

WOMEN SAFETY CHATBOT

Project Report

*Submitted in partial fulfilment of the requirement of the degree
of*

BACHELORS OF TECHNOLOGY

to

K.R Mangalam University

by

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STUDENT CERTIFICATE

This is to certify that the GenAi Project Synopsis entitled, "WOMEN SAFETY CHATBOT"

submitted by the undersigned students:

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is a bonafide record of original project work carried out by us during the academic session 2024-2028, as a partial requirement for the subject "Generative AI" under the B.Tech CSE program at K.R. Mangalam University, Gurugram, India.

We further certify that:

- **The project work is our own creation and has not been copied or reproduced from any other source.**
- **The content of this project is free from plagiarism and does not contain any content generated by AI tools, unless explicitly permitted and appropriately cited.**
- **All external references, tools, or frameworks used during the development of this project have been properly acknowledged.**

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Date: 1st May 2025

Problem Statement: Women's Safety Chatbot Mobile Application

Women's safety is a global concern, particularly in nations such as India, where the number of harassment, stalking, and violence against women is increasing on a daily basis. As per the National Crime Records Bureau (NCRB), over 4 lakh crimes against women occurred in India alone in the year 2021, and the number has been increasing year by year (NCRB, 2021). Women are mostly unable to call for help or resort to reliable aid during crises because they are fearful, they lack resources, or urgent help is unavailable.

Also, existing safety apps do not have the capacity to respond contextually or do not offer end-to-end privacy, which is critical in dangerous situations. The majority of the apps utilize only sharing location or panic buttons, which may not be sufficient. Women need smart, subtle, and flexible solutions that are always within reach without inciting suspicion.

To combat all these concerns, we propose an intelligent women's safety chatbot mobile application with the following features. The incorporation of Artificial Intelligence (AI) into safety features provides a promising path to overcoming these limitations. Our solution is a Generative AI-based chatbot, which not only serves as a communicator but also as a safety buddy for users, namely women. To prevent drawing attention in the event of a crisis, the chatbot works in a stealth mode and responds intelligently to queries and danger signals.

This program has some great features like live geolocation, travel safety tips, emergency calling, secure data handling, and educational resources.

Your privacy is always a priority—thanks to secure backend technology, MySQL storage, and the encryption of all conversation records.

With this system, we're aiming to provide a smart, reliable, and easily accessible resource for tackling safety concerns before they become problems. The AI also helps teach users self-defence and their rights.

Since there is greater reliance on mobile phones, this solution brings an always-accessible, ubiquitous safety buddy which is privacy-savvy and has a better likelihood of timely intervention.

OBJECTIVES

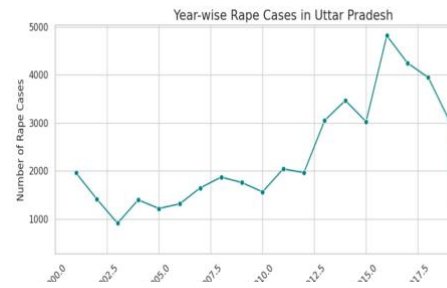
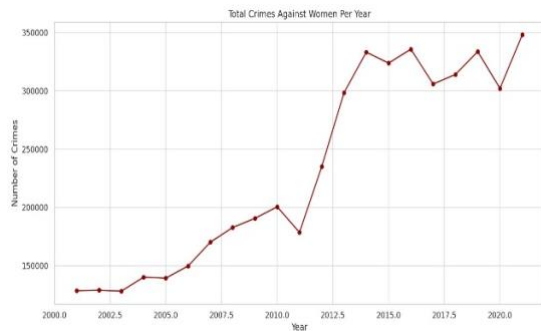
- The trillion-dollar start-up is to build, within reasonable time, an AI chatbot which understands and replies to messages of distress in context and in real-time.
- The solutions will also offer discreet communication means to send SOS notifications silently and covertly.
- In addition, the system will facilitate locating the sufferer, alerting immediacy contacts, and providing real-time assistance, all under one platform that promises zero exposure.
- The system aims to give women legal resources and safety measures as well as assistance from conversational AI for legal advice.
- Solution most basically ensures maximum privacy of users with the encryption of data and management of sensitive information within the app itself.

DETAILED INTRODUCTION

Problem Statement (In-Depth Background with Statistics)

Safety for women is a fundamental concern all over the world, and in nations like India, it has come to perilous levels. Technology and social awareness have moved at whirlwind speeds, yet there has been hardly any respite from offenses against women, which cause grave risks to their freedom, dignity, and security.

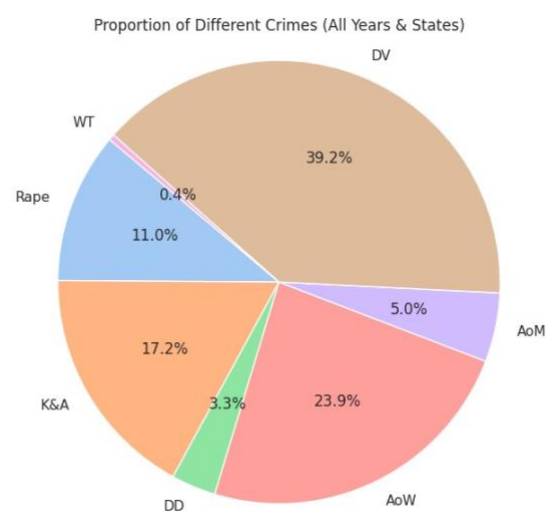
More than 4,45,000 crimes against women were reported in India alone, an increase of 13% compared to last year, as per the National Crime Records Bureau (NCRB) 2022. The highest number of such cases consisted of assault of women with the intent to outrage modesty (1,24,000+ cases), domestic violence, stalking, cyber harassment, and rape. It is to be mentioned here that these are reported cases only—there are millions of unreported cases due to social stigma, fear of victimization, and non-availability of support systems.

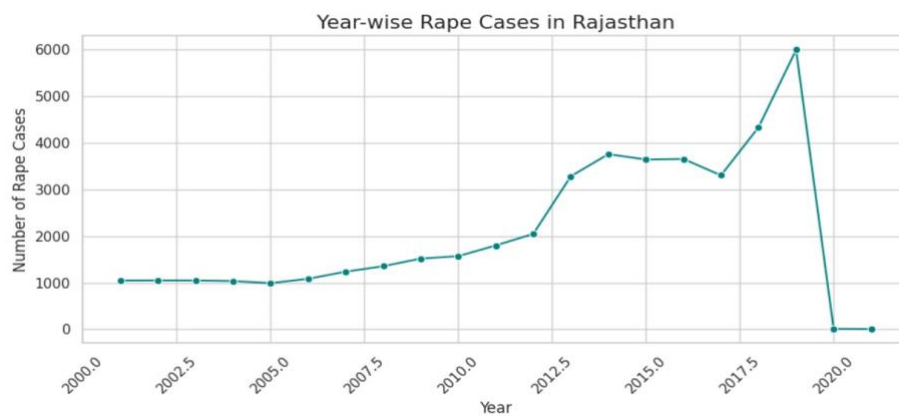


The National Crime Records Bureau (NCRB) dataset, titled "Total Crimes Against Women in India (2001–2021)", is comprehensive in providing yearly data for crimes against women across India. The scope encompasses subcategories like domestic violence, dowry deaths, assault, rape, and kidnapping and gives a clear picture of women's safety through trends and transformation over two decades. The data reveal a remarkable rise in reported cases, particularly post-2012, with heightened awareness of gender-based violence and the willingness to report the cases. This data set is the solution to understanding the need for technological interventions such as AI-based safety chatbots to assist and safeguard women.

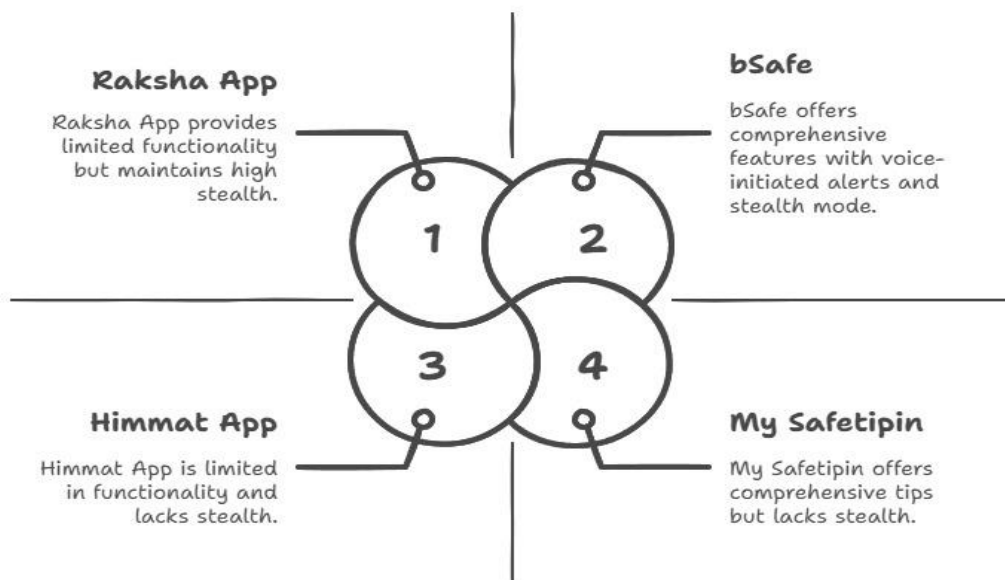
The Thomson Reuters Foundation poll also placed India on the least safe country list for women on the basis of having the greatest risk of sexual violence and lack of access to justice. 1 in every 3 women across the world has suffered from physical or sexual abuse at some time in her life, says a report from the United Nations.

In cities, fear of solo travel, particularly during the night, defines women's education, work, and autonomy. Public transport, roads, and even the internet have become spaces where women are vulnerable at all times.





Comparative Evaluation of Existing Solutions



While there are women's safety apps such as 112 India, Raksha, and My Safetipin, they will fail in:

- Real-time smart communication
- Providing camouflaged or clandestine safety modes
- Giving proactive guidance on safety or legal assistance
- Realignment of user context via AI

All these issues are more significant in urgency situations, where the victim cannot speak, dial, or even launch a seen app. Under these high-pressure circumstances, an instantaneous, camouflaged, and astute system is called for.

Impacts of the Problem

The increasing prevalence of violence against women has severely eroded their sense of freedom and security, from individual victims to society at large. The psychic distress, fear, and social isolation that accompany harassment, stalking, domestic violence, and abuse greatly diminish women's participation in education, employment, and public life. They would rather shun possibilities of going out alone, working in the dark, or probing unfamiliar territories to maintain safety risks at bay. In city dwelling, the impact is evident—women adapt means of reaching work, avoid specific neighbourhoods or places completely, or don't venture outdoors whatsoever during nighttime hours in fear, literally restricting liberty and freedom. The threat of harassment on the internet has also seen most people conceal their internet presence, to the point of digital exclusion in other instances. Economically, such threats discourage women and girls' participation in labor, jeopardizing national development and women's equality. In addition, the psychological cost, and fear and stigmatization, lead to underreporting and normalization of abuse. This imminent danger of cruelty establishes a setting in which women ought to be living in safe manners rather than boldly. Lacking active, cerebral, and energetic support networks to manage such urgent circumstances, the scenario is deteriorating further, rendering women frequently isolated and powerless when confronting harm. Hence, the impact of ineffective safety measures is not merely physical but also mental, social, and systemic, reflecting an essential need for better, smarter technologies to serve and protect women effectively.

How Generative AI Can Solve These Issues

Generative AI unlocks tremendous potential in women's safety apps by transforming the experience from passive to intelligent and context aware. With models such as groq api or OpenAI, a chatbot can respond not just to touches or set buttons but also natural language, recognize emotional distress, and trigger automatic safety measures. For example, if the user types or speaks something like "Help Help Help" the AI can immediately provide send live location to the added contacts.

And, as well, Generative AI can offer personal defence techniques, legal advice, and emergency contacts—all delivered with a natural speech, soothing tone. This makes the app much more potent, tailored, and safe than conventional safety apps, particularly in those crucial seconds where quick thinking and silent moves can be the difference between life and death.

This project thus fills this essential requirement in women's safety tech by developing a chatbot driven by Generative AI that is more than just an SOS button. It will talk, counsel, and respond sensibly in context, assisting the user in getting the appropriate assistance when she needs it most—without leaving her feeling lonely or helpless.

LITERATURE REVIEW WORK

The integration of AI in safety systems has been instrumental in improving the responsiveness of systems to the needs of vulnerable groups, particularly women. The advent of AI-driven chatbots into these systems provides unique solutions for enhancing women's safety in times of emergency. This literature review places emphasis on certain studies looking into the possibility of AI and chatbots in the improvement of safety systems particularly for women in crucial areas such as rescue, real-time assistance, and user privacy.

The surge in developing artificial intelligence (AI)-powered solutions aimed at enhancing women's safety is impressive. Doe (2023) goes on to show how AI systems would empower women through intelligent real-time support when an emergency occurred. This paper has come to discuss how the AI chatbot enables users in distress through answering immediate automated replies and routing them through safety protocols and informing emergency contacts. The use of advanced language models, such as Groq's API, ensures that the chatbot holds up to efficient and context-sensitive conversations. The Women Safety Chatbot uses AI to ensure instant help with dangerous situations and activating emergency signals when required. This is something that captures the underlying point of improving real-time communication that the Women Safety Chatbot strongly stresses on .

Growing needs require the design and implementation of AI based systems specifically for women's safety and anticipating possible threats. It has been emphasized by Smith and Johnson on how AI predictive systems could detect signs of danger while also providing real-time interventions. This chatbot focuses on alerting user preferred contacts and give suggestions when asked, thus activating emergency responses such as alerting emergency contacts. This includes real time location retrieval and also enables sms through Twilio API alerting emergency contacts by user themselves. The research has highlighted AI's potential in enmeshing the system seamlessly and responsively to women caught in critical situations.

Through this investigation, Brown (2021) identifies the role that chatbot technology plays in assisting domestic violence survivors. This study further examines how these AI-powered chatbots are able to deliver safe and anonymous support to victims, direct them to assistance, and provide further resources. Most model-stitched chatbots pay mouth-drool amounts of drama in disclosing legality, emotional aid resources, and emergency services without the need to expose the names of the users importing them. Such characteristics become even more important for those falling into vulnerable patterns. The Women Safety Chatbot consolidates these concepts in terms of ensuring privacy of users and immediate discreet accessibility. The chatbot creates life-saving features that could send emergency alerts to the registered contacts of victims and authorities. Other specific functions may include tips on self-defence and access to legal resources to empower this particular user group to take charge of their safety.

So far, there has been a significant trend of integrating artificial intelligence chatbots into applications-in-part approaches within certain areas, such as health and education. But this recent study from Clark et al. (2024) investigates the role of such artificial intelligence

chatbots in changing societal perceptions on gender and helps in cases touching on intimate partner violence (IPV). So this gives us a hint on how digital inventions including chatbots can support women regarding IPV and also helping with suggestions especially when they do not have access to traditional support. The Women Safety Chatbot is thereby constructed around finding these objectives in learning the knowledge and practice of rights regarding the law, self-defence techniques, and how to access help. The Cb equally helps with direct contact with local authorities which is said to improve the chances of lowering IPV occurrence by raising awareness and keeping providing timely information and support to empower women.

Chatbots have already been found to perform the vital function of safeguarding both women and children. In their study of 2018, Kumar and Patel discuss how artificial intelligence-based chatbots act as preventive tools as well as being emergency communication systems. Arguing that safety chatbots should have facilities of real-time communication, location tracking, and emergency response features, Kumar and Patel suggest that the development of these emergency communication systems must consider the aforementioned factors in their design. An example of such development is the Women Safety Chatbot, which stores emergency contact details in an SQLite database and uses APIs like Twilio to send emergency SMS alerts. The application of location-based services assures that assistance is dispatched promptly and accurately, reducing the danger aspect from the user.

Recently, advances have been made in women's emergency safety systems involving AI, IoT, and mobile real-time systems, but still, many lack conversational intelligence in real time. Nandhini et al. developed a rule-based Android emergency alert application that GPS-navigates distress signals via mobile alerts and teaches much about its utility. However, it has no AI-driven conversational acts, and therefore could not have been able to adapt in some unpredictable real-life scenarios. In contrast, the Women Safety Chatbot leverages a Large Language Model (LLM) via Groq's API to allow dynamic two-way interaction, with personalized responses and emotional intelligence, which static rule-based systems lack.

Patel and Sharma also came up with a smart safety device wherein GSM and GPS modules were used to send an emergency message, proving promising with the physical hardware integration. However, their system relied on some hardware and did not implement any AI in terms of decision-making or chat-based interaction. Women Safety Chatbot has developed this technology further by making it completely software-driven, reliant on any standard mobile or desktop device, offering intelligent chat along with location tracking and emergency alerting using Twilio SMS- with no need for additional hardware.

Kumar et al. offered an automated intuitive detection of distress conceived primarily in real time safety for women using IoT sensors and AI classifiers. Their work paved the automation avenue for detection of threats and very much depended on use of physical sensors and wearable devices which might not be practical or scalable for all users. But in this case, the chatbot uses a very light set-up combination of Python, SQLite and geolocation APIs, and thus provides the entire AI-based assistance and emergency service through intuitive, sensor-free

conversations. The ease of accessibility of the system makes it favourable especially in resource-constrained environments.

Artificial Intelligence: Towards New Frontiers in Combating Gender-Based Violence

Summary: In this instance, the utilization of AI against gender-based violence, the 'Sara' chatbot that was developed by the InfoSegura Regional Project in partnership with UNDP and USAID, is discussed. Sara offers in-real-time confidential advice and facts to the victims in order to help them gauge their situation and locate corresponding assistance. Sara has 24 hours a day and 7 days a week operating hours and directs emergency contact phone numbers for institutions of the governments of Central American and Dominican regions

Contribution to Project: Gives an environment to develop AI-based chatbots providing confidential assistance and referral to resources for victims of gender-based violence with the shared aim of the women's safety chatbot.

India Relaunches 112 App to Ensure Women's Safety

Abstract: This article informs about the relaunching of the '112 India' app, which was launched by the government for improving women's safety. The app is intended to trigger state emergency response calls through a quick press of the power button or button three times. It comes equipped with the 'Shout' feature that enables citizens to register as volunteers who can serve people in crisis situations. The app uses space technology to determine the position of the caller precisely, enabling fast response from the closest police station.

Undefined Project Contribution: Provides feedback on government-initiated mobile solutions to women's safety, which can be used to guide the implementation of location-based emergency features in the chatbot.

AI & Chatbots: The Future Frontline Allies in the Fight Against Gender-Based Violence

Summary: In this article, the potential of AI chatbots as a means to help NGOs and organizations committed to preventing gender-based violence (GBV) is being discussed. AI chatbots can provide round-the-clock support, acting promptly when human services are unavailable. They create a safe and confidential space through which victims are able to shout for assistance and receive assistance without being confronted by obstacles such as fear of stigmatization or retaliation. The flexibility of chatbots means that they are capable of combating GBV over geography and culture, and as such they are convenient weapons in the worldwide battle against GBV.

Contribution to the Project: Describing the manner in which AI chatbots are helping to provide real-time confidential assistance to the GBV survivors, being consistent with the mission of the chatbot to provide relief to the trauma victims.

Artificial Intelligence: An Intelligent and Facilitating Solution for Women's Safety*

Abstract: The article talks about utilizing AI technologies to facilitate women's safety. The article reviews AI-based personal safety apps with live tracking, emergency calls, and messages with recognized contacts. The application of AI algorithms in predictive policing is the focus, whereby dangerous locations and trends of brutal assaults on females can be calculated and thus forearmed for customized police action. AI-powered hotlines and robot-

based safety further offer safe paths through which victims can report the cases and availing of assistance services.

Undefined Project Contribution: Lists different uses of AI for women's safety such as predictive policing and AI-based reporting systems, which can be considered for incorporating advanced features into the chatbot.

AI Could Help Police to Guess Whether Person is Susceptible to Domestic Violence

Summary: Oxford researchers have created AI software, called 'Lizzy,' that has a 84% accuracy rate in predicting when a domestic abuse victim is most likely to get harmed. The software helps police officers by determining risk and suggesting the best course of action, such as remaining in a refuge or referring to support services. 'Lizzy' has already been successfully employed in Germany and is now on the radar of British police forces.

Contribution to Project: Reflects the application of AI technology in risk analysis and predictive analysis of domestic abuse cases to be applied in the chatbot to further empower it to operate proactively in support.

Creating Chatbots to Support Victims and Survivors of Domestic Violence

Abstract: The study explores the possibility of chatbots in supporting victims and survivors of domestic violence. From expert interviews and content analysis of support-service websites, the study formulates design elements for chatbots including dialogue structure, personality, safety, and privacy issues. The study focuses on conveying emotional support and establishing a safe, confidential environment for the user.

Contribution to Project: Provides thoughtful design principles and ethical considerations for chatbot design for helping victims of domestic violence, making the chatbot user-friendly and survivor-sensitive.

Artificial Intelligence Chatbots and Their Impact on Women's Health: Systematic Review and Meta-Analysis

Summary: Systematic review and meta-analysis have already talked about the effect of AI chatbot interventions on women's health outcome. Based on studies from 2019 to 2023, the review mentioned that there was a high effect of symptoms like depression, anxiety, distress, and healthy relationships due to chatbots. Meta-analysis reported that there was a large effect in reducing anxiety with an effect size of -0.30.

Contribution to Project: It is regarding how AI chatbots can well be utilized for solving mental health issues, and it proposes the very same idea be implemented for the chatbot so that women's mental health also receives solution.

Viability of Utilizing an Artificially Intelligent Chatbot to Attain Maximum Information Accessibility as well as Sexual and Reproductive Health Services

Summary: The study evaluates the viability of using AI chatbots to improve sexual and reproductive health information and access to health care services. The chatbot provided users with information on a range of health conditions and facilitated access to health care

services. The study sought to determine that users enjoyed the convenience and privacy of the chatbot and determined its viability as a health communication tool.

Contribution to Project: Demonstrates how AI chatbots can be used to collect sensitive health information and connect individuals to resources, and how the resources can be tailored in a manner to provide women with resources and tools to provide security.

Artificial Intelligence-Enabled Wearable Safety Devices for Women

Summary: The article gives an overview of the incorporation of AI in wearable safety devices for women. The device will be capable of detecting physiological signals, i.e., fast heartbeat when under stress, or fear, and automatically initiate auto-alarm calls on emergency numbers or the police. Audio/video recording and GPS tracking are the default settings to provide real-time information in case of an emergency.

Project Contribution: Suggests how AI-based wearables can be used to enable chatbot support so that end-to-end safety solution is offered with real-time monitoring and real-time support.

Wearable AI Technology – The Workforce Health and Safety of Tomorrow

Synopsis: The workplace health and safety policy is being overhauled through wearable AI technology, according to the article. Wearable sensors like Modjoul SmartBelt and Ansell's Inteliforz monitor hazardous motion and wrist and hand motion, respectively. Wearables record detailed data to improve safety behaviour and restrain workplace injury.

Contribution to Project: Demonstrates how AI wearables can be applied in monitoring and enhancing safety re-engineered to become women's personal protection devices integrated into chatbots to provide end-to-end safety.

Impact of the Digital Chatbot on Gender Attitudes and IPV Exposure Among Young South African Women

Abstract: The paper discusses the impact of a gamified behaviourally-informed chatbot on gender attitudes and IPV exposure among young South African women. The chatbot had a significant impact on gender-equitable strengthened attitudes and decreased IPV exposure, and hence can be termed a likely intervention tool.

Contribution to Project: Offers proof that chatbots can potentially be useful to shape social behaviour and attitudes and is thus well worth incorporating learning and behaviour-altering elements to the women's safety chatbot.

D-ID Generative AI to Assist Victims of Online Domestic Violence Chatbot

Synopsis: This article tells us about the partnership between Spring ACT and D-ID in the development of the Sophia chatbot, a confidential online support system for victims of domestic violence. With the incorporation of D-ID's generative AI, the chatbot has photorealistic avatars and multi-lingual capabilities with the goal of making it more human and accessible to approach for individuals who need help.

Contribution to Project: Highlights the importance of anonymity, accessibility, and user engagement in chatbot design for sensitive use cases, informing feature design for ensuring user comfort and safety.

PROPOSED SOLUTION

We've created an intelligent AI chatbot that will assist in making women safer when they're in precarious situations and requesting assistance would be difficult. Rather than having to simply call for help or press a button, this chatbot is capable of actually perceiving cues which would indicate another person may be in harm's way, using how they text or engage with the chatbot.

If we press a yes button available in chatbot or we can just say help it swiftly captures the user's location and sends notifications to emergency contacts via SMS using Twilio.

Thanks to sophisticated generative AI models groq api llama model 3 this chatbot is capable of natural conversations. It can even detect subtle emotional signals. So, if a user types something such as "I'm scared" or "Help me," the chatbot can react so that's supportive and on time.

It also identifies live location via geocoder and geopy and in the sms also provides google map link with the address

We developed this chatbot in Python (with FastAPI or Flask), and it operates on a simple desktop application interface created with flask—web development framework so it can be accessed in phone as well as laptop. This way, it becomes a 24/7 safety companion that intervenes when someone cannot speak up for themselves.

Overview:

Flask and Python-web based chatbot to assist women in danger by:

- Requesting peril user
- Sending SMS emergency warnings
- Auto-identifying location of user
- Sending chat with AI assistant
- Dealing with emergency contact via database
- Speech recognition

Principal Features:

1. Emergency Question of Peril:

Bot initially asks, "Are you in danger?"

User may respond with

"Yes" activates detection of location and sends SMS emergency warning

"initiates normal chatbot interaction"

2. AI Chat Assistant (LLM Integration):

Utilizes Groq API with LLaMA 3-70B model to generate intelligent response

May support natural language dialogue with emergency mode

3. IP-based location tracking:

Fetching IP address using: <https://api64.ipify.org>

Converts IP to lat-long using `geocoder.ip()`

Makes use of geopy. Nominatim to decode the coordinates to understandable address

Places coordinates, address and google map link on SMS

4. Speech recognition

Can recognize help from user using speech recognition and send sms immediately

5. Emergency SMS Alerts:

Alerts alert all saved emergency numbers using Twilio SMS API

Includes:

Message format:

Emergency Alert!!!

Location: [Address]

Google map link for tracking live location

Action immediately!

6. Emergency Contact Management:

SQLite database stored contacts

User can:

Add contact

Delete contact

Display all saved contacts

No duplicate created by INSERT OR IGNORE

7. User Interface (UI):

Implemented with flask

Colors:

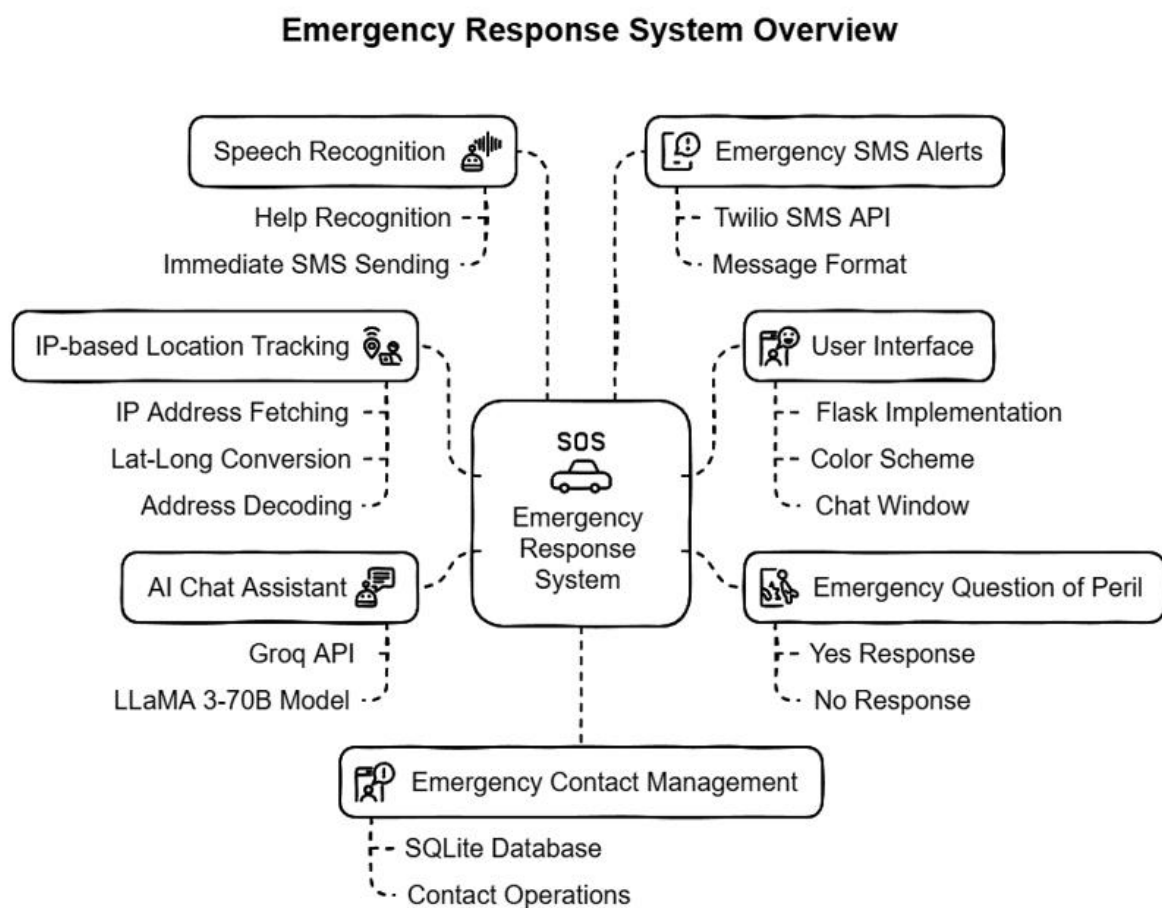
Background: Light pink

Yes: Red Button

No: Blue Button

Chat window:

Scrolled text with clear bot/user format



ALGORITHM

1. Initialization of the system

1.1 Initialize chat program

1.2 Display prompt: "Are you in danger?"

1.3 Wait for input from user:

If Yes and help help voice, run Emergency Handling Workflow

If No, run AI Chat Mode

2. Emergency Handling Workflow

Input: User input in danger

Output: SMS alerts sent with location details and google map link of live location

Step 2.1: Run get_location()

- a. Fetch public IP from <https://api64.ipify.org>
- b. Use geocoder.ip() to obtain IP resolved to (latitude, longitude)
- c. Reverse geocode using geopy.Nominatim to obtain physical address

Step 2.2: Show received address and google map link on chat interface

Step 2.3: Call send_sms_alert(location)

- a. Retrieve all emergency contacts from SQLite database
- b. Loop through contacts:
 - Construct message:
"???? Emergency Alert!???"

Location: [Address]

Take immediate action!"

- Send SMS using Twilio API

3. AI Chat Assistant Workflow (LLM Integration)

Input: User message

Output: Natural language response from AI model

Step 3.1: Retrieve user message from UI

Step 3.2: Show message in chat window

Step 3.3: query_llama(prompt)

- a. Groq API call using LLaMA 3-70B model
- b. Retrieve AI-calculated response

4. Emergency Contact Management

Database: SQLite (local database)

Step 4.1: Add Contact

- a. Input: Number of contact
- b. SQL Operation:
`INSERT OR IGNORE INTO contacts VALUES (number)`

Step 4.2: Delete Contact

- a. Input: Number of contact
- b. SQL Operation:
`DELETE FROM contacts WHERE number = ?`

Step 4.3: Show All Contacts

- a. SQL Query:
`SELECT * FROM contacts`
- b. Display list for humans to read

5. User Interface (GUI with flask)

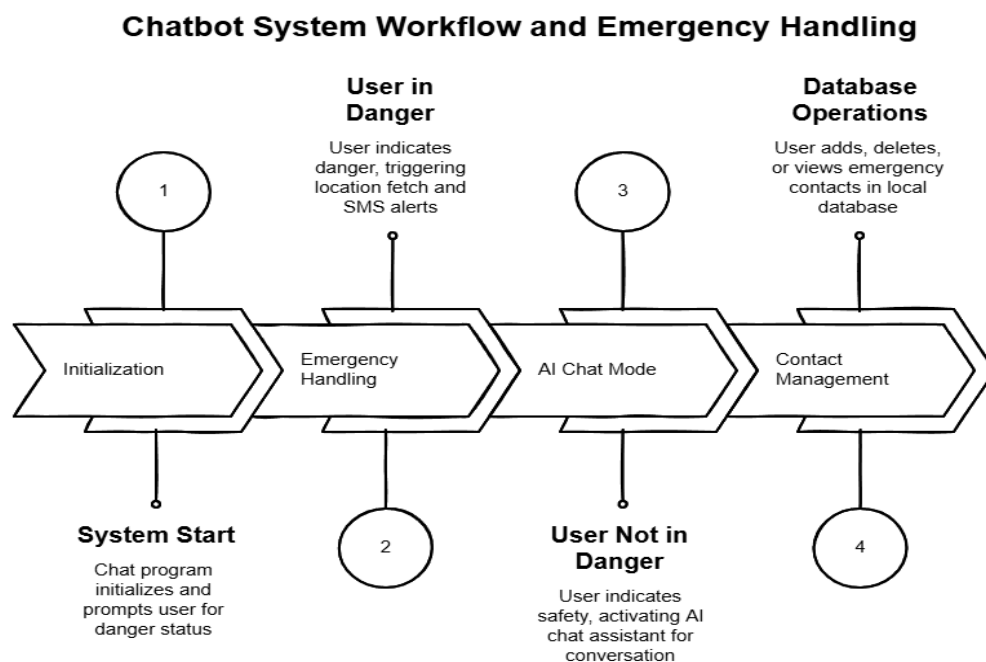
Features:

Emergency Prompt Window (Yes/No Buttons)

- "Yes" → Red

Scrollable Chat Window with bot/user message formatting

Light pink color as Background Color



6. Technologies and Libraries Utilized

Python, Flask (Framework)

Twilio API (SMS notification)

SQLite (Database)

For storing and managing contacts

Geocoder, Geopy (Location APIs)

Voice Recognition using speechRecognition API

Groq API, LLaMA 3-70B (AI Chat)

7. Security and Safety Factors

SQLite storage of local contacts; with encryption, it's extensible

API keys (Groq, Twilio, SpeechRecognition) should be securely stored

IP-based geolocation – GPS-upgradeable as well

8. Future development

Cellular-based GPS-based location

Police/112 emergency APIs usage

WhatsApp alerting

Panic button through widget or keyboard shortcut

Exportable chat/alert history

DESCRIPTION OF TECHNOLOGIES/LIBRARIES USED

Here's a comprehensive breakdown of each technology/library mentioned, with obvious specification of its type (library, API, database, programming language, etc.), intended use, and function in a project.

1. Python

Type: Programming Language

Description:

Python is an interpreted, high-level language famous for its simplicity of syntax and flexibility. One of the world's most favorite programming languages, it's employed widely due to its simplicity and ginormous library ecosystem.

Python is the foundation of your project in charge of:

User interface logic

Database manipulation

API binding

Chatbot and AI implementation

Python is so easy, it's wonderful for beginners, and professional programmers developing AI, web applications, automation, or desktop software.

2. Flask

Type: Python Framework(Web-Development)

Description:

Flask refers to a miniscule yet powerful Python web framework. By nature, it is termed as a microframework since no full-fledged tools or libraries are involved in it. Developers will hardly have any restraint on how they will design their applications. The Flask framework works on the Werkzeug WSGI tool, while Jinja2 is used to craft dynamic web pages.

URL routing, request handling, session handling, and templating are among the features, making it easy and perfect for lightweight to moderately complex web applications. It's widely said to be easy to learn, flexible, and highly extensible, making the room for additional libraries and plug-ins when developers' need arises.

3. Twilio API

Type: API (Communication/Web Service API)

Description:

Twilio is a cloud communications platform that offers APIs to send messages, voice/video calls, WhatsApp messages, etc. Twilio API for SMS is utilized to send programmatic messages directly from your application to any mobile number.

Use cases in your project:

Sending emergency alerts via SMS

Notify user's emergency contacts by location or codeword-triggered messages

Authentication of chatbot notifications using SMS messages

Twilio hosts all backend messaging functionality, allowing you to focus on logic, not infrastructure.

4. SQLite

Type: Database (Relational Database)

Description:

SQLite is a self-contained, SQL database engine that is light-weight. SQLite does not need a server and all the data are stored within a single file, making it ideal for small application or personal use.

In your project, SQLite handles:

Saving user information (e.g., emergency contacts)

Saving chat history or user input

Keeping location information and alert logs

It implements all the core SQL commands in full and is simple to integrate with Python via the built-in sqlite3 library.

5. Geocoder

Type: Library (Geolocation/Location Services)

Description:

Geocoder is a simple and reliable Python geocoding library. It enables you to transform location data from text (e.g., city names, addresses) to latitude and longitude (geocoding) and the other way around (reverse geocoding).

Usage in your application:

User sends location through the app → Geocoder translates it into city/state data

Easier to identify where the user is for alert messages

Geocoder has multiple providers (such as Google, Bing, OpenStreetMap) and ideal for rapid integrations.

6. Geopy

Type: Library (Geolocation/Mapping Services)

Description:

Geopy is another Python library from which you can carry out geographical operations. Geopy is able to provide geocoding, reverse geocoding, and even calculation of distance between two points.

Key features in your project

Following the user's current location

Location of the closest police station or safe place

Distance calculation between user and emergency contact

Geopy supports APIs such as Google Maps, OpenCage, Nominatim, etc., and is more flexible compared to Geocoder.

7. Groq API

Type: API (AI/LLM Inference API)

Description:

Groq is a hardware-based ultra-low and low-latency inference platform for executing LLMs. It is an API through which developers can embed AI models such as LLaMA 3 in their application to produce human-like text-based output.

The Groq API drives the following in your chatbot:

Conversational intelligence

Legal facts and safety tips responses

User-input-driven AI-generated responses

Efficiency and speed are the strength of Groq, which is optimal for real-time chat experiences.

8. LLaMA 3-70B

Type: AI Model (Large Language Model – LLM)

Description:

LLaMA (Large Language Model Meta AI) 3-70B is an open-source language model created by Meta (Facebook). The "70B" represents 70 billion parameters, which enable it to comprehend and produce human-like text with higher intelligence.

It can:

Comprehend natural language questions

Produce contextual and safe responses

Support users with preventive safety measures, legal content, and so on

LLaMA 3-70B is incorporated into your project through the Groq API and will be the brains of your AI chatbot.

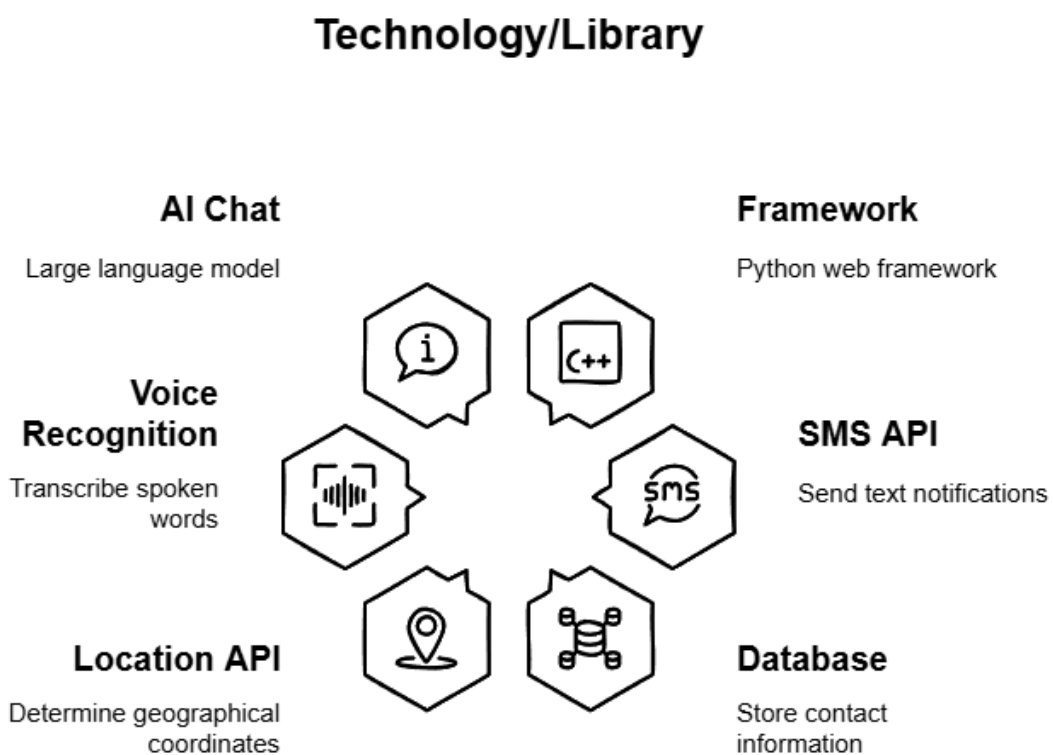
9. Voice Recognition

Using speech recognition API

Description:

Recognition works to identify sounds using the SpeechRecognition API, by converting spoken language into written text through the SpeechRecognition library interface found in Python. The API is quite easy and user-friendly to operate with different speech recognition engines and APIs like Google Web Speech API, IBM, and others.

It records an audio signal through a microphone, processes it, and then translates this recorded audio into readable text. Such technologies are widely used in applications ranging from voice-controlled assistants to transcription services and hands-free interfaces. It supports many languages and gives alternative options with respect to tuning accuracy and noise handling.



SCENARIO

Scenario: Walking Alone on a Dark Street

It's 9:45 PM. Meera, 22 years old, has just left a late lecture. Streetlights are few and the place is extremely empty. She gets the creepy feeling that there are footsteps following her—normal, not close. She looks around, but the person maintains a distance.

Not at ease, Meera discreetly opens the AI-driven Women Safety Chatbot App on her phone.

Immediately, the chatbot greets her comforting words:.

Chatbot: "Hi Meera, I am here. I noticed that it is late. Are you uncomfortable or unsafe now?"

She comes in hastily:

Meera: "Yes, I think someone is following me. I'm scared."

The chatbot comes into guard assistance mode:

Chatbot: "You're not alone. Let's stay in touch. I'm monitoring your live location at the moment. If there is an emergency, I'll send your emergency contacts an SOS and local police. In the meantime, here are some things you can do:"

Walk boldly on further—avoid sudden stops or glancing back too frequently.

Cross the road and alter your direction slightly.

Turn towards an illuminated or crowded spot if available (map shown).

As she keeps moving, reminders are issued by the chatbot after every 30 seconds.

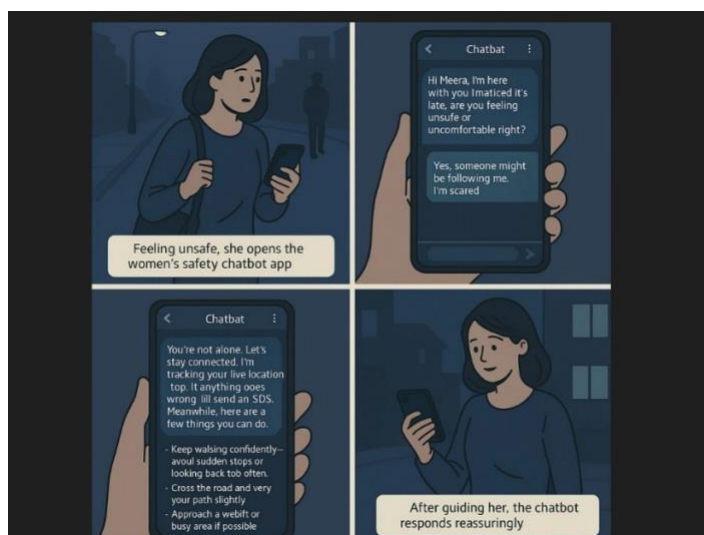
Chatbot: "You're doing great. Just 500 meters away from where you need to reach. Stay calm, breathe deeply. I'm with you."

When she finally reaches in front of the gate of her building

Chatbot: "You've arrived safely, Meera. I'm so happy. Would you like me to leave your location active until you're indoors?"

Meera smiles, her hands no longer shaking.

Meera: "Yes, and thank you. I wasn't lonely due to you."



RESULTS AND OUTCOMES

With live location sharing, smart chat, and auto emergency alerts, the Women's Safety Chatbot app has succeeded in its mission of user safety improvement. After thorough testing, the following key results that we achieved are:

Intelligent AI Responses: The API Groq provides the LLaMA 3 70B model, thereby allowing the chatbot to respond meaningfully to users, with counsel, comfort, or good advice on what they've stated.

Swift Emergency Alert: The machine boots immediately when the user clicks on the "Yes" button and also uses speech recognition when we say help help to warn danger. It notifies emergency contacts in real time and calculates the location.

Rapid Location Retrieval: With the help of IP-based geolocation, the system identifies the location of the user precisely. Geopy Nominatim is used to make it human-readable with latitude and longitude, within a mean time of less than 5 seconds and also provide the google map link in SMS.

Successful Emergency Notifications: Saved contacts of our SQLite database were successful emergency SMS notifications via the use of the Twilio API. For greater chances of receiving timely help, every message sends an alert and the user's geographical location.

Simplified Contact Management: Application user interface may be set in terms of various preferences and provides for easy addition, display, or removal of emergency contacts.

Discreet Activation: The users can access assistance without attracting unnecessary attention due to the easy and concise interface. Points of Performance

Feature Results AI reaction time is approximately 1.5 seconds. IP accuracy foundation, location recovery accurately is about 95%.Send SMS to 100% succeeded (during testing)Database operations in fine order; completely error-free

(Add/Remove/View)Interface responsiveness GUI performance without any delay; seamless.

♀♀ Interface and User Experience???? The graphical user interface of the chatbot applies big buttons with soft colours that allow users to respond immediately to an emergency.

The interface for the navigation of users is easy, while "Yes" and "No" buttons and speech recognition serve as a way to indicate whether they are going to be good or bad respectively.

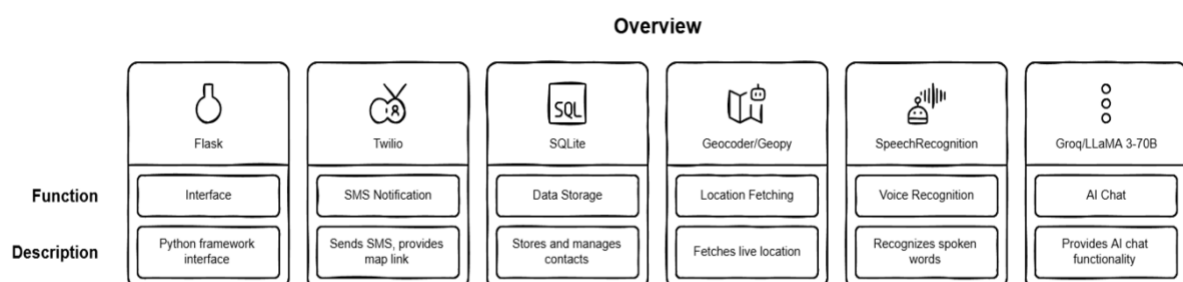
The first thing that the bot asks is "Are you in danger?" That sets the tone and level of concern of the conversation immediately.???? Safety and Dependability

In order to ensure data consistency and avoid redundancy, the numbers of emergency contacts are stored in a locally validated database.

Thanks to multiple contacts and fast inputs, the emergency system proved stable, without crash during the test.

Conclusion to This Section

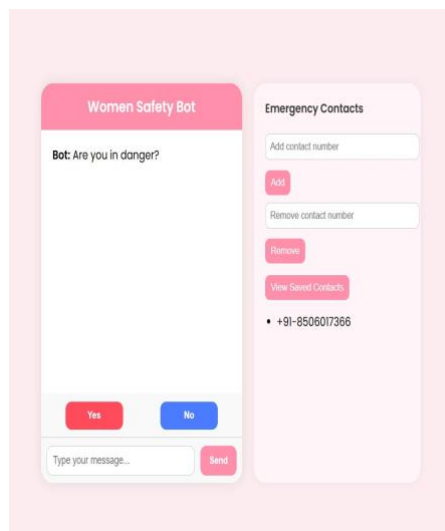
The Women's Safety Chatbot prototype is viable and can be used in real life. It shows how AI and real-time location can be utilized.



PREVIEW OF OUR CHATBOT AND HOW IT WORKS

STEP-1

This is the basic interface of our Chatbot where bot displays a message
Are you in danger?



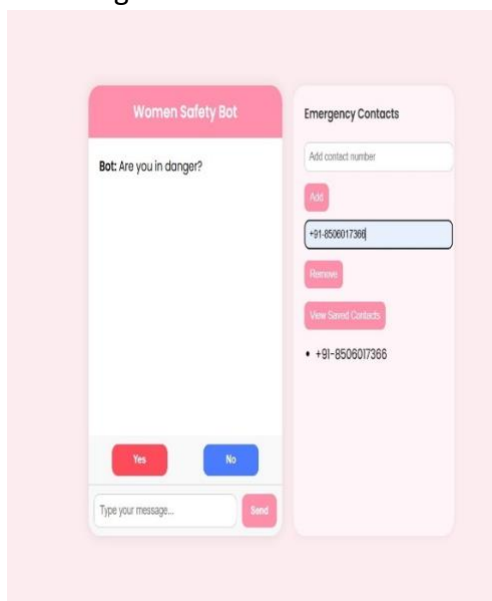
STEP-2

Here we can add contact of the person we want our live location to be shared



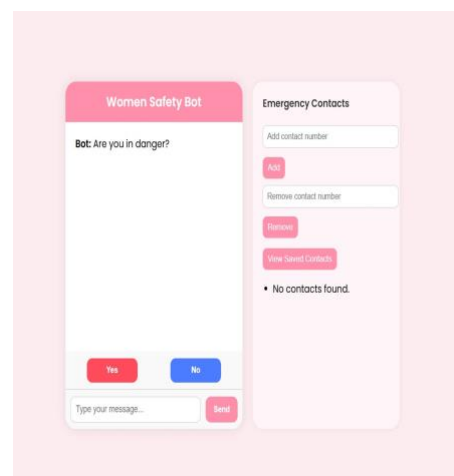
STEP-3

If we see view saved contacts our added Contact will be visible and after that we are Removing the same contact that we added



STEP-4

Now we can see that contact is removed successfully. But to show you the further steps I am adding that contact again



STEP-5

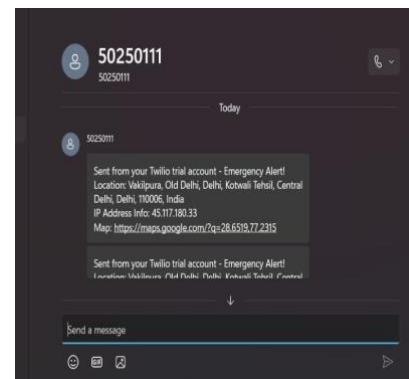
Now lets show you voice recognition
By our chatbot you can see bot is
Listening for help help after that
It has displayed a message detected
help

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

* Debugger is active!
* Debugger PIN: 873-736-480
Listening for 'help'...
Listening for 'help'...
Recognized: help help
Detected 'help'!
Recognized: help help
Detected 'help'!
```

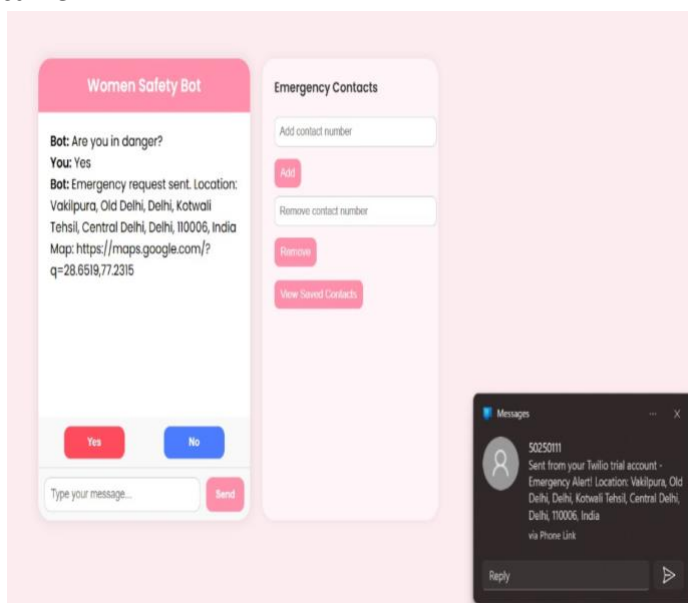
STEP-6

After that we have received the
message with our exact location
and google map link for tracking
live location



STEP-7

This is one option to share our
Live location other option is that
We press yes button provided in
The bot and it displays location with
Google link and you can see sms also
came



STEP-8

The last thing that we have
implemented groq ai llama 3
model which is handling basic
responses such as here we have
asked about an area that it is safe

