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# Women Safety Device Using GPS and GSM Module

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**ABSTRACT:** The world needs to be concerned about the women around and especially the threat they have when they travel alone. Despite having numerous laws for ladies, it doesn't stop thieves, assaulters or molesters to abuse women. Here we came up with an attempt to solve this problem with the help of smart device. This smart purse will have looks similar to any other purse, except the purse will have an extra device (which would be placed internally). Which can share the location of the purse to selected contacts when a button is pressed by the women when in need, also a message will be sent to the nearest police station in that area. In this way someone can reach out for help. Also we can get the location to the required person using the device if we send a specific SMS to the SIM, soon after the modem detects the message, it will send the latitude and longitude values to the predefined numbers.

**KEYWORDS:** Arduino, GPS Module, GSM module, LCD Display (for demo purpose).

## I. INTRODUCTION

Women safety is one of the most vital issue to be addressed due to the increasing number of crimes against women these days. To help, and resolve this issue, a GPS based women safety system. This device consists of a system that ensures a lady to ask for help in case she is feeling unsafe or when lost somewhere. This system can be turned on by women when she thinks she is in trouble.

Hence an effort has been made to develop a sensible device which will assist women once they feel unsafe. This smart device can be placed in the purse of the user. On pressing the button, an alert is sent to the predefined numbers, programmed to generate a message seeking help with the location of the device attached. Also, location of the user can be found by sending a predefined message to the number, which in return will sent the location to the predefined numbers even if the button is not pressed.

## II. METHODOLOGY

### Implementation:

- ❖ Hardware components used in our project are as follows:

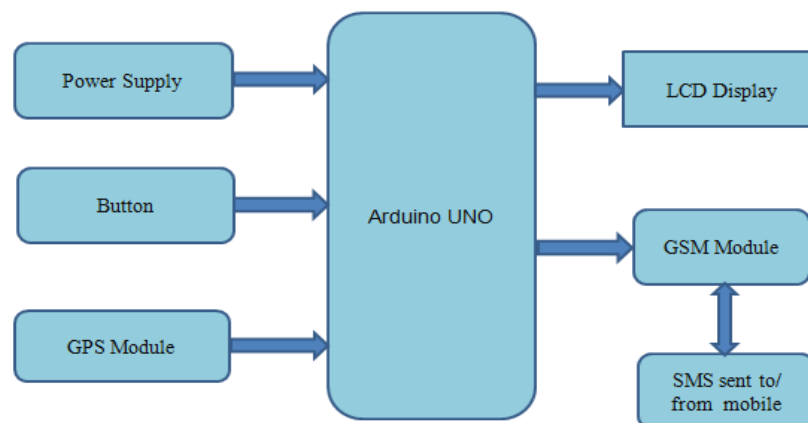


Figure 1: Basic block diagram

✚ **Arduino UNO:** It's a board based microcontroller. It is having 14 digital input/output pins (out of which 6 can be used as PWM outputs), 6 analog input pins, a USB connection, power jack, an ICSP header and a reset button. It is mostly used for board based applications.



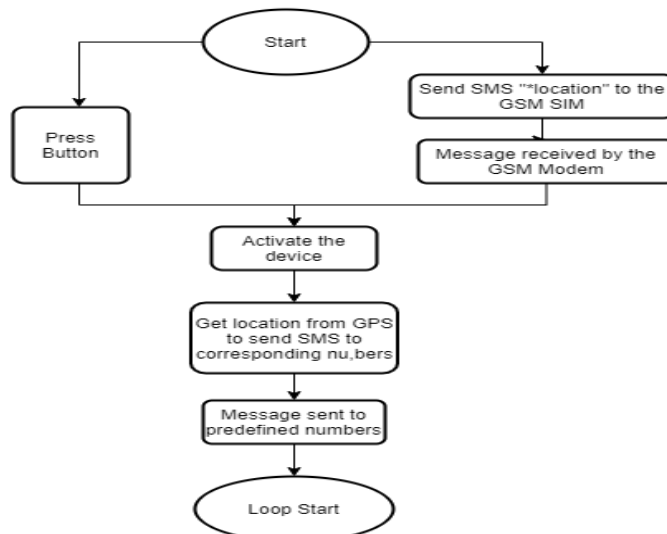
✚ **GPS Module (NEO 6M):** Global Positioning System has been developed in order to allow accurate determination of geographical locations by military and civil users. It is supported the utilization of satellites in earth orbit that transmit information which permit to track the location.



✚ **GSM Module (SIM 900A):** Global System for Mobile Communications is an open and digital cellular technology used for transmitting mobile voice and data services up to 850MHZ to 1900MHZ frequency bands. This technology was developed as a digital system for communication purposes using the time division multiple access (TDMA) technique.



**Working of this device:**



**Figure 2: Flow chart of this device.**

Our Project for a women safety detection system uses GPS and GSM modems as the main functioning elements. This system can be interconnected with an alert to public authorities and caretakers. This detection and messaging system consists of a GPS receiver, Arduino board and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude value and longitude value. The microcontroller processes this information and this processed information is shipped to the user using GSM modem. The GSM modem sends an SMS to the predefined mobile numbers. When a woman is in danger and in need of help then she can press the switch which is allotted to her.

By pressing the button, the whole system gets activated and a SMS containing location is sent to the concerned people using GSM and GPS. Also we have provided an option of sending a specific SMS to the SIM, which will share the location of the device to the predefined numbers.

### III. MODELING AND ANALYSIS

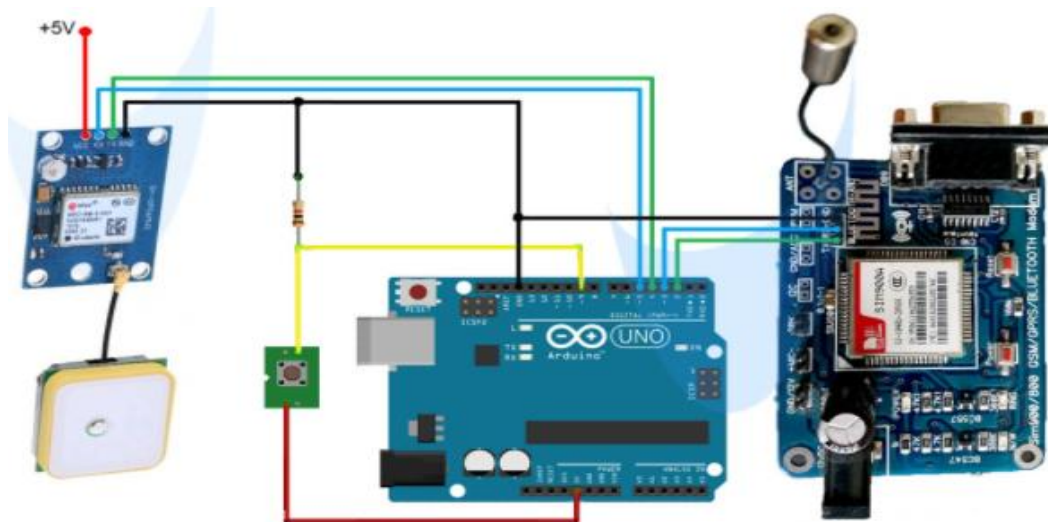


Figure 3: Circuit Diagram

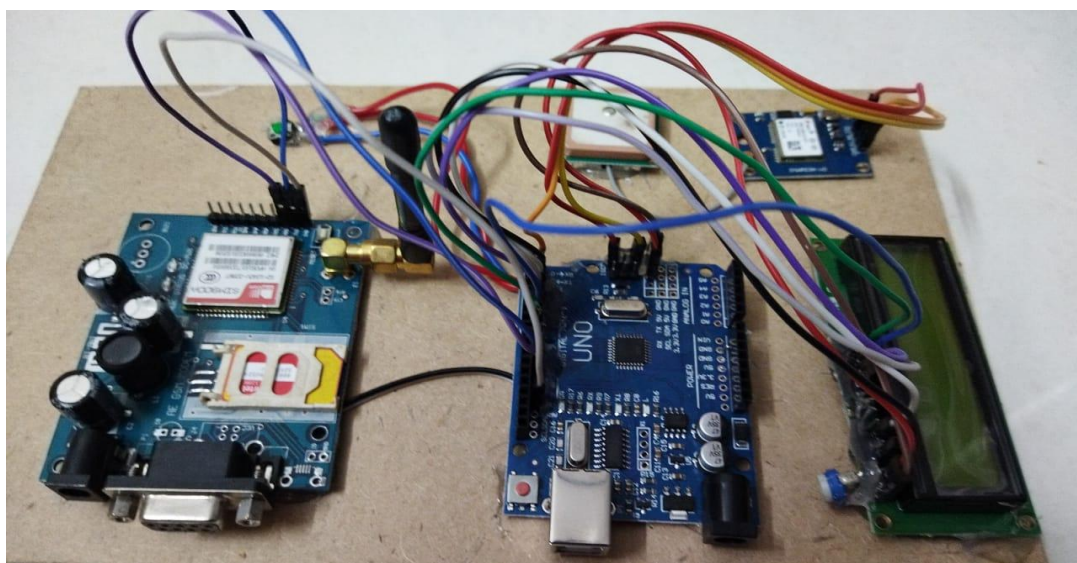
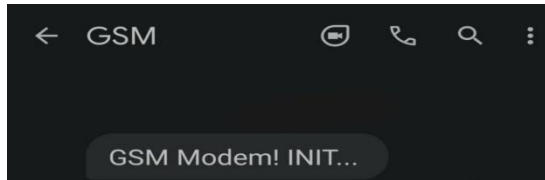


Figure 4: Demo device of our system.

#### IV. RESULTS AND DISCUSSION

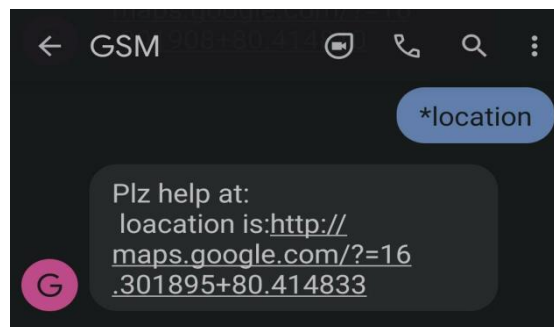
**Step 1:** Soon after the system gets started, we get a message stating that the modem got initiated.



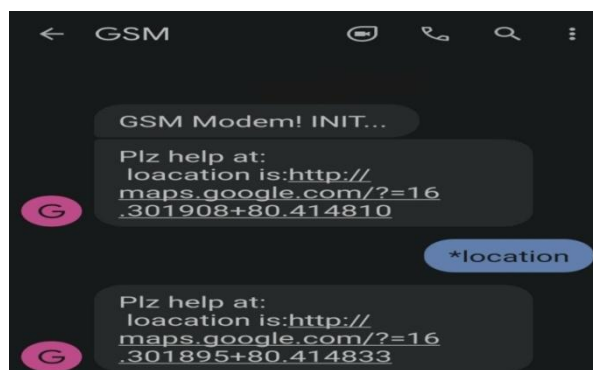
**Step 2:** This is how the location of the user is being received by the predefined numbers when the user uses the 'Button' in the kit.



**Step 3:**The predefined text SMS here is “\*location”. Whenever the GSM module receives this message, it sends the location of the device to the predefined numbers.



**Final output of our system:**This screenshot contains all the messages from Modem initialized, then the location message when user uses the Button, and finally the response when we send “\*location” to the module.



## II. FUTURE SCOPE

This device is can be made small so that it can be used as a hand band. Voice recorder and a small camera can also be added to the system. We can also interface this system with Smart Phone and laptop. We can use this safety device in school bags, luggage, vehicles etc. By using Nano size materials, the kit size gets much reduced. Using wireless GPS module and wireless button the carrying of the kit can be avoided. This system is also can be interfaced with any vehicle's air bag system.

## III. CONCLUSION

The project provides a better security to women. This system can help overcome the fear that scares every woman in the country about her safety and security. This can be implemented not to for safety purposes but also we can use this in case of theft. Whenever the user feels that she is unsafe, she can send the same information to the corresponding contacts. Also, we can find the location of the device by send a predefined message to the number and we get the location (longitude and latitude) values of the device.

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