ReportIt!

Characterization Document

# Background

Currently, many municipalities lack an efficient way for citizens to report local hazards, leading to delays in addressing issues like potholes or broken streetlights. Existing methods are slow and prone to miscommunication.

# Purpose of the project

To develop a mobile application that allows citizens to easily report hazards to the municipality. Additionally, a web application will be created for the municipality to view and manage these reports, ensuring faster and more effective resolution of local issues.

# System Description

## Method of Application

1. The system will be developed in two parts: The first part will be a mobile application for citizens, while the second part will be a webbed based application for the municipality.
2. Geographic component will utilize The Google Maps API for the mobile application and leaflet for the web application.
3. Database: ~~MySQL~~ Firestore Database – we switched to Firestore because of ease to use and less time to setup and implement

## System Users

1. **Reporter** – any citizen can photograph and report hazards. Must register.
2. **Municipality handler –** can receive reported hazards, update statuses, see history.
3. **Municipality Manager–** will be able to deletereported hazards, ban users, will supervise municipality handler.
4. **Admin user –** grant permissions, creates user for municipality such as hander and Manager.

Each user will be identified with email and password.

# Functional Requirements

Mobile Application:

* **Report a hazard –** The system must allow users to submit hazard reports with location, description and photo.
* **GPS location –** The app must support Both automatic GPS-based location selection and manual map-based selection.
* **View submitted reports –** The app must allow users to view a list of their submitted reports and their statuses.
* **Registration –** User must be registered to be able to use the application.
* **Authentication –** Users must be logged in and authenticated before they can report or see submitted reports.

Web application:

* **Interactive Report Map –** The web application must display all reports on an interactive map.
* **Manage Repots –** The web application must allow handlers to view details of reports, update statuses and add comments.
* **Filter and Search –** The web application will have filtering and searching functionality for reports.
* **Authentication –** Authentication must be implemented to restrict access to handlers and reporters.

# Non- functional Requirements

* The system must process and display reports in under 3 seconds.
* The system should support up to 10,000 concurrent users without performance degradation.
* All data must be encrypted in transit and at rest.
* The system must be available 99% of the time.
* The interface must be intuitive and compatible with modern browsers and Android 7.0+ devices.

# Flow charts

תמונה שמכילה צילום מסך, עיצוב

התיאור נוצר באופן אוטומטיWeb Application: Mobile Application:

תמונה שמכילה טקסט, צילום מסך, עיצוב גרפי, עיצוב

התיאור נוצר באופן אוטומטי

# App screens

Mobile Application:

Web Application:

# Database

The database will include all user information and all reports details. The database will be a ~~MySQL~~ Firestore database.

The following information will be saved:

**Users Table:**

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Description** |
| ~~user\_id~~ | ~~INT (PK)~~ | ~~Unique user id~~ |
| ~~username~~ | ~~VARCHAR~~ | ~~User’s name~~ |
| Email | VARCHAR | User’s email |
| Password | VARCHAR | User’s password |
| Role | VARCHAR | Reporter/handler/Manager/Admin |
| FirstName | VARCHAR | User’s first name |
| LastName | VARCHAR | User’s last name |

**Reports Table:**

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Description** |
| report\_id | INT (PK) | Unique report id |
| ~~user\_id~~ reporterEmail | ~~INT (FK)~~ VARCHAR | Reporter’s Email |
| latitude | FLOAT | Latitude of hazard |
| longitude | FLOAT | Longitude of hazard |
| ~~City~~ Address | VARCHAR | Address of the hazard |
| description | TEXT | Hazard’s Description |
| photo\_url | VARCHAR | URL of uploaded photo |
| status | VARCHAR | Open/In Progress/ Resolved |
| category | VARCHAR | Type of hazard |
| submission\_date | TIMESTAMP | Date of report submission |
| HandlerEmail | VARCHAR | Handler of the Hazard Email |