

# Women Safety Alert System with Geo Location and Shake Service

Kekkarla Madhu<sup>1</sup>, Gunnala Pavan<sup>2</sup>

<sup>1,2</sup>Assistant Professor, Department of CSE (AI & ML), CMR Technical Campus, Hyderabad, India

**Abstract**—The personal safety applications will also have to work in an emergency scenario whereby the user will not be in a position to physically control the gadgets. The majority of currently developed mobile safety solutions cannot be relied at the time of panics or any other threat because they depend on providing clear actions with the help of users. This research proposes an android safety system in relation to women safety which is implicitly sensory basing on the feedback of motion sensors. SOS is automatically triggered by the system without actual physical contact with the screen by a detection system that responds to shaking.

**Index Terms**—Women safety, Emergency alert system, Shake gesture detection, GPS location tracking, Android application, SOS communication

## I. INTRODUCTION

Women are forced to face confronted with risky situations - on their commute to work, when in a hurry at work or when alone. It is now possible to install various safety applications in smartphones. Most of them however are forced to open the phone and select a stress signal button. In real tragedy, such behavior may be suppressed by stress (or trauma). Fear can freeze reactions. The locomotion may not be possible. When they are most needed that has the majority of the tools inefficient. Helping solution is not dependent on taps or swipes of the one holding a right solution constantly [1].

The new apps that consider the womanly safety feature include: SOS notification, direct dialing of a loved one or sharing the whereabouts. Useful? Sure. They however count on the fact that one is not so stressed to the point of grabbing his or her phone and thumbing their screens. Hazard always likes to come at the very moment - one has barely time to act. At the worst possible moment, an equipment may be turned off, packed away or simply unseen. This would mean that

postponement of an emergency alert may be caused by time lapses. Whenever people are asked to work on behalf of systems, mistakes are made during the moments of stress [2].

The majority of the phones available as well have mini-internal instruments like accelerators to check on their movements. Odds acts, then, those appearing as a change of position in these parts, as in constant shaking may be noticeable. Perhaps a sign is when an individual shocks his/her device a few times in the case. The motion data stream will not need any touch; therefore, the help can be activated even when the display is black [3].

It begins by shaking the phone - there is no need to press any keys. The application is Android-based, and the application is created in a secure way. The motion sensors perceive any undue shakes and take it as an alarm. Then GPS will start up and it will replace one wherever he is. A message is relayed to the already added contacts. Inside it? A piece of evidence to connect their location. Help is requested without phrasing or utterances. Putting up in a manner of making sure it is swift anguish that is likely to get to the appropriate individuals. Coughs when the hands are clumsy or the panic attacks.[4]

## II. RELATED WORK

It is also possible to find quite many apps that are developed with the sole intention of helping women to deal in issues of their safety that can come to the rescue during trouble-making. We made them however might need to go through the first step of opening your phone, that can be lost in the panic. Others make automatic calls to significant individuals as some of them enable yelling digital assistance. The sharing of location will be fast and sent straight to users saved beforehand. But those times all the fingers fail to tap,

then nothing is going on at all - there is never a note of silence violated. Real life scenarios never make plans; in fact, at times the screens themselves can be frozen. Because of it, it can be late in issuing warnings or no warnings at all. which makes such arrangements less helpful in the event of the actual crises' strike [5].

Instead, to protect women, some professionals offer to wear gadgets - the ones that have emergency triggers. A warning is given whenever a person approaches a special device near him. Though there is no compulsion that individuals take their phones as soon as they receive them, something is wrong. There are individuals who cannot always carry an item thus making it inconvenient. The device will sometimes stop operating with power at a very inappropriate time. Or it might as well be wasted at home where it is wanted somewhere. Once it happens, the use of wearables to prevent falls fails miserably. Real life situations normally ruin performance in reality [6].

The voice on your phone can give you a notification it can even a voice recognition to start up help calls. These connections will listen to an anticipated utterance and subsequently relay out a signal. The option of screen tapping assuming skip seems perfectly handy until the point that one tries it in the areas of a high traffic or a yelling mob. The bad omen presents itself as inability of the gadget to receive what was said. The noise pollution tends to disorient the sense and the system is not even aware of the emergency signals. There are occasions when some human being could be in a position to communicate not at all or fail to form words. The voice is not a dependable tool in the fear mode - hence one cannot rely on voice activists during crisis.

In the recent past, people have started to value the concept of applying phone sensors with the aim of detecting emergencies automatically. Motion detectors in the device are sensitive to the introduction of sudden jolts or shakes. When it happens, one can call help even without a person pushing a button. However, there are those arrangements that are so lasting to send messages or miss out in following your location. There are systems that are not easily established between the folks. This is the reason why this simple and practical device is needed, a thing that will be used to lock down women and give them immediate notifications of their locations in case they get into some trouble [8].

### III. DATASET

In working on the mobile devices, live data does not make external fetches. The accelerator is fitted with sensors that capture the information regarding the movement in case of moving or shaking a phone. Normal dealing and intentional shaking are what record these readings. Since the device can also track the location, the GPS is triggered on after the stimulation of SOS. Latitude and longitude are sent to the alert system as collected information. With the help of these coordinates, the signal of emergency is being built timely. [9].

The shaking of the phone repeated will show the system that something might have gone. When the car is used normally, the accelerator continuously commutates movement data. In case of a quick backward and forward shock being performed, a notification is emitted to the software. When the pattern of help has been mentioned, it commences even though there is no tap or voice command required. Once it has been launched, it records on the position of position of where you are using the satellite signal. There, this places your position on a text showing as a clickable map note that can be passed on to the individuals you have called in [10].

This is due to the fact that although the app may be running behind all the screens or even when the phone is locked, the phone will have been used. Due to an emergency, the user cannot always communicate with his/her device directly that is the reason this is important. The trembling is also felt until there are operations in the background. Upon getting an alert, automatic triggers are suspended. Deliberate blockage occurs in frequent signals. The communication becomes easier when the less redundant warnings are issued. Contact dragged out of address book will not come with annoying repeat messages [11].

### IV. METHODOLOGY

Here, the paper narrates how the safety system works and that it is the one to be applied to the women via their phones into phone sensors. Provided that there is a sudden shaking motion, the system becomes activated and does not need to be typed in by a human being. The location information will be taken the moment this motion is identified. When it is confirmed, the message is sent in a desperate manner

utilizing the use of believed individuals position is confirmed

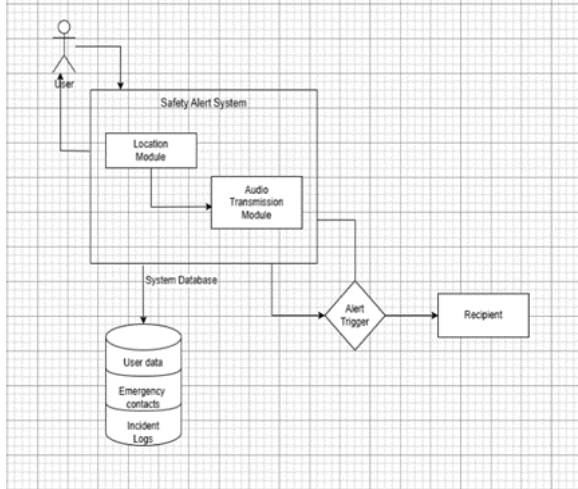


Fig. Block Diagram of Proposed Schema

### V. DATA ACQUISITION AND DATASET PREPARATION

Shake two times and the phone begins to move. The inbuilt accelerator closes its eyes with some motions and it records all the moves and switching of direction. The second double-shake, which is his assertion, is sealed by the fact that no other event is likely to occur. False alarms? They are filtered in fast internal check by their filters. Once the shake is confirmed, then the things roll and no further action is observed. The system gets the location of the person instantly using the satellite signals. The location is found in a note, which is supplied to numbers previously stored. There is no point in which the individual has to open the app. [12].

The application gathers information right off the hardware on your phone because you open the application. It is a kind of tool contrary to most tools whose old records are extracted to give real-time signals that consist of detectors built into the tool. Information flows in due to novelty because things happen, instead of being dragged out of files where they have been stored wait to be utilised.

### VI. DATA PREPROCESSING

A shocking perplexity is not enough... action must elaborate action through time. All the readings are presented by the sensor offered in the phone to scan

the speed of the objects. The signals become more even in the absence of risk whilst you change position or move. That is why short surges are not considered until the same is realized in quick development. Something that is real must have a pattern. The software will observe only after the repetition of the shakes. Even minute movements are evaded. The system picks up what it picks at this point and the system processes it straight away [13].

Each motion is marked with the system time to find out the right shake rhythm. Breaks get excessive and such gestures are lost. There is such a filter that regular taps and swipes are thrown back into the background. Raw shaking - ones - go through the chain.[14].

### VII. PROPOSED SYSTEM: SENSOR BASED EMERGENCY DETECTION

It will not come by merely shaking and one has to move progressively. Your device is an internal compass upon which the variations of speed are always indicated. Replacing or promotion renders threats harmless or not. Temporary flushes are not very long lasting except when they are repeated in the immediate future. A meaning must pre-exist a form. Only upon repeated tremors, the program gets its attention. Every time, such minute movements are missed. The processing starts as soon as information is received - there is no information that is left behind [13].

The timings are what activate every movement and the system can detect the shaking to record the actual pattern of shaking. Where breaks are prohibitively long, they are simply dispensed with without previous informing [14]. Only hard shocks - startling ones, lead to its overthrow the line even further.[14].

When it gets to your place, your phone sends you an SOS with a location link to contacts of whom you saved - in the regular text messages. Then there is a note, which comes saying that the warning passed. Speed matters here. Everything functions correctly to provide that aid is dispatched some few seconds after clicking send. Elimination of time slips will enable the assistance to arrive at an earlier time.

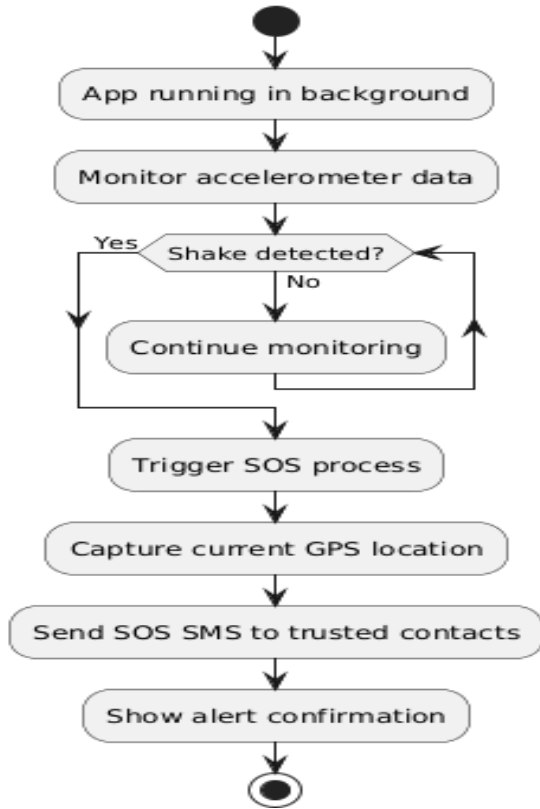


Fig. Proposed System

VIII. SYSTEM EVALUATION AND PERFORMANCE ANALYSIS

At some point, the tests are conducted without references to trained models or complex learning strategies. In case of an emergency carrying out becomes the first priority - it is essential to notice the action that the device will take. A shake is then detected then preceded by speed of sending warning. Signals will be lost instantly as can be verified through vibration on phones. The contacts which were noted on the inside are also checked, just to see that they will be able to respond the moment it is required. Most of the time, the tremor is only seen after a few seconds hence activating the alarm [16]. The significant fact is that it does not require much time to find the shake and then sends the SOS with coefficients. Normal movement is also checked - to be made sure that there would be no false alarms raised. Frequency is important but precision is still a key in testing this system. It is only able to pass the signal on the detection of shaking. Unwarranted triggers are not anticipated to take shape in undertaking transactions in

daily basis. The two steps should also be timed to give a clear picture on how everything works.

IX. COMPARATIVE ANALYSIS

Looking at the currently available apps that can assist women in becoming safe, the vast majority of them are too reliant on the measures that a user must take in case it comes into a life-threatening situation. It becomes faulty at the moment when one is to unlock something and press an alert in the time of a panic. The new method is not interaction but the impulsive movement like shaking and receptive through firing off warning instantly rather than waiting on a tap or a swipe. It operates silently in the backdrop of other processes that run over real-time positioning information without the need of any input. That shift - tardiness of movements to rapid reactions - may have quicker aid following. [17].

In a time-dependent case, it requires human meddling to be passed on by omission. Automation removes slip through the cracks of alerts due to the blurring effects brought about by a stressor. It merely serves the purpose of reducing the situation with people in real conditions with the help of simple people.

Table: Comparison Table

Feature	Existing System Applications	Proposed System
SOS activation	Manual button press required	Automatic through shake detection
User Interaction	High	Minimal
Gesture-based trigger	Not Available	Available
Background operation	Limited	supported
GPS location sharing	Optional or manual	Automatic
Response time	Depends on user action	Faster due to auto trigger

It can only be seconds when seconds matter and the response time is minimized that human steps can be eliminated. Owing to the tensile characteristics stress, automation is used to ensure alerts would not be

crevice sliding. Otherwise, in the real world, it just works better than the utilization of persons alone.

### X. RESULT AND DISCUSSION

Even the slightest movement is sufficient to cause it - all the tests determine the reflex rate by making it behave as it is every day. Simulation Reality Reality mimicking is analogous to reality and is repeated many times to see stability. The identifying is done virtually immediately following which the alert sequence intuitively commences. No corny buttons are in place, no pauses, no but movement and action. Of importance here is speed that is shown to make it wake up fast upon danger attack [18].

And now, in a couple of seconds - seconds only - SOS is away. The data grabs of GPS are tested and guarantees that they are correct prior to being relayed across the message. In the majority of instances, these alerts are received in the contacts almost instantly. Such a combination of motion sense, point of positioning and delivery? It holds up well. With all test conditions normal everything goes without hiccups.[19]

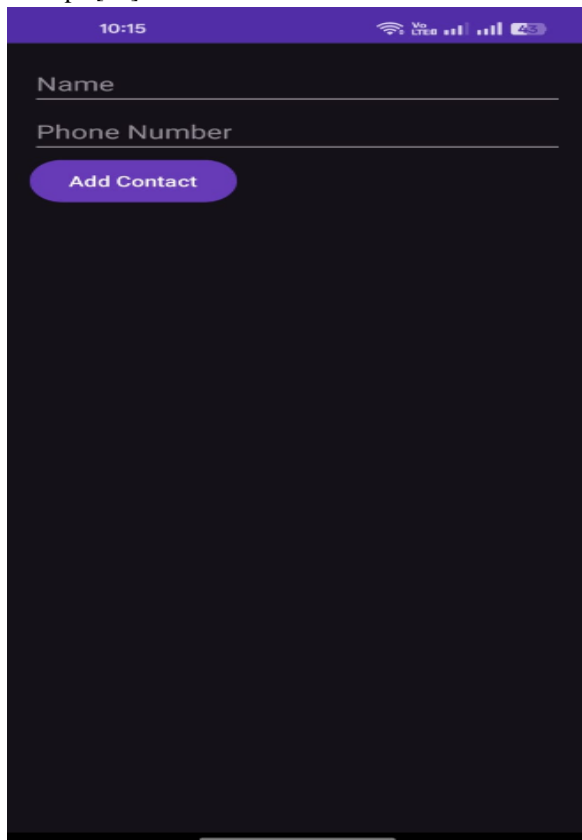


Fig. App interface

Every time an individual takes the download, he will have the ability to add individuals whom he or she could trust in passing urgent messages. The process of adding names and numbers to the contact page is done before SOS tool is used. Such information can be stored in the system until there happens a crisis. It has automatic going out of a signal when a need arises.

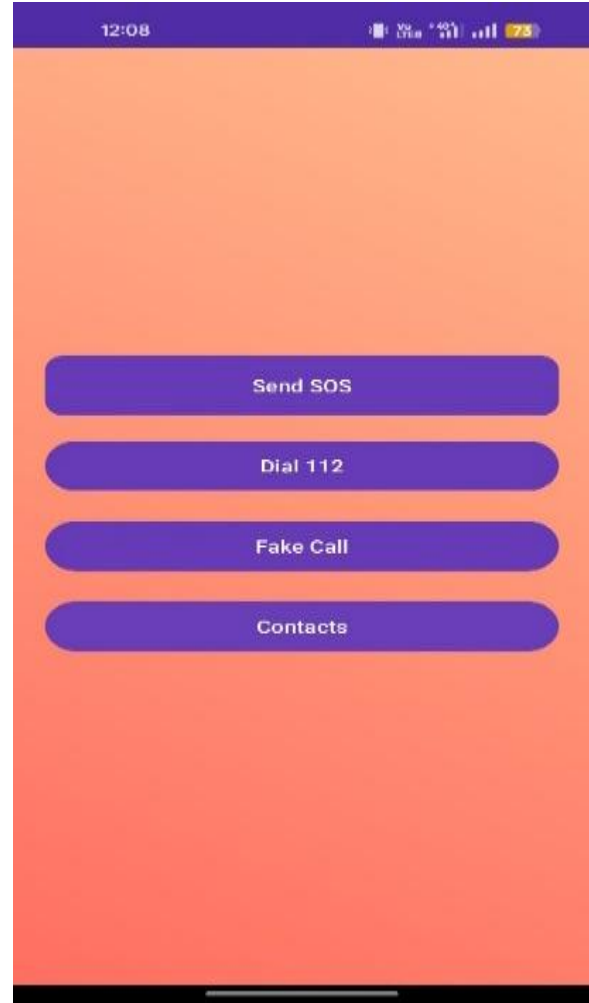


Fig. Adding trusted Contacts

The flashing warning looks like any other text to the screen of the receiver. There is a map tag on the inside and words that state that we need help now. When one clicks on that tag, they are automatically on Google Maps at that location. According to that one can easily learn where the individual is with no further effort. There was no trouble with any part of the test except that everything loaded very fast. The recipient of the same is in a position to read the warning clearly yet he or she does not require anything extra. No software required at all.

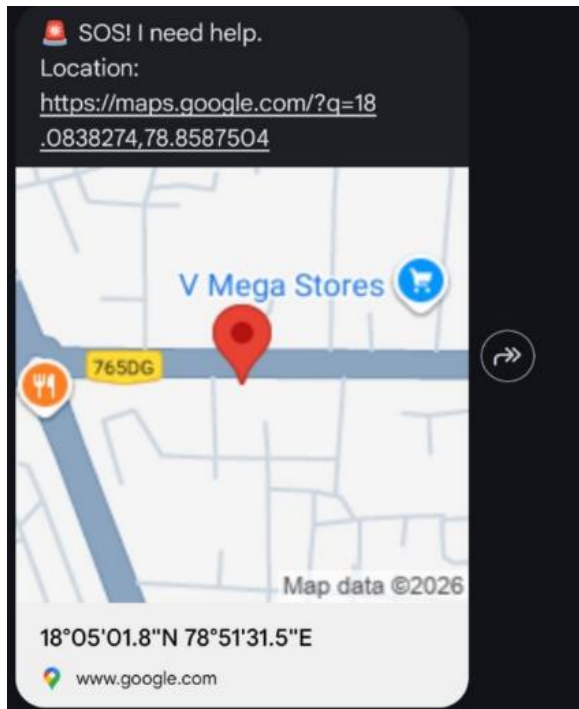


Fig. Message received

## XI. CONCLUSION

The device enables one to use in hard times; it switches-on to provide assistance during the emergencies when a person experiences a sudden shock - he or she does not have to tap it. Most of the shows make you go menu shopping when you require an extra. This is the point where motion prevails over the operation of pressing buttons. Panic leads to a seizing of fingers; movement proceeded in the direction of indecisiveness. You need not even swipe or even type something pressurized but can shake the phone. It is not the aid that is received prior to the unlocking of the screens. Actions replace passwords. Upgrading is a process that is automated and a user is not forced to go through the procedures that other programs require him to pass through.

Among the apps which are created to ensure the safety of the women, they can call on them to be assisted without having to use elaborate procedures. The rationale behind it is that it would eliminate what one would have to do manually in the event that danger is hit. The software is activated by shaking the device as opposed to the use of keys. It is practical to the extent that people cannot hold on to the phone or even feel it [22].

Shaking detects the phone - the built in sensor is able to detect that the movement took place since the GPS determines the place at which the movement took place. When the trouble is indicated, a text message in the form of a notification with a map hypertext is sent immediately to pre-programmed telephone numbers. I could verify what tests received those texts all the time and clicking the link took me to the location on a map without any problem. Most of the accidents that such kind of jostling might cause on their everyday routine would not falsely alarm the system when it was not due.[23]

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