Idea/Approach Details

Ministry/Organization name:Central Ministry

Problem Statement:During travelling on roads, the commuters come across potholes/accidents/landslides/ other hazards that may lead to accidents. Citizen feedback is a important feature that will enable Govt. authorities to take timely action on road not maintained. An application may hence be developed to capture GIS based images of potholes/accidents/landslides/ other hazards by the citizens. The road user will register on the application and upload the captured image of the highway. The Govt. authority will be provided with an option to upload images informing of the action taken in response to the feedback provided. The exercise shall bring a feeling of owning of highways among the citizens.

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Description of the Idea /Solution/ Prototype:

To create an app which would hold the concerned authorities accountable and make them responsible for the maintenance of roads. Through this app, a user will report about a pothole by uploading a GIS-based image and the pictures of the pothole for easy identification. Image Processing will be used to avoid false or repetitive reports. All the related reports will be grouped based on location and sent to the concerned government officials after a set duration decided by the Admin(based on parameters such as no. of reports and current weather). Users signed in the app will be able to up-vote reports to help address the situation swiftly. Government officials can update on the reports by uploading images of repaired roads. Users signed in can enter their travel route and will get updates(alert/push notifications) if the road is accident prone or landslides or potholes affected. Government officials will be ranked based on their prompt action and how well are the roads repaired.

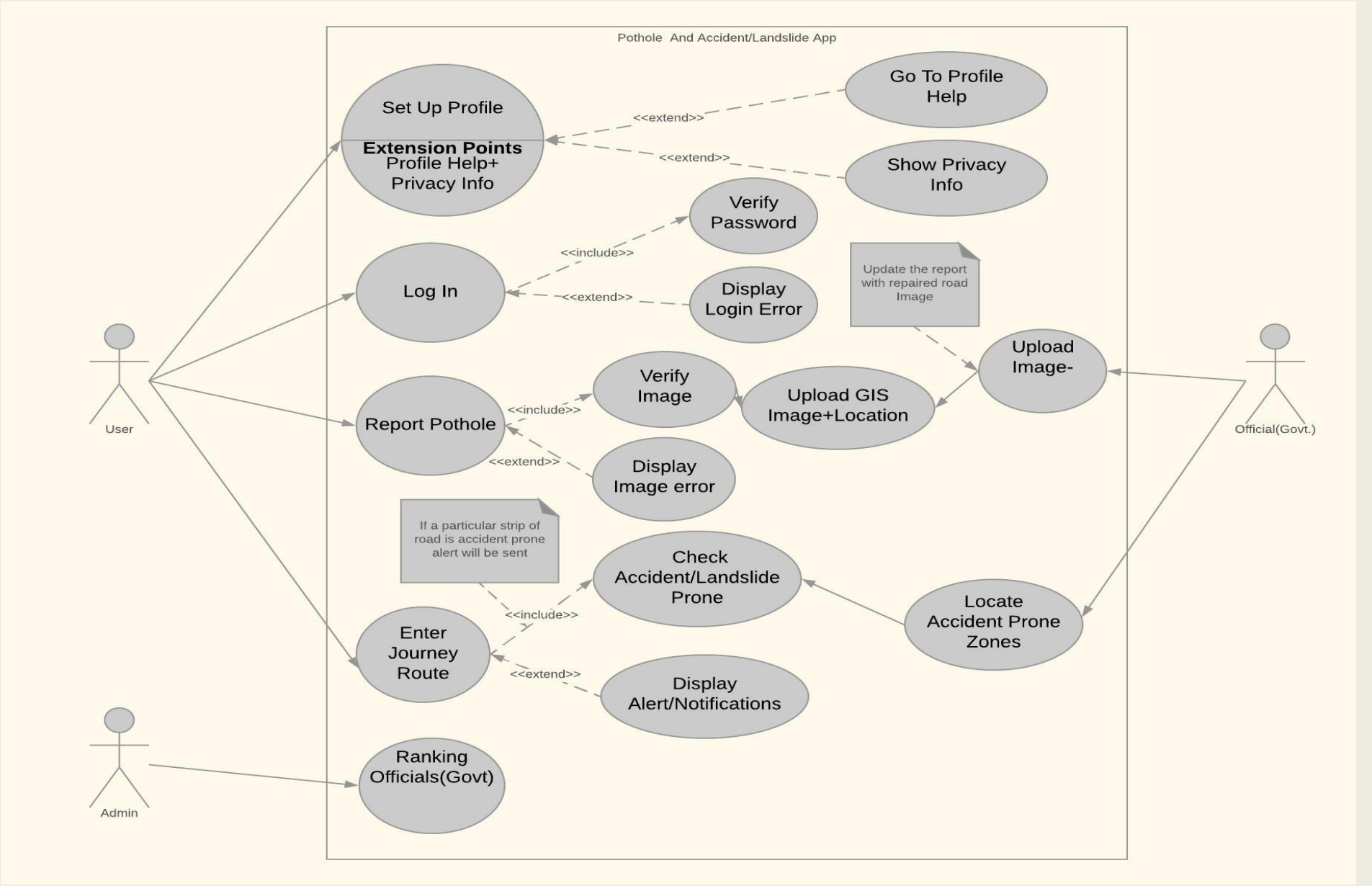
Technology Stack:

Client-side: React Native Framework
Native Base Library

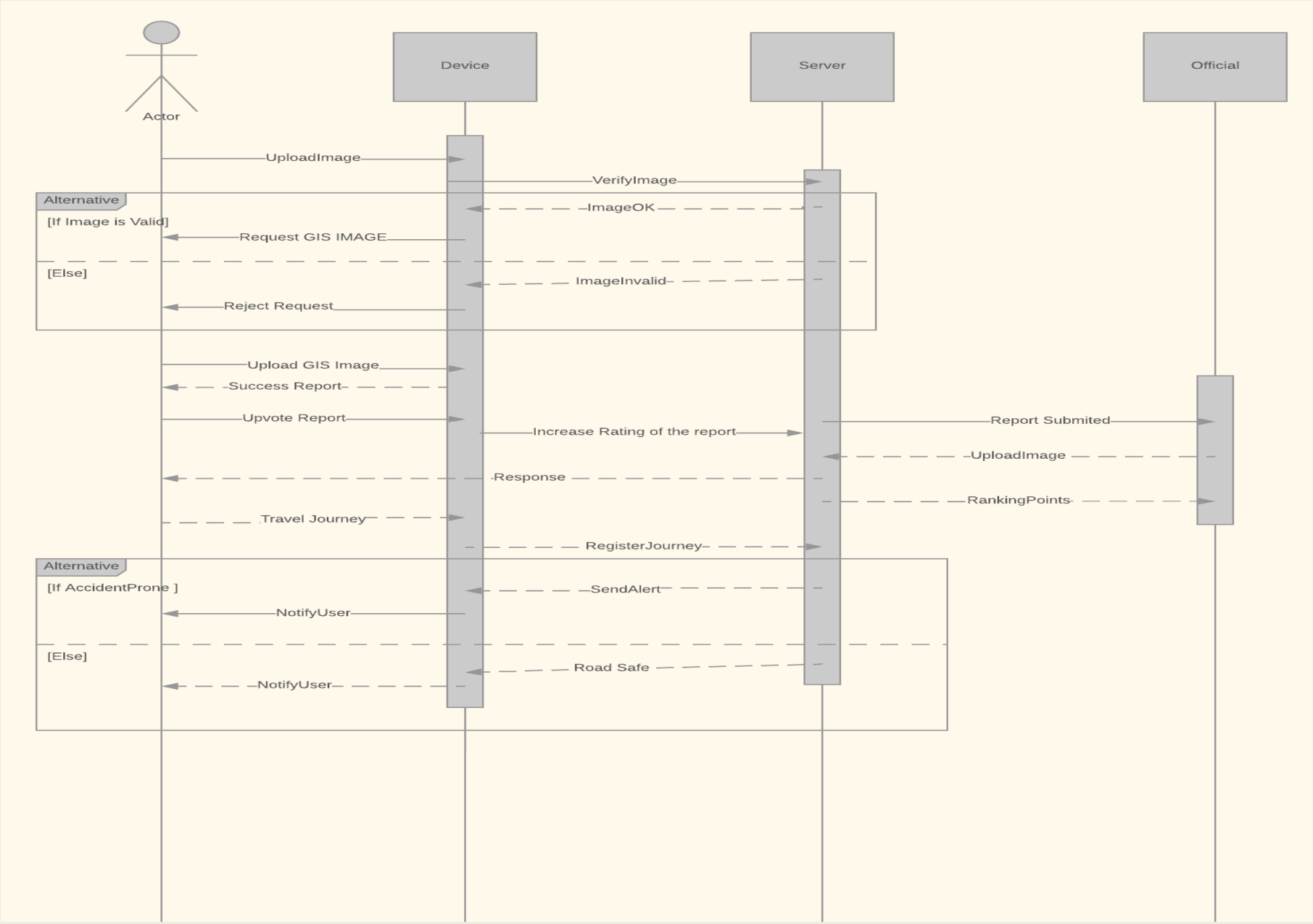
Server-side: Node.js
Express Framework
MongoDB[For storage of user data& related details]
Firebase[Storage of media]
Tensor Flow Framework
OpenCV Library

Description of Use Cases:

UML Use Case Diagram:



UML Sequence Diagram:



Users: A user will/can report about a pothole by uploading a GIS-based image and the pictures of the pothole for easy identification. Users signed in the app will be able to up-vote reports to help address the situation swiftly. Users signed in can enter their travel route and will get updates(alert/push notifications) if the road is accident prone or landslides or potholes affected. Once the report is addressed the user can rate how well is the road repaired.

Govt. Officials: Govt. Official will/can upload the images of the repaired roads with additional comments about it. Govt. Officials can alert uesrs about road which are prone to accidents/landslides**.**

Admin: Admin will/can manage all the activities on the app, he will/can rank Govt. Officials based on various parameters such as promptness, quality of repair, rating by the users etc.. Additionally admin has the right to activate/deactivate any user or official in case of unethical activities.

Dependencies/Show Stopper:

Data set for pothole identification: It is very important to identify false reports by image processing, getting relevant data sets and training the model with appropriate data elements.