

# Speak Up

***Crime against Women(POC)***

**Team Name: BackPropg**

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# Idea Overview



- 26 crimes against women are reported every hour. 1 crime registered every 2 minutes. Many more go unreported or ignored. 36% of crimes were registered under 'cruelty by husband and relatives'.
- 37% of these victims could have been saved if they had easier access to the emergency authorities.
- To overcome this problem, we propose an app which makes use of GPS, speaker(voice detection), camera and button to provide women a tool to protect themselves and accelerate the action taken by the concerned authorities.
- This app will generate a trigger on detecting trigger words/on scan of fingerprint/on press of power button 3 times and send a notification to the concerned authorities within the geofence.
- Also a lot of women face social media exploitation through negative/abusive comments on social media, so through our website, we will block such comments.



# Software Consideration



## Software Platform



- Cross Platform App(Flutter).
- Web Application (Django , HTML CSS , BootStrap).

## Functional Requirements



- Enable each User to have an account.
- Share current location and send alerts to authorities on trigger activation.
- Feature to enable video recording whenever needed.

## Software/Hardware Dependencies



- Mobile :
  - GPS enabled android smartphone.
  - Flutter.
  - Flutter packages.
  - Geofence packages.
  - Speech recognition APIs.
  - Android > 4.4.
- Web :
  - Selenium Web Drivers.
  - Django
  - Data Analytics Tools.

## Design Constraints



- Mobile:
  - Mobile on + Internet connection
  - Access to current location of user.
  - App will be working in the background,battery drainage.
  - Filter/remove background noise.
- Web:
  - Users will be required to provide their credentials.
  - Extra permissions may be required from the social media sites to log in to them through webdrivers .
  - Permissions may be required for deleting content from them.

# Software Consideration



## Mobile Application

- Cross platform app using flutter with firebase with backend.
- Voice recognition for trigger words:
  - Speech recognizer APIs :
    - Picovoice : Porcupine (Tag Words)
    - Flutter : speech\_recognition
    - iOS : Speech API
    - Android : SpeechRecognizer
  - Tensorflow.js + ml5.js (server-side) : soundClassifier()
- Activity Detection (Sensors) : activity\_recognition
- Geo Fencing : geofence package
- Google Maps : google\_maps\_flutter
- FireBase : firebase\_database, firebase\_auth



## Web Application

- Server : Django
- Selenium web drivers (using Python)
- BeautifulSoup (Web Scraping)
- Basic HTML and CSS for frontend
- Django for backend.
- Tensorflow (NLP , Toxic comment classification)

## Analytics

- Python
- Pandas, Numpy
- Matplotlib, seaborn



# Unique Features

(Cross Platform App)



## SOS Alerts

- Trigger Words
- Haptics
- Button

## News Alerts

- Alerts about unsafe locations

## Chatroom

- A platform where women can share their experiences related to women safety.

## Geofencing

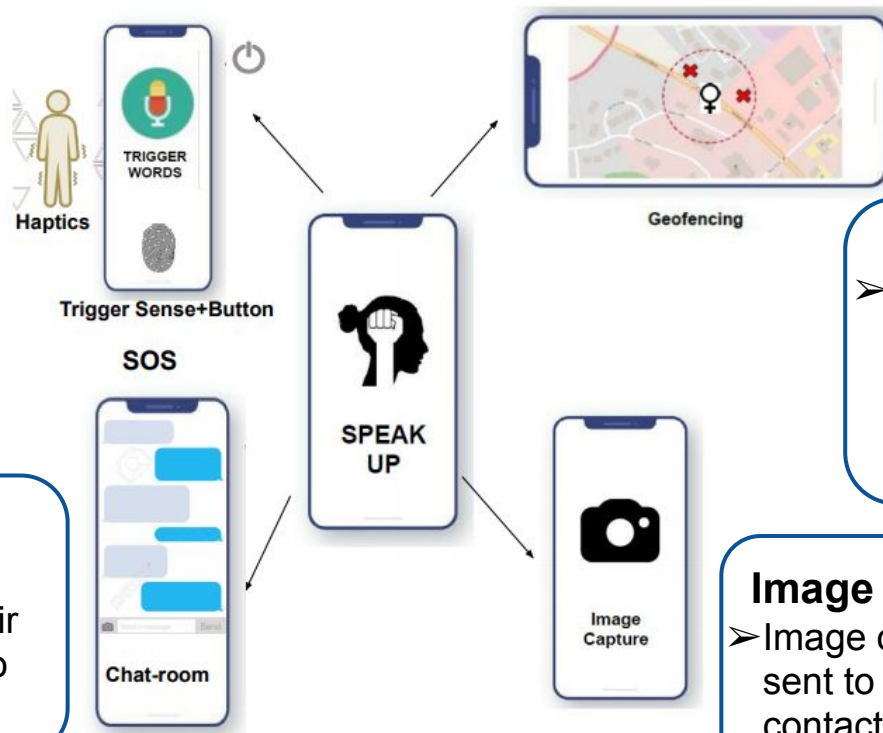
- On receiving a trigger, concerned authorities in the geofence will be notified.

## Live Location Sharing

- Live Location is always shared with emergency contacts and with authorities in the geofence on receiving a trigger.

## Image Capture

- Image of cab driver can be sent to emergency contacts.



# Unique Features

(Cross Platform App)



## SOS-Alerts

(To ensure that the SOS Alert is triggered during an emergency, a user may use anyone of the following ways as trigger)

- **Trigger-Words:** Real-Time Speech Recognition/ detection of trigger words (set by the user) using deep learning methods.
- **Haptics:** User's activity recognition for unusual movements.
- These triggers can be **deactivated** only by entering **customised credentials**.

## Live Location

- The user's live location is **always shared** with her emergency contacts within the app.

## GeoFencing

- On receiving the trigger a GeoFence is created around the user's current location, **alerting** all the nearby concerned **authorities** (police ,NGOs)
- A push notification alert as well as a **SMS**(if offline)consisting of the user's current location and **distress message** is sent to the emergency contacts.

## Image Capture

- An image of the cab driver or details can be sent via and image to the emergency contacts.

## Chatroom

- A platform where women can share **personal experiences** about crime (anonymously)against them and inspire others to overcome similar crimes.
- It would consist of an upvote system that would **filter spam** posts.

## News/Alerts

- Alerts and news related to women safety will be shown in this portal.
- After the crime **analysis** of **unsafe location** ,when the user enters an unsafe area, an alert will be pushed to the user notifying her to change her route.

## Track Your Route

- Before travelling to a certain place ,the user enters her destination so that the map and safe routes for that destination can be made available offline.If the user enters an unsafe zone ,they can find alternate safer routes.



# Unique Features

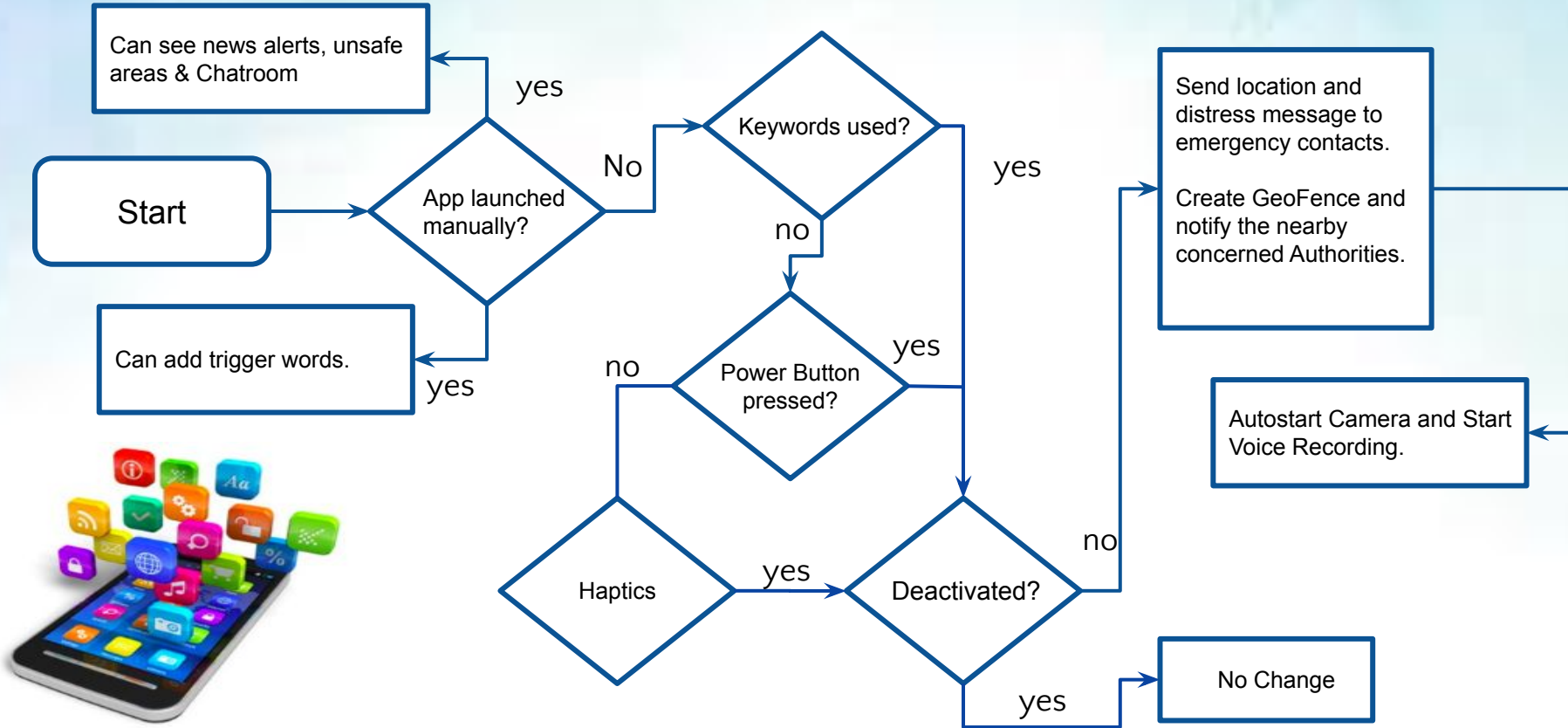
(Website)



- Will contain crime **analysis** of different areas.
- Will contain an informative page that will guide women regarding self-defence and how to deal with different types of crimes.
- The system will crawl through the social media feed by using **selenium webdrivers** and classify each and every post or tweet as abusive or non-abusive using different analytics tools mentioned.
- Toxic comment classification is done by applying deep learning in NLP(Bi-RNN with Attention).
- The system will also notify the concerned user.
- The women will be asked to enter their different social media credentials.
- If they provide that ,the post or tweet will be deleted or blocked .
- Also , the person who posted that **abusive content will be blocked** if he/she is not in the whitelist of the user.

# Software Workflow Diagram

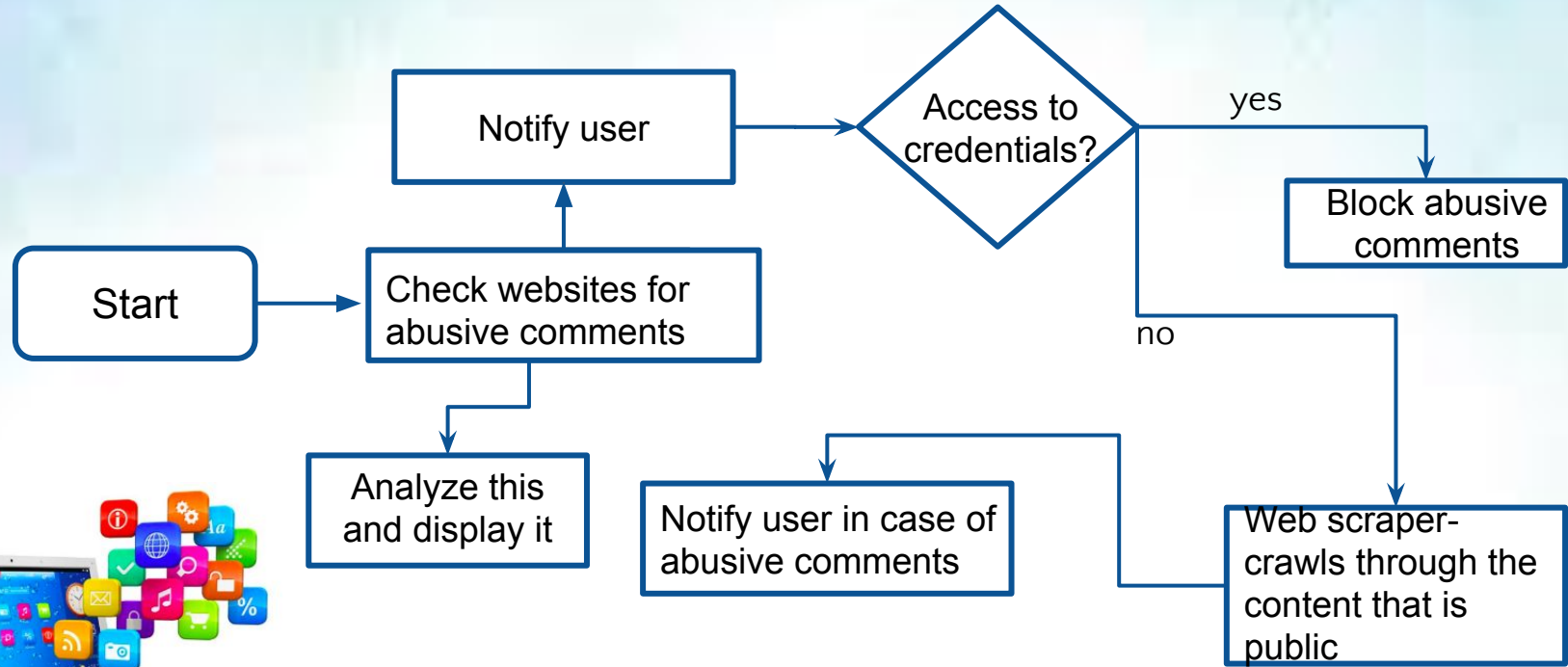
(Cross Platform App)





# Software Workflow Diagram

(Website)

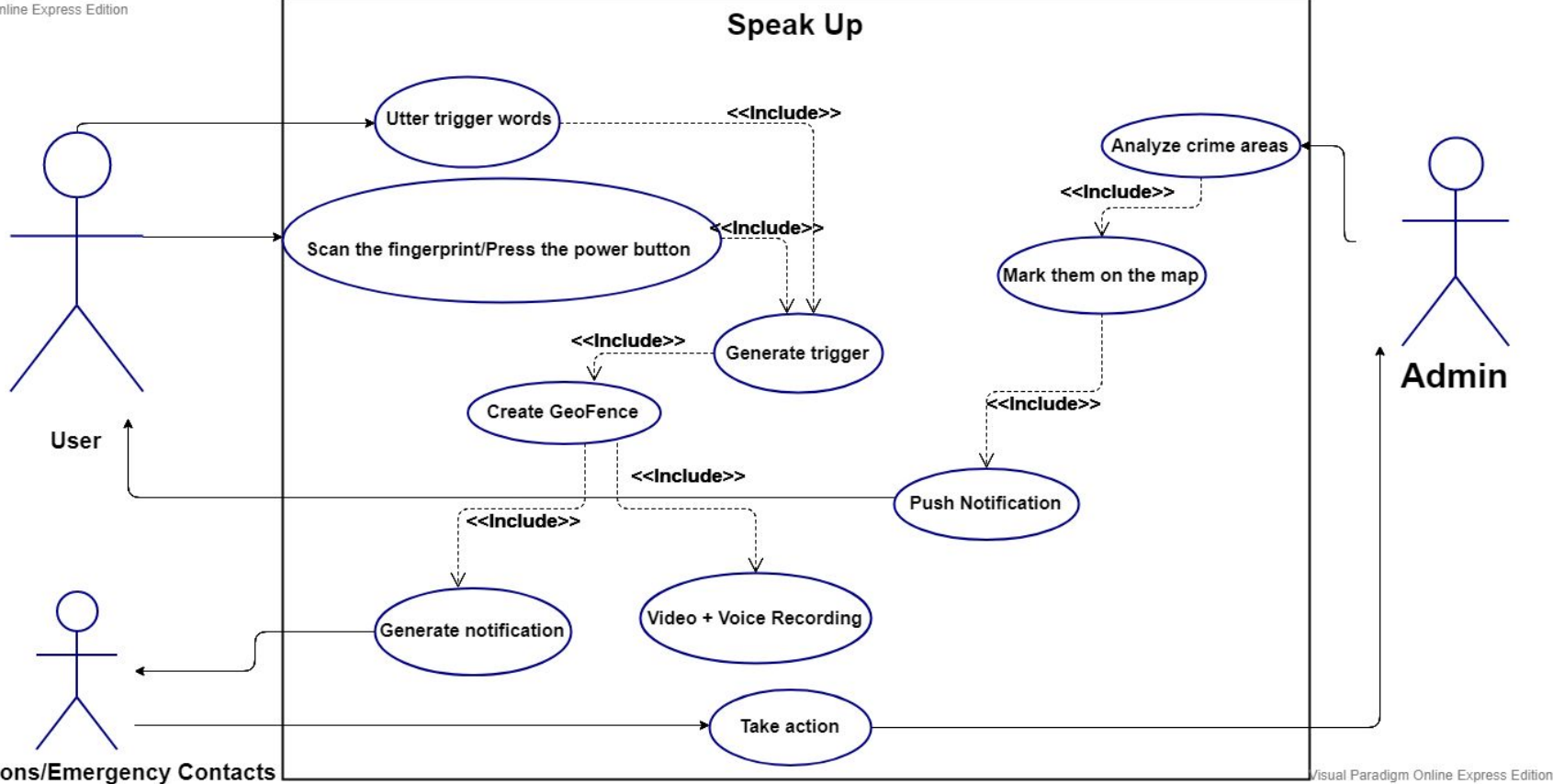


# Use Case

(Cross Platform App)



Visual Paradigm Online Express Edition

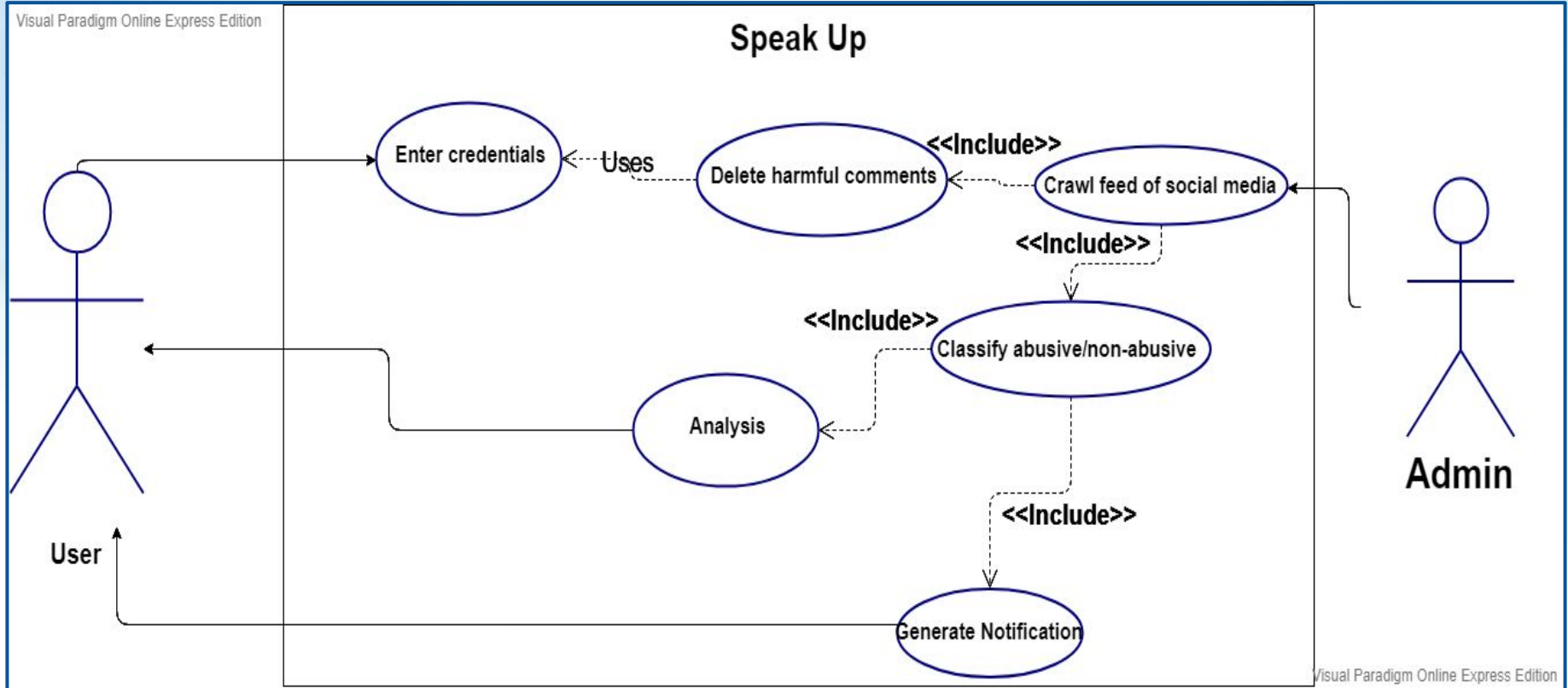


Police Stations/Emergency Contacts

Visual Paradigm Online Express Edition

# Use Case

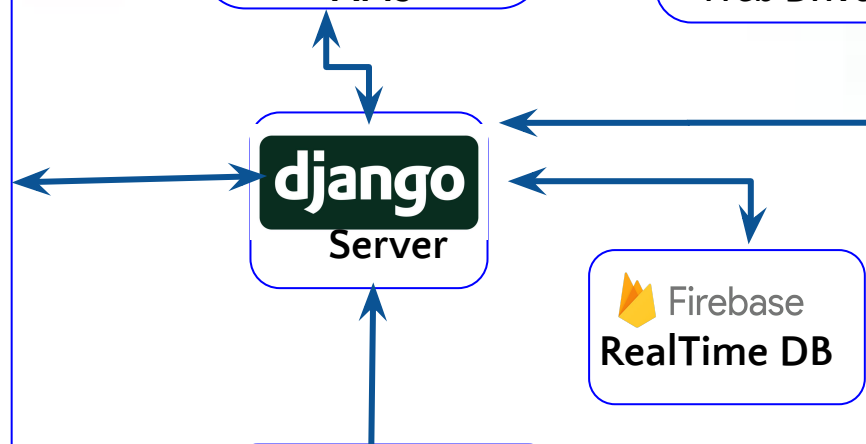
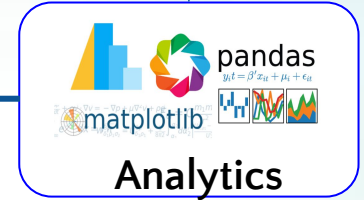
(Website)



# TechStack



Client Side



# Technical Issues / BlockPoints

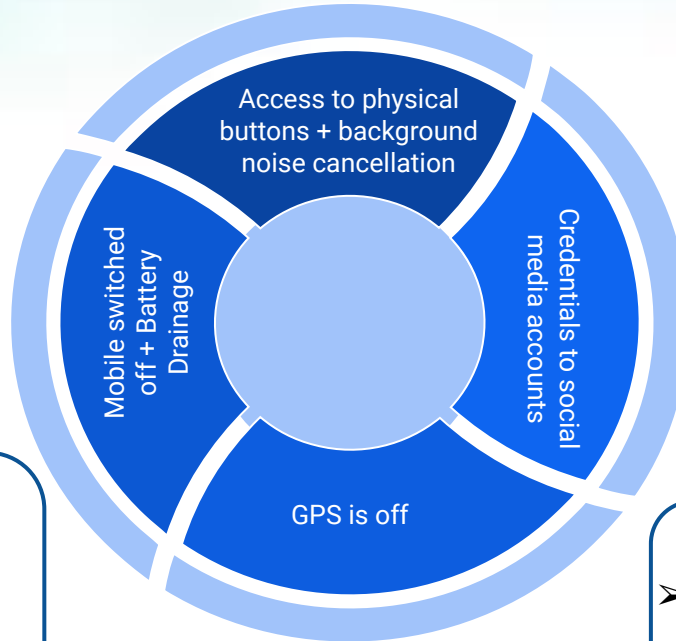


## Access to physical buttons+background noise cancellation

- Inaccessible power button/ fingerprint or trigger word not recognised due to background noise.

## Mobile switched off + Battery Drainage

- The mobile is switched off. The app will work in the background leading to battery drainage.



## Credentials to social media accounts

- Credentials must be given in order to delete the toxic comments. If credentials not provided, the user shall just be notified.

## GPS is off

- The app will not be able to send the live location if GPS is off.



Thank You