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Women Security Assistance System with GPS Tracking and Messaging & Calling System with Audio Recorder

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ABSTRACT
The mobile which will be useful in women security which would be controlled from anywhere else. It is also highly economic and less expensive; hence GSM is preferred most for this mode of controlling. In this application we are maintaining a switch. In the worst situation when we press switch at that time with location place will be sent to the android mobile which is enrolled in the memory IC should get a message like help needed. We are using LCD to display on the screen while sending message like (message sending to cell). GPS gives only the longitude and latitude values but by using Android application in the mobile we can easily get the location name from where the message has been sent. The controller takes the switch as its input i.e. when some threat has occurred one need to press that switch and the controller makes the GSM module to message to the pre-stored number. In this way the concerned person will know the location and they will be able to save the candidate. With a wide range of serial communications interfaces, they are also very well suited for communication gateways, protocol converters and embedded soft modems as well as many other general-purpose applications.

Keywords : GSM, GPS, LCD

I. INTRODUCTION

Even in this modern era women are feeling insecure to step out of their house because of increasing crimes in our country like harassment, abuse, violence etc., The corporate and IT sector are currently in boom. Many women are working in corporate even in night shifts. There is a feeling of insecurity among the working women.

The proposed device is more like a safety system in case of emergency. This device can be fitted in a jacket (similar to a blazer for women). It is an easy to carry device with more features and functions. The emergency push button is held to one of the buttons of the jacket. The main purpose of this device is to intimate the parents and police about the current location of the women. A GPS system is used to trace the current position of the victim and a GSM modem is used to send the message to the pre defined numbers. There are several applications that reduce the risk of sexual abuse by sending SMS but in our model we also provide an audio circuit which is more useful for physically challenged people. In this paper, a user can press a button that is located on the project with GPS and GSM technology using microcontroller. Once the button is pressed the microcontroller receives the signals from GPS system which has present location information and then the microcontroller allows the GSM system to send the Alert Message to the predefined numbers as “MY LIFE IS IN DANGER, SAVE ME AT ADDRESS BELOW” followed by GPS link. This project could be designed in small size and light weight something like mobile phone so that carrying is not that problem.

This project requires a Microcontroller, GPS Modem and GSM Modem with SIM 300, DB9 connectors for GSM and GPS modem, 16x2 line LCD display, LED's, Serial port for serial communication between microcontroller and the GSM and GPS modem.

By just simply pressing a single key, this will send the Distress Alert message along with the location to your near and dear ones. And if timely actions are taken many misfortunes could be avoided.

II. LITERATURE SURVEY

This paper focuses on a security system that is designed solely to serve the purpose of providing security to women so that they never feel helpless while facing such social challenges. The system consists of various modules such as GSM shield (SIM 900A), Arduino ATMega328 board, GPS (GYGPS6MV2), screaming alarm (APR 9600), a set of pressure sensors for activation and power supply unit.[7]Limitations:If she may not be in the situation to press the switch and also fall down. So to overcome this in our proposed work we have used accelerometer meter which will sense over force exerted onto the women automatically. No manual control.

This paper describes a GPS and GSM based vehicle tracking and women employee security system that provides the combination of GPS device and specialized software to track the vehicles location as well as provide alerts and messages with an emergency button trigger. The information of vehicle position provided by the device can be viewed on Google maps.[3] Limitations:If she may not be in the situation to press the switch. So to overcome this in our proposed work we have used force sensor which will sense over force exerted onto the women automatically.

This paper focuses on the proposed model that can be used to deal with the problem of security issues of women employees using GPS and GSM based vehicle tracking.[8]Limitations:In order to overcome such problems faced by women the Safety (women security apps) mobile based application is not only necessary to use but also plays a pivotal role with android software.

III. PROPOSED SYSTEM

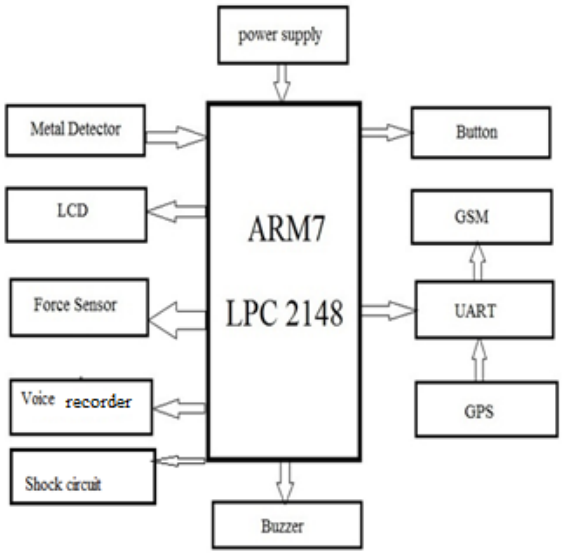

Fig1 :Proposed block diagram

This system has been implemented to secure the women from any kind of harassments. Its been obtained in three level of security. When a force which is higher than the threshold value is applied to the women, it was detected by the force sensor and system incorporates a screaming alarm that uses a buzzer to call out for help. The metal detector detects the presence of metals like knife and other things present with the kidnappers and with the help of shocking circuit, the shock was applied to the kidnappers. The shock that was applied is mild.

The GPS is meant for tracking the location of the spot and with the help of GSM the emergency message is send to the predefined contact . The UART is used to communicate with GPS and GSM module. The message is sent using peripherals with continuous I/O communication. Christo Ananth et al. [3] discussed about a system, GSM and GPS has low infrastructure cost and it reduces man power. The system is fully automatic, hence the probability of error is reduced. The data is highly secured and it not only solve the problem of traditional meter reading system but also provides additional features

such as power disconnection, reconnection and the concept of power management. The database stores the current month and also all the previous month data for the future use. Hence the system saves a lot amount of time and energy. Due to the power fluctuations, there might be a damage in the home appliances. Hence to avoid such damages and to protect the appliances, the voltage controlling method can be implemented.

ARM 7 LPC 2148

Fig2: ARM 7 LPC2148

ARM7 is most successful and widely used processor family in embedded system applications. So we have decided to choose **ARM7 TDMI based NXP controller LPC2148**. Also, ARM7 is a balance between classic and new Cortex series. ARM7 is excellent to get start with in terms of resources available on internet and quality documentation provided by NXP. It suits perfectly for beginners to get in-depth idea about hardware and software implementation.

ARM-Advanced RISC Machine is a 32-bit RISC (Reduced Instruction Set Computer) processor architecture developed by ARM Holdings. Many beginners sometimes misunderstood that the ARM is microcontroller or processor but in reality, ARM is an architecture which is used in many processors and microcontrollers. The ARM architecture licensed to companies that want to manufacture ARM-based CPUs or System-on-Chip products. This enables the companies to develop their own processors compliant with the ARM instruction set architecture. For example, the device we are using LPC2148 is ARM architecture based SOC product developed by NXP Semiconductor. Similarly, all major semiconductor manufacturers like Atmel, Samsung, TI etc. they all make ARM based SOCs.

POWER SUPPLY

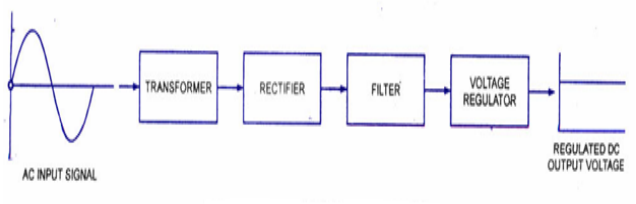

Fig3: Power Supply

Almost all basic household electronic circuits need an unregulated AC to be converted to constant DC, in order to operate the electronic device. All devices will have a certain power supply limit and the electronic circuits inside these devices must be able to supply a constant DC voltage within this limit. That is, all the active and passive electronic devices will have a certain DC operating point (Q-point or Quiescent point), and this point must be achieved by the source of DC power. The DC power supply is practically converted to each and every stage in an electronic system. Thus a common requirement for all this phases will be the DC power supply. All low power system can be run with a battery. But, for long time operating devices, batteries could prove to be costly and complicated. The best method used is in the form of an unregulated power supply –a combination of a transformer, rectifier and a filter.

METAL DETECTOR

Fig4: Metal Detector

A metal detector is an electronic instrument which detects the presence of metal nearby. Metal detectors are useful for finding metal inclusions hidden within objects, or metal objects buried underground. They often consist of a handheld unit with a sensor probe which can be swept over the ground or other objects. If the sensor comes near a piece of metal this is indicated by a changing tone in earphones, or a needle moving on an indicator. Usually the device gives some indication of distance; the closer the metal is, the higher the tone in the earphone or the higher the needle goes. Another common type are stationary "walk through" metal detectors used for securityscreening at access points in prisons, courthouses, and airports to detect concealed metal weapons on a person's body.

LCD

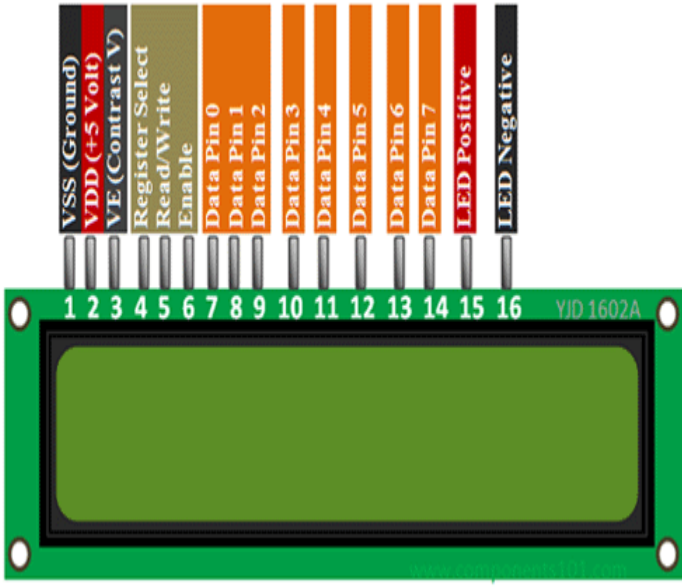

Fig5: LCD

A **liquid-crystal display** (**LCD**) is a flat-panel display or other electronicallymodulated optical device that uses the light-modulating properties of liquid crystals. Liquid crystals do not emit light directly, instead using a backlight or reflector to produce images in color or monochrome. LCDs are available to display arbitrary images (as in a general-purpose computer display) or fixed images with low information content, which can be displayed or hidden, such as preset words, digits, and 7-segment displays, as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.

FORCE SENSOR

Fig6: Force Sensor

A **force-sensing material** is a material whose resistance changes when a force, pressure or mechanical stress is applied. They are also known as "force-sensitive resistor" and are sometimes referred to by the initialism "FSR".

Force-sensing material consist of a conductive polymer, which changes resistance in a predictable manner following application of force to its surface. They are normally supplied as a polymer sheet or ink that can be applied by screenprinting. The sensing film consists of both electrically conducting and non-conducting particles suspended in matrix. The particles are sub-micrometre sizes, and are formulated to reduce the temperature dependence, improve mechanical properties and increase surface durability. Applying a force to the surface of the sensing film causes particles to touch the conducting electrodes, changing the resistance of the film. As with all resistive based sensors, force-sensing resistors require a relatively simple interface and can operate satisfactorily in moderately hostile environments. Compared to other force sensors, the advantages of FSRs are their size (thickness typically less than 0.5 mm), low cost and good shock resistance. A disadvantage is their low precision: measurement results may differ 10% and more.

SHOCK CIRCUIT

A short **circuit** (sometimes abbreviated to short or s/c) is an electrical **circuit** that allows a current to travel

along an unintended path with no or a very low electrical impedance.

VOICE RECORDER

Voice Recorder is a creative multimedia software with built in recording and audio playback. It allows you to *record* sound from a microphone, the line-in jack, or music played by another player in WMA or WAV formats.

BUZZER

Fig7: Buzzer

A **buzzer** or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric (piezo for short). Typical uses of **buzzers** and beepers include alarm devices, timers, and confirmation of user input such as a mouse click or keystroke.

GSM

Fig8: GSM

GSM (Global System for Mobile communication) is a digital mobile telephony system that is widely used in Europe and other parts of the world. GSM uses a variation of time division multiple access (TDMA) and is the most widely used of the three digital wireless telephony technologies (TDMA, GSM, and CDMA). GSM digitizes and compresses data, then sends it down a channel with two other streams of user data, each in its own time slot. It operates at either the 900 MHz or 1800 MHz frequency band.

GPS

Fig9:GPS

Stands for "Global Positioning System." GPS is a satellite navigation system used to determine the ground position of an object. GPS technology was first used by the United States military in the 1960s and expanded into civilian use over the next few decades. Today, GPS receivers are included in many commercial products, such as automobiles, smartphones, exercise watches, and GIS devices.

UART

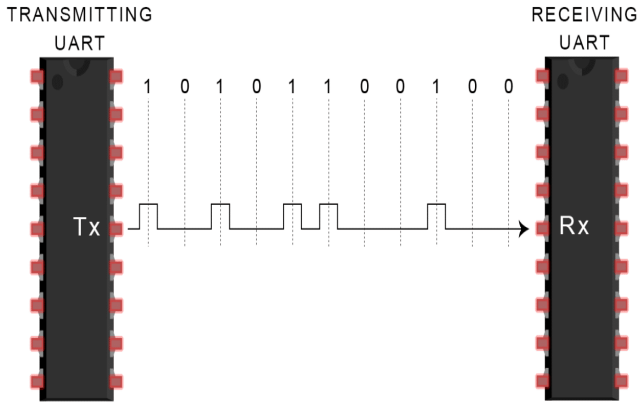

Fig10:UART

A UART (Universal Asynchronous Receiver/Transmitter) is the microchip with programming that controls a computer's interface to its attached serial devices. Specifically, it provides the computer with the RS-232C Data Terminal Equipment (DTE) interface so that it can "talk" to and exchange data with modems and other serial devices. As part of this interface, the UART also: A universal asynchronous receiver-transmitter is a computer hardware device for asynchronous serial communication in which the data format and transmission speeds are configurable.

IV. DESCRIPTION

Whenever woman will feel unsafe she will press the button of the device, that event will be recognized by LPC 2148 controller. Then controller will generate control signal for GPS system , it will send control signal through MAX 232 to GPS module. GPS will get activated, so it will track the exact location of the victim and send this information back to ARM controller through MAX 232 interface. ARM controller will generate control signal for GSM system, then GSM system will get activated. It will send helping message along with the tracked location to the already stored contact numbers and police station. The location will get updated after every two minute and continuously sent location to the already stored contact numbers and police station. Simultaneously, whenever she will press the button of the device, controller will generate control signal to shock generator. Shock generator will get activated at output we will get shock pulses so that victim will give shock to the attacker to protect herself. Shock generator is operated through driving and isolating circuit. Isolating circuit will provide isolation between ARM controller and shock generator to protect ARM from high voltage of shock generator.

V. ADVANTAGES

- Safety Device which can be carried by everyone – These devices will be used for safety purpose which will be easier for carrying from place to place.
- Compact in size-The device will be small in size.
- Easy and fast to install-These system will be easy to handle.
- Low cost with high performance-The device will be in a low cost which will work with a good performance.
- Environmental friendly system-The system will not harmful for the surrounding

VI. RESULT

Push button has given higher priority, when switch pressed, device start to activate, if the pressure sensor sense physical pressure, “Latitude and longitude”, will be sent from device with alert message to the pre-set contacts in single click, whereas audio and video will be recorded and video will be sent to the pre-set contacts and it will also be stored in SD card.User will received message on LCD that message have been delivered to control room.

VII. CONCLUSION

This proposed design will help to solve critical issues faced by women in the near past with technologically sound equipment’s and ideas. While the society may or may not change for the enhanced, the power to be autonomous, self-assured and truly free can come with arming oneself with the best possible device. The system will provide correct information as physical devices gives guarantee for the same. Our primary goal of this work is to ensure every woman in our society to feel safe and secured. The system will be portable, shock proof and cost effective

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BIOGRAPHY

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