Panic Trigger Mobile Application for Smart Rescue System

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Abstract

In today's world, the excessive number of vehicles on the roads and weak navigation mechanisms cause a rapid increase in the accidents and mortality ratio across the world. In case of an accident, the first thing is to provide the first aid by any source. To save a life, the first step is to call the help-line of the concerned agency and ask for help. In most of the cases, the person affected or injured by accident is unable to answer the questions of the help-line, and very often, the affected person does do not know about the exact location of mishap. In this study, we introduce an intelligence-based smart rescue system by installing voice input in the order. The basic principle of this mobile application is to use the concept of artificial intelligence and speech recognition. The advanced smart panic trigger, the affected person, can press the panic trigger and speak. The intelligence to the emergency help-line. This smart application, we can use the concept of A.I, law, and, STT-Google cloud services system in the app will have efficient efficiency to recognize the voice of the injured person, can automatically convert the sound into text form, and can detect the real-time location of mishap. Subsequently, the collected information in the text form sends a message for speech-recognition, location-coordinates, self-positioning, real-time location-tracker, SMS transmission.

Keywords:
Panic trigger, artificial intelligence, voice recognition, STT, real-time location, SMS transmission.

1. Introduction

Every day the peoples are moving or traveling from one place to another by various means. The vehicles considered the primary source of going globally. In the modern age, the number of vehicles is increasing day by day; millions of peoples lost their lives because of the road accident. We are surfing way, or in another way, meanwhile road accidents become a global issue, as per one resource named Safer - America concluded in 2019 that around 3287 people have died, due to car accidents. All over the world and 1.3 million deaths every year [1]. According to whom, 1.25 million deaths occurred due to traffic accidents 2013, additionally millions of people living with the long haul. Most of the deaths occurred from 15 to 29 years old, which shows that most of the deaths occurred at a young age. According to WHO, deaths caused by traffic accidents right now on number nine, but in 2030, it will turn into number seven [2]. Because of this, the number of collisions increases, which caused the death of many innocent people.

On the other hand, it could take action quickly maintained. In Pakistan statistics shows, ten years of data can average 15 individuals live lost their due to traffic accidents according to Pakistan statistics bureau [3]. Automatic smart help system with voice recognition drop taxi this smart system using A.I. (artificial-intelligent) NLP(natural-language-processing) concept to recognition criminal tendency purpose of this quick application is to save from rob of female passengers and save lives from dirty drop taxi drivers [4]. Detection of accidents, the smart rescuers with real-time tracking location, tracking of the real-time purpose of this advanced application, reached help on time, using tracking GPS real-time methods [5]. An android application that detects accidents using an accelerometer sensor, once sense the disaster, the system automatically a transmitting, a voice input transfer message to urgent situation help service responder on the contact number. To realize such for patients to reduce persistence. Decreases flat to obtain hooked on a critical situation. The present is based on committed services, the rising E-Health

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model. That model gives such people through; a particular device contains the "panic button" (or a general mobile phone e among a specific application installed) is used in case of an urgent situation. While the push button, a fanatical emergency service process the appeal and transmit a paramedic squad to give first -aid to the patient. To discriminate EMSes linking the model of the "panic button" from standard emergency medical services, we refer to them as pbEMS[6].

If not taking immediate significant action against it may lead to losing another life. We could save the lives of most of the peoples if we handled the accident on time, in hand the delay in the provision of proper treatment resulting in the valuable human being, during the collision the injured facing problem to convey the message to the concerned help-line for first aid. The wound is not able to send the message accurately due to a lack of unconscious. Besides the injured person not know the exact location of the accident, usually, in this situation, the person is not able to recognize the precise location. Thinking all these facts in mind, we have to provide a solution to all these problems. We can develop android application the smart rescue with voice input. This expert system application, which can recognize the voice of the injured, using STT (speech-to-text)for voice-recognize, using GPS and real-time tracking, coordinates of the place, after convert into text form to send a message to emergency help-line service. In the rest of the Paper, Section 2 describes the related works. Section 3 presents the system design and methodology. The detailed implementation, application, and explanation of the user interface are put in section 4. Final conclusion remarks are put in the last section.

2. Related Work

Emergency ambulance system for traffic accidents; it used GPS tracking utilized smartphones to build an android application is not new topics of research. We decided to utilized AI-NLP branch speech recognition to developed a system, its more functional and reliable, better than presented ones. So we are developing the current project in mind. The author of Guangxi-normal -university developed a system of the crime-seeking help system to save rob of the female passenger. The main contents of the real self-protection system, voice recognition crime-oriented help-seeking system based on keyword similar, has been implementing and experienced with the actual discussion scenario in which drop-passengers is killing. Throughout the excellent review of the corresponding speech recognition crime keyword, leaning help-seeking method, it shows that the system has practical significance for crime prediction. Our system compares with the proof search case, through the conversation of simulating the panorama of the occurrence of female-passenger killed by dirty taxis drivers, sharp, intelligent automatic help-seeking technology can assurance the excellence if the system [4]. The developers and authors developed an android phone system that used ODB-II connection in and a vehicle. When an accident detects in the system, the system automatically sends information SMS to emergency associates already definite by the user, SMS information will hold information as regards the accident and as well, a call to the emergency help-line services, through automatically. Every one modern vehicle has an ODB-II connection installed, which transmits information as regards the car in concurrent such as speed, oil pressure, acceleration, etc. The system worked on those vehicles that are already supported by OBD-II standard protocols. Since 2001 in the U.S. this standard is necessary. This system also implemented by European countries [7]. In the university of Baghdad, Iraq author creates a scheme of the arrangement which made use of the accelerometer, microphone, and GPS to detected accidents. ahead recognition of an accident transmit information an emergency notice to the web-server and as well forward an SMS to the urgent situation control contacts, critical situation control responders to have access on web-server to locate out concerning an accident. [8]. The authors made a system called W.W. (wreck watch), which involves intellect data from the acoustic and accelerometer data from the microphone to identify accidents. If an accident occurs, the system contacts nearly urgent help situation services and provides GPS-coordinates of location [9]. In [10], the authors written article on Information System deploys in 414 in Taiwan Hospitals that managing Of the 414 hospitals in Taiwan, 150 (36.2%) had publicly available Android apps, including 95% (18/19) of university medical centers, 77% (63/82) of regional hospitals, and 22 .0% (69/313) of local community hospitals. Among the 13 different functionalities made available by the various applications belonging to the hospital, the most common were the search for doctors (100%, 150/150), the monitoring of the queue in real time (100%, 150/150) and online appointment booking (94.7%, 142/150) functionalities. The majority of applications (57.3%, 86/150) had a score higher than 4 out of 5, 49.3% (74/150) had been updated at some point in 2017, and 36.0% (54 / 150) had been downloaded 10,000 to 50,000 times. The paper generally focuses on the structural design of the system, including hub components, data conduction mechanisms, and the way they work collectively to provide a sensible response without delay. For patients with a danger of out-of-hospital urgent situations, the slowness of the first-aid rider is necessary. EMS (Emergency medical services) operational through the "panic-button" are designing at decrease to time of first-aid terms. The further progress of such services, it can be achieved by communication through healthcare information systems deployed in the hospitals. Interface such can t used to rescue past medical history of' the patient

straightforwardly during the first-aid provision, find a suitable hospital for the patient's transportation, automatically transmit the medical hand above information, etc. [11]. Using HIS Advanced service around six to seven hundred beds and three hundred fifty doctors communicate through W.I. (wireless infrastructure). That can transmit voice this HIS system used deployed in SUH (Shimane university hospital) [12]. In this study, we saw different technologies and accessible systems, provided that we through comprehensive analysis, and helped us in budding our developed a smart, reliable, and high accuracy system. From a review, and analysis, we initiate that these systems can cooperate a very crucial part in saving the lives of humans.

3 System Designing and Methodology

We propose mainly two features; the first advantage is navigation by the panic trigger that trigger is used in case of the emergency. When the user presses this panic trigger, the App carrier mainly receives the voice input of the injured, and the use of voice recognition technology to detect the voice of the wounded, and converted in text farm. The next and second advantage automatically detects the injured location using the Google map service. API service provides the exact location, then sends the injured information to get the position, and converted in word form, then forwards it to the help-line service responder. When the help-line center gets information, and as well as location via SMS. To provides the nearest ambulance to the injured place as quickly as possible using the Google map. The application plays a role in quick people's safe lives the system primarily includes the functions of the voice recognition, position service, help information transference, the overall architecture of the automatic this system is showing in Fig 1 and Fig 2.

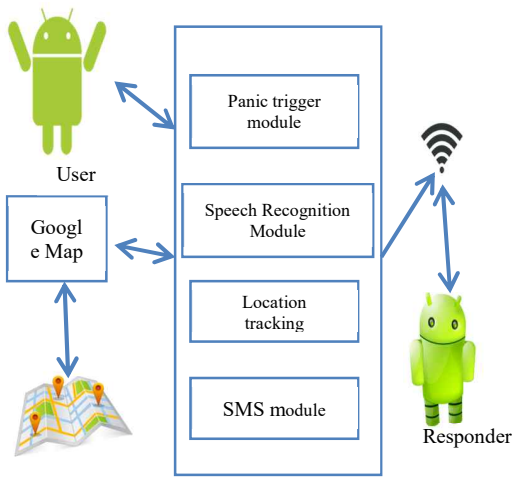

Fig.1 System framework diagram

3.1 Speech recognition

Nowadays, the smart automation system has a vital role in making everyday work more accessible and capable. Keeping room-keys is an obstruction. Thus much research has been projected through the be short of a protection system that makes the computerization systems less truthful and untrustworthy, as well as limited access distances. Purpose voice recognition to manage the entrance, and only register users can make the right to access it. The proposed method uses micro-controller NodeMCU-ESP8266 with a WIFI link to control actuators. The android application has track features history manage menu, monitoring menu on real time, register menu, and speech recognition manage [13,14]. They have designed a low-cost, reliable, capable, and safe automation with a voice-operated system in multiple languages. Nowadays, the rate of literacy is growing, but there are also uneducated peoples or somebody who may favor verbal communication in their native languages. At the same time, nowadays, Google Assistant can maintain up to several of the languages [15]. Therefore, we designed is emergency smart rescue system, based on NLP (natural language processing), speech recognition used for Accident help-seeking immediately contact with concern help-line for first aid. When press panic triggers, voice appreciation of the injured, and get the exact location. Sent all information to the concerned help-line as well concern family member, as already the injured fixed information in emergency contact contest in the application. The system is mainly the wounded, such as traveling in a different place, going out in a hurry, or choosing drip express for convenient transportation. The system uses the Android mobile phone. The Application trigger-button as the function of speech recognition and converted into a text file in real-time and transformed information Via SMS to concern help-line.

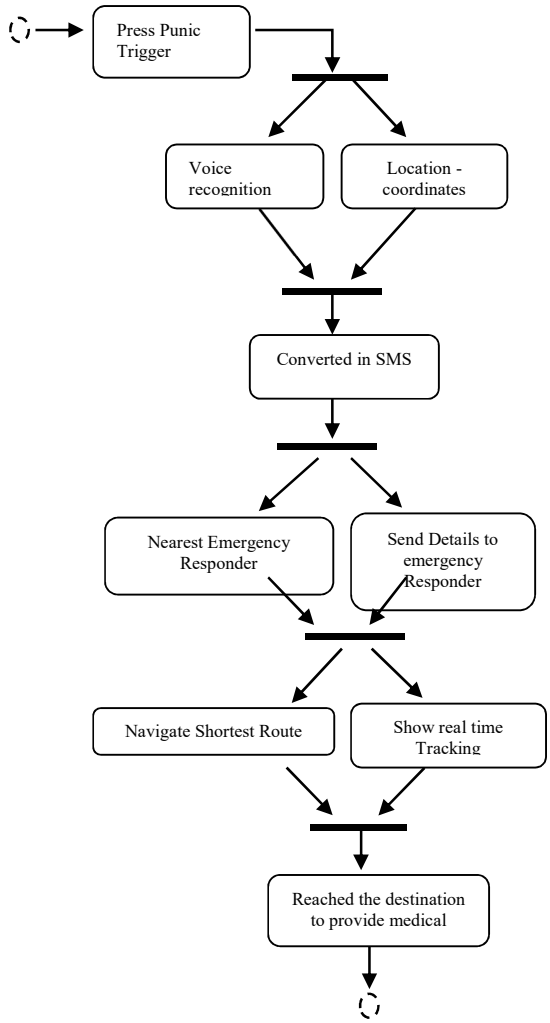

Fig. 2 overall system activity diagram

The speech recognition module of our system mainly adopts the voice dictation function of **STT** speech recognition. It accesses the interface of **STT** speech recognition based on the recording function of the Android mobile phone. The design of the speech recognition module is shown in fig 3.

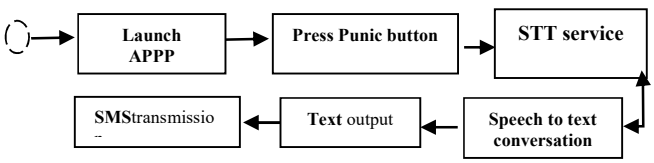

Fig 3 Speech Recognition Module

3.2 Speech to Text Conversion method

a) Speech Acquirement
b) Speech to text conversion
c) SMS transmission

A. Speech acquirement

Each voice-to-text conversion system needs acquirement of speech at the real-time during speech acquirement, and voice samples are obtained from the speaker in real-time and saved in memory used for pre-processing. Speech acquirement requires a speech recorder inside a mobile phone that has a suitable amplification to collect the voice signal, sample it, and exchange it interested in digital speech. The Result of speech acquirement wherever the voice input is in use at the real-time and the text understandable by the systems show as the output. Every mode has default voice recognition, and therefore it generates output; hence for the case, if the input is Google but the system 'recognize.', It because "and/this/yes" that is not accurate output to need several exercises to be ready on the input data.

B. Speech to text conversion

Inspired by voice recognition, the latest modern algorithms generally consider prospect text recognition as a series problem prediction [16]. Voice signal converted an array of words using methods of speech recognition with the help of the implementation of algorithms as a program of the computer. The performance of speech recognition to appear in recently being included call routing. Voice-dialing, simple data entry (e.g., entering a credit card number) and spoken search audio content-based (e.g., locate a podcast wherever firm words are spoken) under the time, the function that using this technology becomes progressively. Therefore, this technology is used in robotics, military, medicine, industry, telecommunications, household, etc [17, 18].

The primary condition of every speech to text conversion scheme is a database, which will evaluate peach through frequencies. If we develop the system that will convert the voice into text worldwide, that is for whichever user. Therefore, we require using the database, which is previously by "Google."If I try to create your database, it will construct time and space difficulty. Make such a big database, and considerable time will be west. So this project, smart application emergency rescue help system, is for the mobile user, whose mobile of internal memory is generally short, and the database for this application system is very vast. As a replacement for of create own database for this application needs to utilize the offered database, which is accessible at the online server. The voice input is collecting in the stored container, and sending it the peach and

occurrence evaluation the recognition takes position. To get accurate wording, which is speaking, we need instruction on input file for that neural-network (N.N.) is used the output is together in the text-file, and SMS is organizing to send.

C. SMS transmission

After all, voice recognition and convert in text, the next step is sending SMS. The voice sample that already converted into text form is conveying as SMS to the responder. In this step, Android emulators used are two android- emulators used to send and received the SMS. From the first emulator, which considered as a phone, one text message is sent, and the responder gets it at the inbox. Here we used AndroidManifest.xml to insert the two authorization SEND-SMS and RECEIVE-SMS. Next added main.xml to the got mobile number of the dispatcher. Next section, in SMS goings-on, wire up the to push button view, so as the user clicked on it, it will ensure to see, that the user enters the mobile number of the receiver and the text. We sent the text using the sendSMS() function, which we will classify shortly. To send an SMS text, we apply the method of android programming such as, SmsManagerClass. getDefault() static scheme to achieve an Sms_Manager Object. sendTextMessage().

3.3 Location service

The Positioning method provides GPS consistent positioning, navigation, and timing to any amount of users at every time, wherever in the world. In the third generation, smartphones the positioning tracking made achievable, not including have the arrangement of GPS. However, the exactness of location is not a lot poor as compared to the location system because of the capacity and transmission problems. Hereafter, tracking to GPS has become further appropriate to discover away from the present location [19]. This method uses GPS elements, Arduino_Uno, and the GPS element along with the GPS tracker. The hospital management develops the module of GPS to achieve latitude and longitude of the marked to be positioning. The Arduino_Uno and the blade of GPS jointly mounted, in the ambulance to display the location of users. The creation of this scheme provides the current place of the ambulance to will be shown on Google Maps [20]. GIS and GPS will provide a route that will give real time latitude and longitude with an information responder quickly identifying the location of the user [21]. There are various location methods in the android platform had location information services [22]. Our smart android application system uses the SDK positioning design our module in the advanced positioning map API, shown as in Fig 3. This positioning method uses a combination of GPS location technology, and base-station network location technology to get better the accuracy and speed of positioning. A request for positioning is sent to the SDK, while the program of positioning starts.

Moreover, the SDK positioning generates a corresponding position requirement according to base station network and GPS positioning. After all, finally, the specific address information locates by SDK base on the provision of positioning and transmit it to the getting end of the mobile phone. Showing is in fig 4.

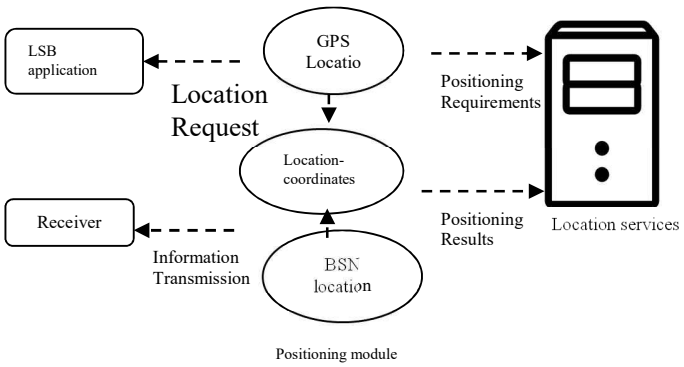

Fig.4 location-service

4 System implementation

4.1 Implementation of speech recognition

The Smart rescue system APP with voice input; the application is developed on the Android studio. It is base on the Google Android- platform, and STT (Speech-to-text) voice dictation. When used the Google voice recognition android API for development, the first step needs to make a developer account and register on the OPEN PLATFORM. Authoritative Speech Recognition is Google Cloud Speech API, which is enabled to translate voice to text by apply N.N. (neural network) Models in effortless to used API. Currently, The API recognized 80 languages and variants moreover, to maintain global user-based. It can transliterate the text of the user dictate to now, the application's microphone, or allow command and manage through voice between lots of further use cases. The Google API has better its speech recognition with new technology in several applications. Through the Google App ad such as Goog411, voice-search on the mobile phone. Voice Input (speak input to keypad), voice actions, Android Developer APIs, Navigate, TTS, YouTube transcription and translate, voice search on desktop. We need to use Google Speech-to-Text Why Because of google makes STT&TSS (speech-to-text and text-to-speech) services perfect and accessible

easy to manageable. When creating smart and intelligent voice applications, speech recognition accurateness is critical, as can see among the illustration under, the accuracy rate is 90%. In this smart rescue system application we used service of goggle STT (speech-to-text) for speech recognition this package available on goggle web-cloud, we used offline STT package, STT is easily to enable in application accuracy rate is also high performance better than other kits, results showing in fig 5 and fig 6.

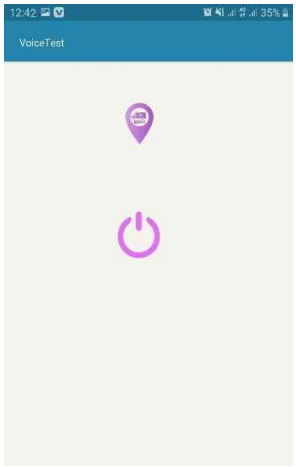

Figure .5 Enable Punic-trigger (screenshot)

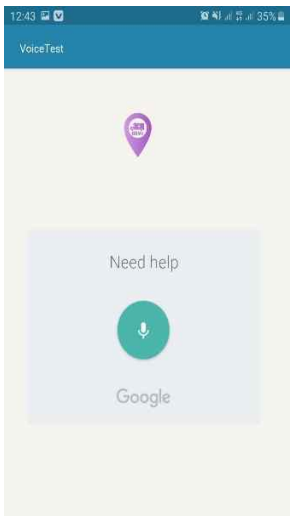

Fig. 6 Implementation of voice input (screenshot)

Fig's 5 and 6 show the main page of the application, which contains a punic button. The Google API is used to recognize wounded speech during the speech recognition process. Use the ACTION_RECOGNIZE _SPEECH framework to call the Google Speech API, which is implemented by using the onActivityResult() method. Subsequently, the library will capture the voice received by the smartphone microphone. The captured voice will be sent to Google servers to be translated into text.

4.2 Implementations of Speech to SMS Transmission

This system allows us to take speech as input and produce text as output. The system uses "training," where each speaker reads the text part. These systems analyze the user-specific speech and use it to fine-tune, the user speech recognition to obtain a more accurate transcription. The speech-to-text conversion system is the ability of a smartphone to recognize words in spoken language and translate them into a readable form of text. There are many speech recognition software on the market that can be used for words with limited vocabulary or terms that are very clear shown in fig 7.

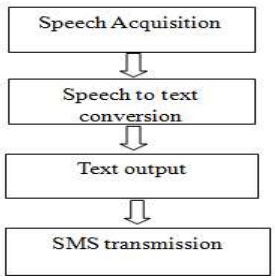

Fig 7 Speech to Text conversion transmission

4.3 Implementation of Map in Android

Android bulletin provides several objects to handling maps in the LBS system like a map. View, which displays the map, to handle class usingMapActivity. To explain the map, it provides the overlays of class. Also, it includes canvas by which one can simply create and display several layers over the map. Moreover, plenty of provisions here are to zoom the map, localizing the routeutilizingMapController.

4.3.1 Google play Services

We implement in our project is Google map, we import file in android studio Google-play-services, afford to app developers a complete set of advantageous features, I-e, Google+ and Maps sign-in. The package includes the Google-Play-Services, client library, and the Android Package Kit. The client library makes it achievable to access any feature with an account's and deals with different issues' salutation that. The Package Kit of Android communicates with the user library and provides access to a particular service when required.

4.3.2 Handling the Map in Android

The added markers on the map indicate the wounded individual points of interest. One can define ritual colors or icons for map markers to match the emergence of the application. To further enhance the app, draw polylines and polygons cam also indicate paths or areas, or provide a complete image overlay. The map view code is as:

```
<com.google.android.maps.MapView
android:id="@+id/map_view"
//specify different attributes/>// map controller
MapController mapController = myMapView.getController();
 mapController.setCenter(point);
 mapController.setZoom(1);
//List of present overlays
 List<Overlay> overlays = mapView.getOverlays();
// adding a new overlays MyOverlay myOverlay = new MyOverlay();
overlays.add(myOverlay);
mapView.postInvalidate();
```

4.3.3 Configuration files

Apiece application project must have an AndroidManifest.xml file (with the proper name) in the root directory of the project source set. Such line codes consist of:
AndroidManifest.xml
AMapLocationClient
AMapLocationListener
AMapLocationClientOption

The manifest file describes necessary information about the Android build-tools, Android operating system, and Google Play applications. Via the Google Play services location APIs, the app can request the last known location of the wounded device. Nowadays, the GPS in android needs a few-lines of coding almost function, and libraries by default are available we need to impart in our projects.

4.4 Implementation of SMS transfer

The last part of our system is the SMS transformation. Now in the android developer platform available is own Libraries, and function, we need to import and call that libraries functions; here we define briefly. We already defined in details on designing part of this paper, we use here to add the two permissions, AndroidManifest.xml SEND_SMS, and RECEIVE_SMS. For add phone number main.xml, for send message using of function SendSMS() used SmsMagar object ,sendTextMsessage() object.

5. Conclusion

In this research article, we developed an android-based smart rescue help application with voice input. This research paper, we deployed the field of artificial intelligence, law, speech recognition. This quick rescue system can be considered more reliable, and high accuracy to provide the conveniences to the injured. If not taking considerable urgent action beside it may lead to losing one more life as a result of an accident. If we can handle the disaster on time, we could save lives, because, in most of the cases, the peoples during the collision face the problem to convey the message to the concerned help-line, for first aid. After getting an accident, due to a lack of unconsciousness, the aspect is not able to transmit the information correctly. So we can develop a smart rescue system with voice input with the help of this efficient rescue system application. After getting an accident, the affected one does not face more trouble, and just simply press the panic trigger to speak the current situation. Our system automatically converts the audio into text. Recognize current location, all information turn automatically in text farm, and send SMS automatically to emergency help responders.

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