# Smart Self-Defense Gadget For Women's Safety Using IoT

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**Abstract - This paper explains the smart self-defense gadget for women's safety using IOT. At the present scenario, women's are competing with men in every prospect of society. But the women have fear of getting harassed, kidnapped and killed. All these types of women harassment cases are increasing day-by–day. So it is very important to ensure the safety of women. In the modern world where the advancement is rapidly creating and new contraptions where delivered, yet in the meantime women's facing defying issues, so in an emergency situation some help would be a need for them. The main objective of the proposed gadget gives the security for women everywhere. So that only the proposed gadget uses the latest trend technologies like Internet of Things (IOT). The proposed gadget provides the user location (LATITUDE & LONGITUDE) values for every 1 minute; these tracked locations are sending to emergency contacts by using GSM Module.**

***Keywords: Women's safety, IOT, Self-Defense, Latitude & Longitude, Emergency Contacts, GSM.***

## I. INTRODUCTION

In today's world, women safety has become a major issue as they can't step out of their house at any given time due to physical/sexual abuse and a fear of violence [6][18]. Even within the 21st century wherever the technology is quickly growing and new gadgets were developed however still women's and girls' face issues. They often work across ethnic, religious, political, and cultural divides to promote liberty [20]. We are all aware of importance of women safety, but we must analyze that they should be properly protected. Women are not as physically fit as men, in an emergency situation a helping hand would be assistance for them. If you are get split from friends during a night out and do not know how to seek out back residence, this device can guard you and may reduce your risk and produce help when you need. There are several applications to reduce the risk of sexual assault on women by informing control center and their associates through SMS, but in the lay of those, these apparatus have much more efficient way has a defending system which cannot be provided by existing application.

Most of the women safety devices are embedded oriented. They are similarly uses the GSM Module & GPS Module for tracking the user location [2][5][11][15]. Those devices are used to send the emergency message to emergency contacts; this will help to provide necessary security action [13][18]. Some of them also used Wi-Fi Module, Bluetooth Module to send their emergency message to emergency contacts, they send their emergency message in the form of Audio Format by using the Voice Recognition techniques, Video Format by using the Micro Camera with low power consumption [8][21].These devices are used in not only for women safety it also has children safety, girls (for working) safety etc [14][17]. Now-a-days we create these devices by using Arduino Board or Raspberry Pi Boards; to involving IOT technology [13][18][19][20].

## II. LITERATURE SURVEY

**Title 1: Design and development of women self-defense smart watch prototype [19]**

**Authors:** Shreyas R.S, Varun.B.C, Shiva Kumar.H.K, Punith Kumar B.E, Kalpavi.C.Y

**Year: April 2016**

This paper focuses self-defense and alert features for women's like a smart watch. The main objective of this paper is to help by the technologies that are embedded into the smart watch. The smart watch comprises three sub-modules namely, (1) Sensing Module, (2) Control Module, (3) Transmission Module. In a Sensing Module consists of Emergency key and Voice Recognition Module in it. In a Control Module consists of ATMEGA328 Microcontroller and Power Supply unit in it. In a Transmission Module consists of LCD Module, GSM Module and GPS Module in it. These three sub-modules combined together to track the user's location in an emergency situation and then send an emergency alert to their registered contacts. So that the smart watch would be helpful to reduce the crime rate against the women's.

**Title 2: Smart Gadget for Women's Safety [4]**

**Author:** Akanksha Chandoskar, Shraddha Chavan, Yojana Mokal, Payal Jha, Pournima

**Year: January 2016.**

This paper focuses women's are less secure they faces many problems in their daily life. So the main aim of this paper is women's are freely moved out of their house in an odd hour without considering their security. So they proposed a gadget for women safety. The gadget comprises GPS Module, GSM Module, 8051 Microcontroller, Panic Button, Sensors. Whenever the microcontroller receives the sensor value as well as emergency alert it send an emergency message their registered contacts using by using GSM Module. And also the system tracks the location of the victim by using the GPS module, the system also send the location of the victim by using GSM Module. So that, the proposed system can solve women's problem in technologically with sound equipment and their ideas.

**Title 3: Advance Woman Security system Based On Android [12]**

**Authors:** Kavita Sharma Anand More

**Year: May 2016**

This paper suggests an android based smart phone with an integrated feature. Whenever women's are in trouble they just simply hold the volume key button of their smart phone, which

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send an alert message to the registered contacts as well as it also send an voice call for first contact " I AM IN TROUBLE. PLEASE HELP ME." Here they use JAVA Platform. It has two components (1) JVM (2) JAVA API. It helps to increase the women's security.

**Title 4: A Mobile Based Women Safety Application (I Safe Apps) [9]**
**Authors:** Dr. Sridhar Mandapati, Sravya Pamidi, Sriharitha Ambati
**Year: JANUARY – FEBRUARY 2015**
This paper proposes a mobile based women safety application (I Safe Apps). They created one application for Women Security, which can be downloaded from Google play store and then install into our mobile. First we have to register our contact list, which receive our emergency message first while we are in dangerous situation. Whenever we are in dangerous situation, we just simply hold the volume button of our mobile, it automatically send an emergency message to our registered contacts.

**Title 5: All in one Intelligent Safety System for Women Security [3]**
**Authors:** Abhijit Paradkar, Deepak Sharma
**Year: November 2015**
This paper focuses on 100% safe zone in public areas not only in travelling time. They created one activity diagram for their prototype model, which contain some selected modules. The modules are (1) Database module (2) SoS Key Process Module and Voice Recognition Module (3) GPS Module (4) GSM Module (5) Spy Camera Detection Module (6) Intrusion Detection Module (7) Area Zone Module (8) Fake Call Tool Module (9) Audio and video recording module (10) Call on 100 or other emergency number (11) Generate Electric Shock for Self Defense module (12) Screaming Alarm Siren module.

## III. PROPOSED SYSTEM

The proposed system is to plan a portable / wearable device, used to secure women's in an emergency situation either the design have internet connection or without internet connection. Whenever the system receive emergency alert, it ready to send that received message using GSM to emergency contacts (neighbor's contact, friends, relatives, parents, cloud).

### A. SYSTEM DESIGN

- The system design comprises, Power Supply, Arduino Board, Pulse Sensor, Pressure Sensor, Wi-Fi Module, GSM Module, GPS Module, Buzzer, and Shock Generator Circuit.
- The 5V power supply is given to the Arduino Board, Wi-Fi Module, GSM Module, GPS Module.
- The Pulse Sensor & Pressure Sensor is connected to the Arduino Board.
- Then connect the GSM & GPS Module to the Board.
- Finally connect the Wi-Fi Module into it.
- Whenever the Pulse rate increases at that same time the user gives the pressure to the gadget, the system gives a siren sound for HELP.
- In that time the gadget ready to track the victims location by using GPS(Global Positioning System) for every 1minute and then send it to the emergency contacts by the help of GSM (Global System for Mobile Communication).
- As well as when the Pulse rate and pressure increases, the Shock Generator Circuit will activate, in this case the self-defense part execute by the user for escape from strangers.

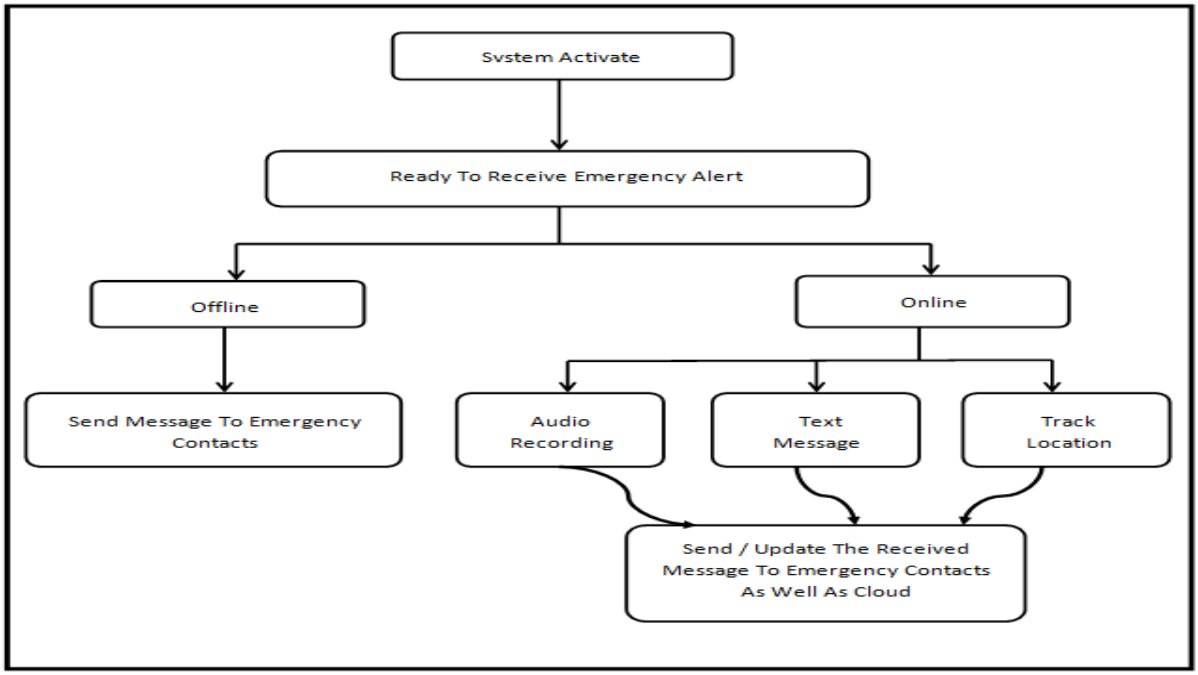


**Fig 1. Architecture Diagram for Proposed System**

**Application**

- Can be used for the prosperity of women.
- Can be used for the prosperity of adolescents.
- Can be used for the prosperity of elderly developed people.
- Can be utilized for the security of physically tested individuals.

## IV. CONCLUSION

Finally we decide to create a smart self-defense gadget for women security using IOT either the device will help offline or online mode. In this world there are several self-defense gadgets are available in market. But there is disadvantages of those gadgets are

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without internet connection they don't have a chance to send an emergency message to emergency contacts like Police Station, Ambulance, Fire Station, Relatives, Friends, Neighbors and Parent's. So in that case IOT is very useful, to connect a device and humans.

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