

# One Touch Alarm for Women's Safety Using Arduino

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**Abstract:** In our country, it has rule and financial betterment, but still there are many abuse against women. These activities can be terminated with the beneficence of mentioned product. This device is used for defense system, especially designed for women in hardship. Method/Analysis: The hardware device used for this is ARM controller. It is the most productive system and it use up very less power. Application / Improvement: Above mentioned ARM controller is used for tracking mechanism. Tracking mechanism which is called GPS is connected to ARM controller. The capacitive sensor need to be pressed for fraction milliseconds to alert locate, and can send emergency message to the emergency contacts with intent location and the buzzer will alert to nearby people for help, then the tear gas will be released after the touching sensor is touched. Thus the victims can have enough time to escape from stranger using our application.

**Keywords:** Arduino, GPS, GSM, Teargas Mechanism.

## I. INTRODUCTION

The modified system is to design portable device for the security of women. It consists of power supply, Arduino, touch sensor, tear gas, GPS and GSM modem[5]. It is a distinct aid product designed to keep the user and their associate safe 24/7. It is filled with features for both everyday safety and real emergencies [3]. Our aim is to provide you with firmest and natural way to connect your nearby hand [1]. It share the current location and a heartache message to the cops and the emergency contacts, so that disastrous circumstance can be avoided.[2] This is very useful to police department to compress the law-breaking, which are abuse. Emergency alert can prevent the victim from any physical or sexual assault [4]. The device called as "Virtual Friend" is especially designed for the women in suffering. It is a device used for the women in confused situation. The basic approach of the use of arduino is sending and receiving data by the GSM shield provided in the arduino board. The current location of the object is identified by the GSM network using Arduino UNO by initiating the user's smart phone.

**Revised Manuscript Received on April 15, 2019.**

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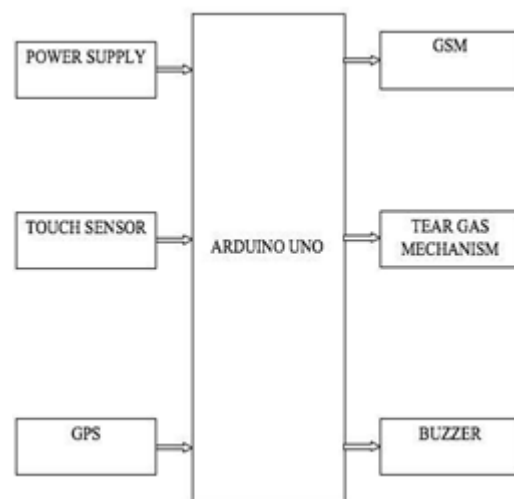
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At once the Arduino UNO gets the directs of the current location the Arduino transfers the coordinate details to the user's smart phone via Arduino GSM shield.

The SOS light is a signal used to alert the person walking by and it gives the sign of universal help to the victim. The alarm buzzer is activated if the woman is in threat location. At times of critical situations the woman can send message or make a call to the registered contacts via GSM and GPS. Even the device is lost, the call and the message is sent till the user picks up or view the text message. This is exactly where the government needs to step in and try and diminish cost and infrastructure issues for the corporations working in this direction. The problem with the app is that they trend to clumsy.

## II. PROPOSED METHOD



**Fig. 1.1 Block Diagram of the Project**

The Device is composed of GSM Module (Global System for Mobile), GPRS (General Packet Radio Services), Touch Sensor, Power Supply, Tear Gas Mechanism which are connected to the main processor called Arduino UNO Micro Controller.

### Power Supply

The Arduino can be powered either by the external source or by the USB. And the way it should get powered is selected automatically.

Peripheral power can come one and the other from a battery. The connection of a 2.1mm center-positive plug connected by additive into the power jack of the board. Leads taken from a battery can be embed in the Vin pin headers of the power supply and ground.

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The board can function on an peripheral supply of the range 6 to 20 volts. If the supply is less than 7v, the 5v pin may supply lower than five volts. The board may be unstable. If it exceeds 12v, the voltage regulator may be overheated and dart the board. The prescribed range is 7 to 12volts.

### Touch Sensor

The module is built on touching- sensing IC TTP223B. In the idle state, the module output remains at 0(low0). If the finger is touched on the corresponding position the module output goes high(1). If it is not touched for 12 seconds, it switches to low power mode. This Module can be mounted on glass, plastic or non-metallic materials. Touch sensor, different mechanical devices, do not contain moving parts. Hence, they are the more long-lasting devices than mechanical input devices. Touch sensor are robust as there are no opening for humidity and dust to enter.

### Piezo Buzzer

Based on contra of the piezoelectric effect the sound is produced by the piezo buzzer. The main principle of the piezo buzzer is the generation of pressure variation which is based on the application of electrical potential across the piezoelectric. The buzzer can also be used in the alarm circuits etc.

### Arduino UNO

It is a board based microcontroller on ATmega328P. It has a 16 MHz quartz crystal, 14 digital input/output pins, a USB connection, a power jack. It has a reset button. Simply connect it to a computer with a USB cable get started with AC to DC connection. A typical ARDUINO UNO board can be used for many applications based on the coded program. "UNO" was opted to record the release of ARDUINO software. The version 1.0 of the arduino is the reference and now updated to later versions. The first in a series of USB ARUINO boards was the UNO board, and the reference model for the arduino platform.



Fig. 1.2 Arduino UNO

### GSM Module

Whenever someone sense unsafe, GSM (Global System for Mobile communication module) sends extremity message to chosen contacts and the police control room.

### Global Positioning System

GPS module acts as the satellite and receives the data frequently and transmits similarly to the RS32. It is developed by US department of defense (DOD). The antenna input of the module receive the GPS signals, and a complete sequential data message with area, acceleration, and time information is pressed at the serial line. The module provides the current date, time, longitude, latitude,

altitude, speed, and travel direction among other data and can be used in many applications including navigation, fleet management, tracking system, mapping and robotics.

## III. RESULTS AND DISCUSSION

The basic principle used for security system is prevention and communication by Using GPS, GSM technology. It consists of Arduino, Touch sensor, Buzzer, GPS and GSM technology. Arduino UNO is used to control the overall process. The Arduino is programmed by mean of C languages and then compiled and stored in the flash memory. It has everything needed to support the microcontroller; simply connect it to a computer with a battery to get started it with an AC-to-DC adapter. The user can tinker with the UNO without concerned more around doing something bad, worst case scenario you can replace the chip and start over again. The touch-sensing IC TTP223B is built by capacitive touch sensor.

In the groundless state, the output of the module remains at 0(low0). When the finger is touched on the sensor, the output of the module goes high (1). If the finger is not touched for 12 seconds, switches to low- power mode. Module can be installed on ductile, reflector or non-metallic material. The piezo buzzer produces the sound based on contra of the piezoelectric effect. The buzzer produces a some riotous sound for voltage variation applied to it. It consists of piezo crystals between two conductors. When a potential is applied across these crystals, they pull on one conductor and push on the other. This push and pull action, results in a second wave. KHz More buzzer produce sound in the range of 2-4KHz. A GSM module is basically a GSM modem (like SIM 900) Connected to a PCB with different type of output taken from the board – say TTL output (for the Arduino controller 8051 and other controllers) and provisions. GPS Module continuously receives the data from the satellite and transmit correspondingly to the RS232.

The antenna input module receive the GPS signals and complete serial data message with position, velocity, and time information is presented at the serial line. The current date, time, longitude, latitude, altitude, speed, and travel direction among data, are provided by the module and can be used in many application including Navigation system, fleet management system, tracking, mapping and robotics. GPS will track the user location and send information to emergency contacts by touching the sensor. At the same time irritating gas which is called tear gas is released from the device. It will cause severe eye irritation to the stranger. Thus the victim can have the enough time to escape from the stranger at the time of facing a strange situation. The buzzer will intimate the people for help by using alarming sounds. The GPS and GSM technology will send information to controller of police and neighbors.

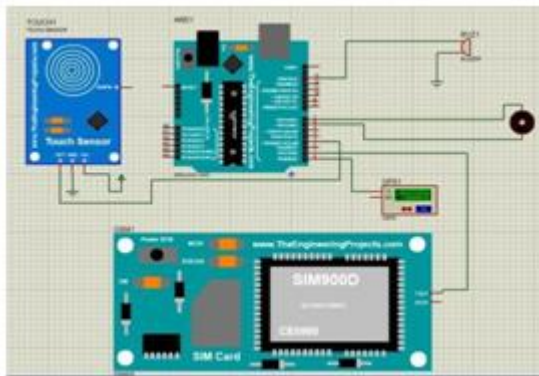


Fig. 1.3 Simulation Output Using ISIS

When the victim face any strange situation then by touching the touch sensor it will send an emergency message to the chosen number and buzzer will indicate the nearby people for help which are all connected to Arduino. Then the GPS will indicate the location of the victim and these tracking will be useful for cops and neighbors to find the victim



#### IV. CONCLUSION

The project grants designing about the women ,faced the lot of critical situation at present days and will assist to clarify them scientifically with compressed kit and concept. Making use of wrist band and spectacles, the mechanism like tear gas release, loud the messages with the location. From the above mentioned product can runover the suffering of every woman in the world about her assurance and security.

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