT applicants to log in to the CERT mobile application.

* The fields of the sign-up form shall be the First Name, Last Name, Email-id, Password and Submit button.

1. The mobile application shall be able to provide an option to the CERT applicant to log in after successful sign-up, by entering the email id and password & clicking on the login button.
2. The mobile application shall be able to provide an option of forgot password, clicking on which a form with fields of entering email and submit button will be available.
3. The mobile application shall be able to provide an option to the logged in CERT applicant, to fill a CERT registration form and submit it.
   * The fields of the registration form shall be First Name, Last Name, Email-id, Phone Number, DOB, Skills, License/Certification number, License/Certificate attachment (Camera button/Attach file of type JPEG, PNG, PDF), Address, Limitations (such as Night blindness, Speech issues, Asthma or others), Submit button.
4. The mobile application shall be able to display a status bar that shows the status (Submitted, Under-Review, Decision) of CERT registration form submitted by the CERT applicant.
5. The mobile application shall be able to receive the decision confirmation made on the submitted CERT registration form by CERT applicant.
6. The mobile application shall be able to provide the dashboard to the CERT applicants whose registration form is accepted.
7. The mobile application shall be able to display the dashboard to the CERT team member with different types of disaster modules, showing its appropriate thumbnail/icon (such as Floods, Tornado, Wild Fires, Earthquake). A module in this scenario refers to the tiny individual clickable components/parts on the dashboard.
8. The mobile application shall be able to receive notifications regarding disasters sent by the web application and display it on the notification icon. The CERT member shall be able to respond to the notification by clicking on the accept or decline button.
9. The mobile application shall be able to provide an option to the CERT team member to click on a disaster thumbnail on the dashboard, to send a report about the disaster’s impact by submitting a disaster report form.
   * The disaster report form shall consist of the type of disaster, its brief description, related image/video (Camera button/Attach file of type JPEG, PNG, MP4) and accurate GPS location (current location button).

**Web Application (To be used by EOC / COP)**

1. The web application shall be able to provide an option to the admin user to log in by entering the email-id and password & clicking on the login button.
2. The web application shall be able to display the dashboard to the admin with different types of disaster modules, showing its appropriate thumbnail/icon (such as Floods, Tornado, Wild Fires, Earthquake). A module in this scenario refers to the tiny individual clickable components/parts on the dashboard.
3. The web application shall be able to provide an option for the admin to create a new disaster module by clicking create an incident button if a disaster occurs.
4. The web application shall be able to provide an option for the admin to archive incident after completion of that incident by clicking archive button on the incident card.
5. The web application shall be able to display all the archived incidents by clicking on archived incidents.
6. The web application shall be able to provide an option to the admin to click & view all the reports in a disaster module. Based on the report, EOC members will assign the arms required for an area. Arms here refer to the emergency service teams like Fire Safety team, Law Enforcement (Police) team, & Emergency Medical Services team.
7. The web application shall be able to provide a display called Common Operating Picture (COP), which show the arms required & arms assigned to a disaster area. This will be accessible to the EOCs of other regions, allowing them to send the arms required in the disaster-affected area, which are not available or insufficiently available with the EOC near the disaster affected.
8. The web application shall be able to provide an option to the admin to switch between the tabs on navigation bar with options like Dashboard Review & Applications Review. Applications review tab in this scenario refers to the page with a list of all registration forms submitted by CERT applicants.
9. The web application shall be able to provide an option to the admin to click and review each of the registration form submitted by CERT applicants.
   * The web application shall be able to provide an option to admin to edit CERT member profile.
10. The web application shall be able to provide an option to the admin to approve or deny the registration form submitted by the CERT applicants.
    * The web application shall be able to send an email confirmation to the CERT applicant conveying if his/her application got approved or denied.
11. The web application shall be able to provide an option to the admin to create, modify or delete the CERT teams, based on the expertise and CERT member location.
    * The web application shall be able to provide a filter option to the admin to list people with certain expertise location.
    * The web application shall be able to provide an option to the admin to create/update/delete the CERT teams by assigning/updating a team name & add/remove CERT member by clicking on add/ remove member button.

**Non-Functional Requirements**

**Accuracy:** Application should be able to store, retrieve and modify data with minimum errors.

**Availability:** Application should be available to authorized persons.

**Mobility:** The application should work even with low internet speeds and even on various screen sizes.

**Scalability:** System should be able to register as many users as possible and data should be stored effectively.

Techniques Used to Gather Requirements

**Interviewing Client:**

Client meeting helped us in gathering requirements for our project. We had weekly client meetings where we met with our client and shared our project status and taken suggestions from the client for further improvement of the project.

**Brainstorming:**

We conducted team meetings and gathered different ideas from our team. We used to discuss all the possible solutions for a problem.