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Arduino Based Advanced Intelligent Security System for Women with Location Tracking Through GPS Network and Bluetooth Operated App

[1] SudhaArvind, [2] Pooja [3] MouzzamAhmed [4] PoonamVerma [5] DivyaPatel
[1] Associate Professor, [2][3][4][5] B.Tech students
[1][2][3][4][5] Department Of ECE, CMR Technical Campus Hyderabad.
[1]sudharvind99@gmail.com, [2] poojatogasia.6jan@gmail.com [3] muzufida@gmail.com
[4] poonamcmrtc3101@gmail.com [5]divyapatel14144@gmail.com

Abstract: **Today in the current global scenario, the prime question in every girl's mind, taking into account the ever rising increase of issues on women harassment in recent past, is only about her safety and security. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. This paper suggests a new perspective to use technology to protect women. The system resembles a simple button which when activated, tracks the location of the victim using GPS (Global Positioning System) and sends emergency messages using GSM (Global System for Mobile communication), to three emergency contacts and police .The main advantage of this system is that the user does not require a internet connection for operating APP unlike other applications that have been developed earlier. The App shall dial the already saved emergency number once the SMS is sent.**

Keywords: **Arduino ATMega328 board, GSM Module, GPS Module, HC-05 Bluetooth Module, Smart Phone, Custom built Mobile Application (MIT app inventory),Buzzer, Panic button**

I. INTRODUCTION

This proposal document describes a quick responding, cost effective system for an individual and especially for women using which a woman in distress can call for help just with the press of a button on this smart gadget. It has the ability to help women with technologies that are embedded into a compact device. This device can be made compact and portable, in case of any harassment or when she finds that someone is going to harass, she presses a switch that is located in the Application on the Mobile. The App is designed to be connected to the compact device which has a GPS and GSM system embedded in it.

This paper is organized into five section. section(1)-deals with the introduction of the paper ; section(2)-covers related work section(3)-explains about proposed model and system design; section(4)-displays result of the proposed model and related discussion; section(5)-includes conclusion and future scope.

II. RELATED WORK:

Existing System Keeping the same concern in mind many developers have come up with innovative applications. Few of such applications are as follows- **[1][2]VithU app:** This is an emergency app initiated by a popular Indian crime television series "Gumrah" aired on Channel [V]. In this app when the power button of the Smartphone is pressed twice consecutively, it will begin sending out alert messages with a link to the location of the user every two minutes to the contacts fed into the app.

ILA security: The co-founders of this system, McGivern, James Phillips, and Neil Munn , have designed three personal alarms that can shock and disorient potential attackers and draw attention to dangerous situations.

III. PROPOSED MODEL AND ITS IMPLEMENTATION:

***3.1. Proposed model*:** . The block diagram of the conceptual system is shown in below figure 1. The microcontroller acts as an embedded computing system and controls the activities of all the subsystems. It is interfaced with Arduino, Emergency Switch, GSM Module and GPS Module.

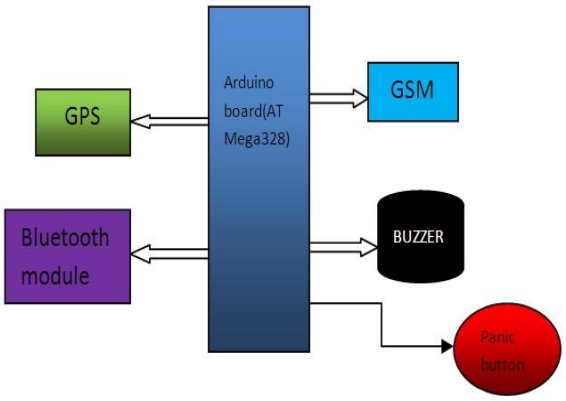

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Fig.1.Block diagram of Proposed Model

Arduino ATMega328 board:

Microcontroller	ATmega328P
Operating Voltage	5V
Input Voltage (recommended)	7-12V
Input Voltage (limit)	6-20V
Digital I/O Pins	14 (of which 6 provide PWM output)
PWM Digital I/O Pins	6
Analog Input Pins	6
DC Current per I/O Pin	20 mA
DC Current for 3.3V Pin	50 mA
Flash Memory	32 KB (ATmega328) of which 0.5 KB used by bootloader
SRAM	2 KB (ATmega328)
EEPROM	1 KB (ATmega328)
Clock Speed	16 MHz
Length	68.6 mm
Width	53.4 mm
Weight	25 g

3.2. GSM Shield: Global System for Mobile communication (GSM) SIM card is inserted inside the mobile device to send and receive the messages using GPRS. The GSM SIM card number is registered with the system. With increasing usage of GSM, network services are expanded beyond speech communication to incorporate many other custom applications, machine automation and machine to machine communication.

***3.3. GPS Module (NEO-6M)*:** It is a navigation and precise positioning tool, tracks the location in the form of longitude and latitude based. The GPS Coder Module used this information to search an exact address of that location as the street name, nearby junction etc. In case where GPS is disabled then the system will only send the longitude and latitude, Internet is mandatory.

***3.4.Bluetooth Module*:** HC-05 module is an easy to use Bluetooth SPP (Serial Port Protocol) module, designed for transparent wireless serial connection setup. Serial port Bluetooth module is fully qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio transceiver and baseband. It uses CSR Bluecore 04-External single chip Bluetooth system with CMOS technology and with AFH(Adaptive Frequency Hopping Feature). It has the footprint as small as 12.7mmx27mm. Hope it will simplify your overall design/development cycle.

3.5.BUZZER:
An electric signalling device, such as a doorbell, that makes a buzzing sound.

***3.6.Panic button*:** Panic Alarm circuit consists of two equally important parts. The first part is the ready-made Arduino Microcontroller board, and the second part is an interface circuit which can be wired on a piece of prototyping board. You can use any standard 9V battery to power the whole circuit, and the Push-ON (push 'n' hold) switch (S1) to activate the alarm function.this panic button will activate the arduino.

3.7 Implementation:

The system will consist of embedded hardware and software co-designed for this dedicated application. It is an arduino based system which is portable. In this system we have one panic button, whenever we feel that we are in danger or in panic situation this system will help to escape from such unnormal situations. Initially pair your phone's Bluetooth with Bluetooth module of the compact device. Once the panic button is pushed in the App sends the signal to the Bluetooth module of the compact device. The device sends the location and a panic message of the victim as a

form of SMS from the device to the predefined emergency numbers.

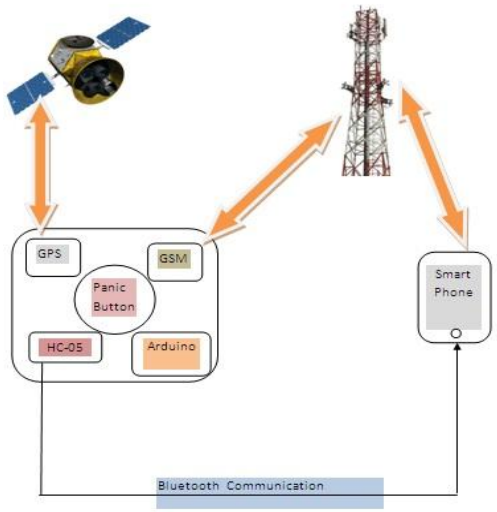

Fig.2 over view of system

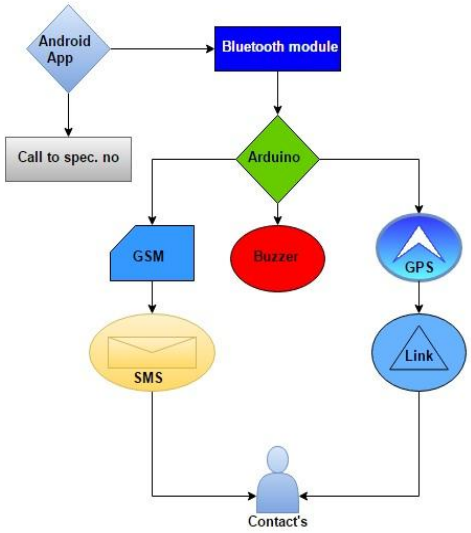

Fig.3 Work flow of the system

And soon help will be on its way. Once the SMS is sent the Application in the phone will make calls immediately to the pre defined phone number as well and the location from the device will be sent to the pre defined numbers every 60 seconds. The system allows for knowing exact location of the individual.

IV. RESULTS AND DISCUSSION

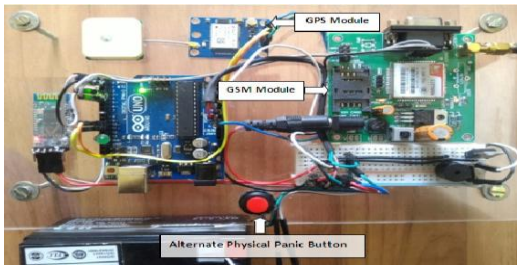

Fig 4: The physical view of the proposed model

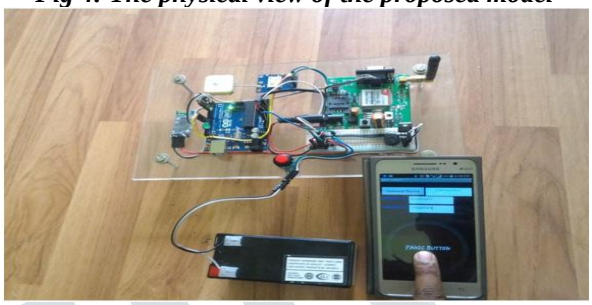

Fig 5:The proposed model operated through an android app

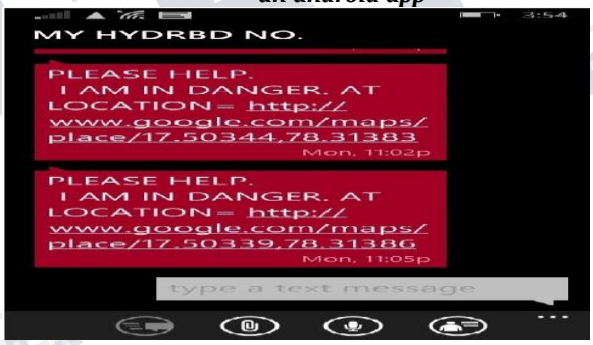

Fig 6:The sms has been sent to the respective contacts

Fig 7:Through app automatically call to the predefined no,

Figure 4 shows the prototype view of the proposed system comprising of GSM, GPS Module, Arduino panic button buzzer before operation

In Fig.5.First pair Bluetooth module in the compact device to the phone. once the panic button is pushed in the

app the location of the user from the GPS Module is sent as an SMS via the GSM Module to the pre-saved numbers.

In Fig.6.The SMS with the location link has been sent to the specified number. If we click on the link we shall be able to see the exact Location of the victim on Google maps app.

In fig.7.soon after the SMS is sent, simultaneously the call goes to the pre saved emergency numbers from the smart phone.

V. CONCLUSION AND FUTURE SCOPE

***5.1 Conclusion*:** This paper reviewed the emergency response system which is helpful for women in the incidents of crime. The key objective is to develop a low cost system which can store the data of the members in the particular locality and provide immediate alert in case of crime against women. This provides women security. Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a gadget which is so compact in itself that provide advantage of personal security system. This device will probably be very useful for the women. It is certainly a short term and preventive solution. This will be proved as a multi-pronged strategy with the participation of multi stake holders of society. The creation of a hardware and software prototype has achieved two objectives: validation of the proposed architecture and checking whether the utilized technology is Appropriate for the system. This system will help its users in difficult situation. This system would be highly sensitive and easy to handle. Its quick action response will provide safety and security to individual use.

5.2 Future scope:

(1)Spy camera detection module: - It detects the infrared rays coming from every Night-vision hidden cameras placed in changing rooms- hotels room etc. in such cases it traces the location using GPS module and send the notification to the user about unsafe place. It depends on the user to register the complaint base on notification.

***(2)Audio and video recording module*:** - As soon as the system activated Audio Recording module will start the recording of the conversation take place at that situation for five minutes and stored in mobile database as well as mail it to register email account. This recording will be used as evidence.

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REFERENCES

[1] Moser, c. and c. mcilwaine (2006), "Latin American urban Violence as a development concern: towards a framework for Violence reduction", World Development, Vol. 34, no. 1, pp.89-112.

[2] Hill, r., J. temin and L. Pacholek (2007), "Building Security where there is no Security", Journal of Peacebuilding and Development, Vol. 3, no. 2, p. 38-51.

[3] 1. Dongare Uma, Vyavahare Vishakha and Raut Ravina, "An Android Application for Women Safety Based on Voice Recognition", Department of Computer Sciences BSIOTR wagholi, Savitribai Phule Pune University India, ISSN 2320–088X International Journal of Computer Science and Mobile Computing (IJCSMC) online at www.ijcsmc.com,Vol.4 Issue.3, pg. 216-220, March- 2015

[4] MAGESH KUMAR.S and RAJ KUMAR.M, "IPROB – EMERGENCY APPLICATION FOR WOMEN", Department of Computer science Sree Krishna College of Engineering Unai village Vellore (TN) India, ISSN 2250-3153 International Journal of Scientific and Research Publications, online at the link www.ijsrp.org , Volume 4, Issue 3, March 2014.