

IoT-based Women Security System using GSM and GPS

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ABSTRACT

The project presents a wearable safety device for women using the Arduino. The purpose of this device is to safeguard women in the event they might face any danger. The device uses wireless sensor network to communicate and to send alerts to them. The GPS and GSM are used to share the user's location directly to the relevant authorities and saved contacts. The switch in the device work for sending manual alerts in case of emergency and as panic switch to get the shock, then the Buzzer will also activate along laser diode.

Keywords: Women Safety, Safety using Arduino, IOT Based Women Safety.

1. 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. Even in the 21st century where the technology is rapidly growing, and new gadgets were developed but still women's and girls are facing problems. Women are adept at mobilizing diverse groups for a common reason. They often work across ethnic, religious, political, and cultural divides to promote liberty. We are all aware of importance of women safety, but we must analyse 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. The best way to curtail your probability of becoming a dupe of violent crime (robbery, sexual assault, rape, domestic violence) is to recognize, defence and look up resources to help you out of hazardous situation.

Women safety device and application: In this paper an ARM controller and Android application are used in which both the device and the smartphone are synchronized using Bluetooth, hence both can be triggered independently. It can record audio for further investigation and can give an alert call and message to the pre-set contacts with the instant location every 2 minutes and can be tracked live using the application. Hidden camera detector is also a distinct feature used which ensure privacy. A mobile-based women safety application (I safe Apps). In this paper, mobile-based application (I safe apps) is developed with the android support to know whether a woman is safe. It gives the location of the woman in danger by giving fake phone calls, video forwarding, location and first-aid information.

2. LITERATURE SURVEY

An Innovative Approach for Women and Children's Security Based Location Tracking System, Dr.Velayutham.R, Samarium, Sorna Rajeswari.M, In countries like India women are grooming in good sign. Women and girl child in many of the countries feel unsafe and frustrated due to lack of security and safety for them. Each and every minute somewhere in the world they are harassed and losing their life. At this situations women feel helpless and don't find any way for protecting them and call for help from the family members or from nearer ones. Protecting the women out of danger is much needed for their safety. The security system helps them to get rid of such worries and give hands in critical situations. System comprising of GSM, GPS and Google map for sending the current location of the victim to any of the trusted relations and for detecting the location through satellite and for tracking the locations of the victim respectively are used. Women Employee Security System

using GPS And GSM Based Vehicle Tracking, Authors: D. Amala Devi, B.VeerawamiNayak, In today's world the major critical issue is the women security. Each and every individual is responsible for making them feel safe when they are outside or when they are in home. Everyone must ensure to help women and come out of this issue. The security system with technologies like GSM, GPS was used. This system is used along with the advanced specialized software for tracking the women who are in dangerous situation. When the victim is in dangerous situation the system will be useful in tracking the victim and also alerts the dear ones of the victim through messages. All they need to do is that they have to press the danger button. Google maps are used for finding the exact location of a vehicle send by the victim. Nowadays the majority of the employers ensure their women employee who is working late nights. They are imposing this through the security system and specialized apps. Mainly in most of the security system GSM and GPS combination is used for their women employee vehicle tracking. Women Empowerment: One Stop Solution for Women, Author: Sharifa Rania Mahmud, Jannatul Maowa, Ferry Wahyu Wibowo It is estimated that by 2050 our world population will be around nine billion whereas now it is around only seven billion. Around 53% of the women population is experiencing many security problems throughout their life.

3. ADVANCED SECURITY SYSTEM FOR WOMEN

The paper purposes an automated highly reliable women security device which consists of advanced sensors embedded in a wearable dress. It consists of advanced sensors and ATMEGA8 micro controller with Arduino tool which keep user under observation at all time. It monitors the heartbeat rate, temperature and vibration in the body through sensors to check for uneasy situations.

3.1 EXISTING SYSTEM

In previous system the alert system for the women is done through the application. For the security purpose the applications contain the SOS number which will alert the family members of the victim, Disadvantages of existing system: Victim's phone may lose, Battery may die

3.2 PROPOSED SYSTEM

In the proposed system we here designed equipment for alerting the system. In this project we here used the Arduino controller for the controlling the whole process of the system. The GSM is used to send SMS regarding GPS locations. LCD is for displaying and switch is pressed when the person is in danger. Here we are adding Buzzer Laser Diode which will activate when the women press the switch.

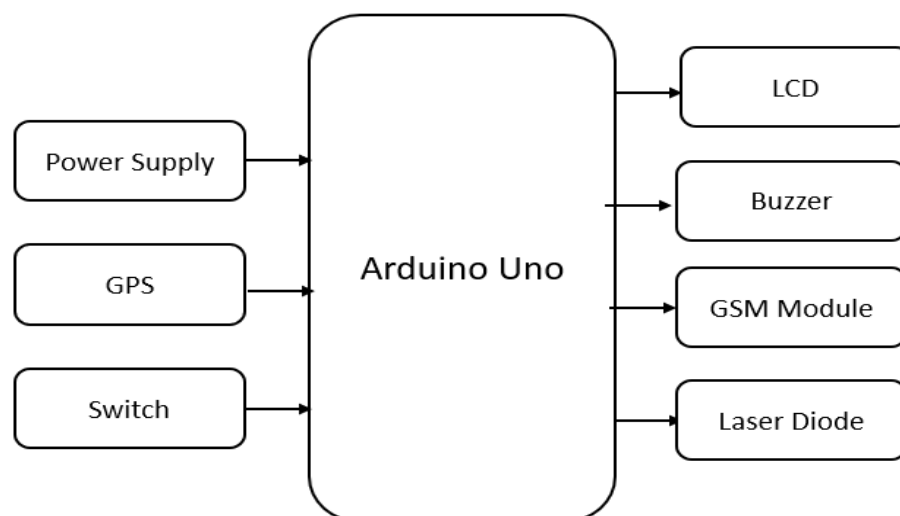


Fig. 1:block diagram of proposed system.

4. HARDWARE REQUIREMENTS

4.1 ARDUINO

Arduino Uno is a microcontroller board developed by Arduino.cc which is an open-source electronics platform mainly based on AVR microcontroller Atmega328. The current version of Arduino Uno comes with USB interface, 6analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output.

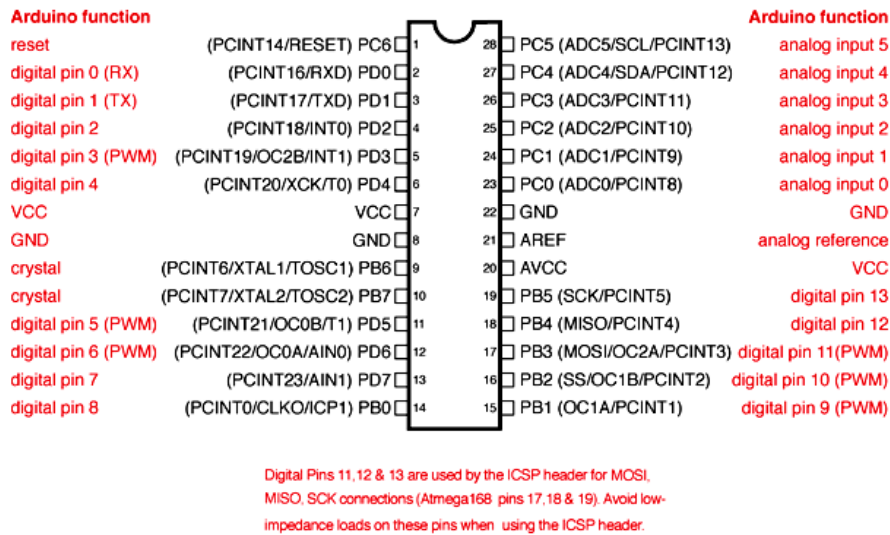


Fig. 2: Arduino controller pin diagram.

SWITCH

A push-button (also spelled pushbutton) or simply button is a simple switch mechanism to control some aspect of a machine or a process. Buttons are typically made out of hard material, usually plastic or metal.

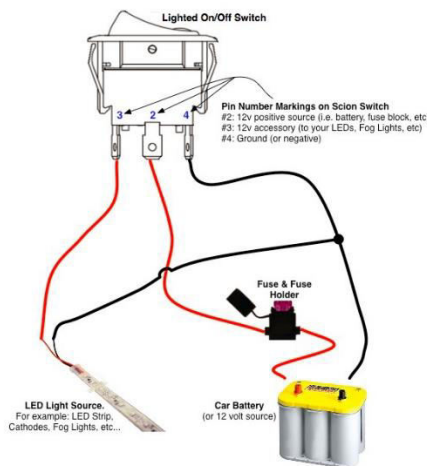


Fig. 3: Switch diagram.

RELAY

A relay is an electromagnetic switch that is used to turn on and turn off a circuit by a low power signal, or where several circuits must be controlled by one signal.

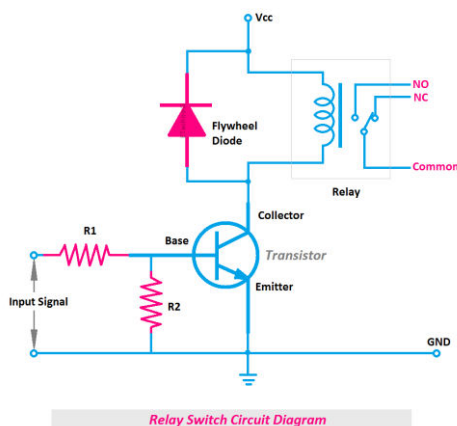


Fig. 4: Relay pin diagram.

BUZZER

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers, and conformation of user input such as a mouse click or keystroke. Buzzer is an integrated structure of electronic transducers, DC power supply, widely used in computers, printers, copiers, alarms, electronic toys, automotive electronic equipment, telephones, timers, and other electronic products for sound devices.



Fig. 5: Buzzer diagram.

GSM

A GSM modem is a device which can be either a mobile phone or a modem device which can be used to make a computer, or any other processor communicate over a network. A GSM modem requires a SIM card to be operated and operates over a network range subscribed by the network operator. It can be connected to a computer through serial, USB, or Bluetooth connection.



Fig. 6:GSM module.

LASER DIODE

A semiconductor device that generates coherent light of high intensity is known as laser diode. LASER is an abbreviation for Light Amplification by Stimulated Emission of Radiation. Stimulated emission is the basis of working of a laser diode. Laser diode is similar to LED, however, different from LED, the PN junction of laser diode produces coherent radiation. Coherent radiation means the light waves generated by the device have the same frequency and phase.

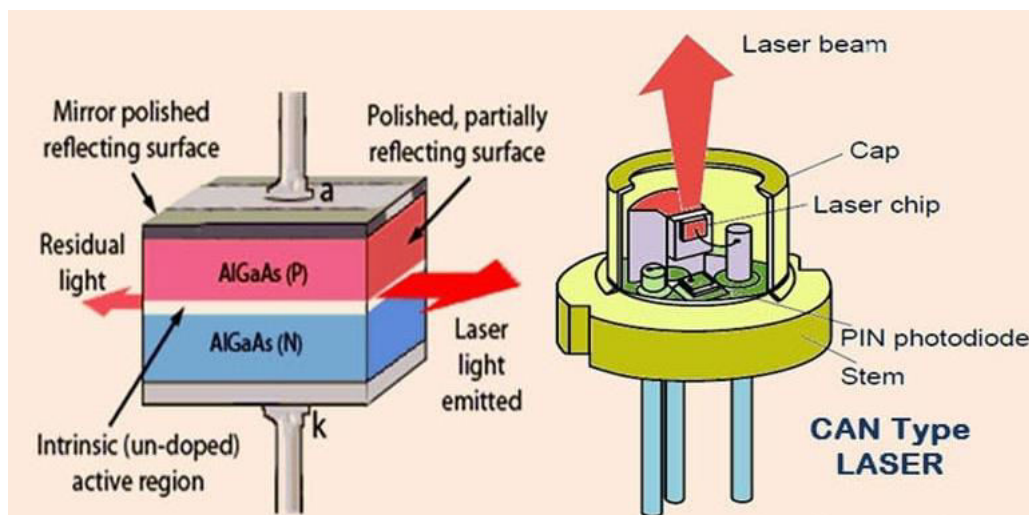


Fig. 7: Laser diode.

GPS MODULE

Global positioning system (GPS) is a satellite-based system that uses satellites and ground stations to measure and compute its position on earth. GPS is also known as Navigation System with Time and Ranging (NAVSTAR) GPS. GPS receiver needs to receive data from at least 4 satellites for accuracy purposes. GPS receiver does not transmit any information to the satellites.

5. HARDWARE IMPLEMENTATION

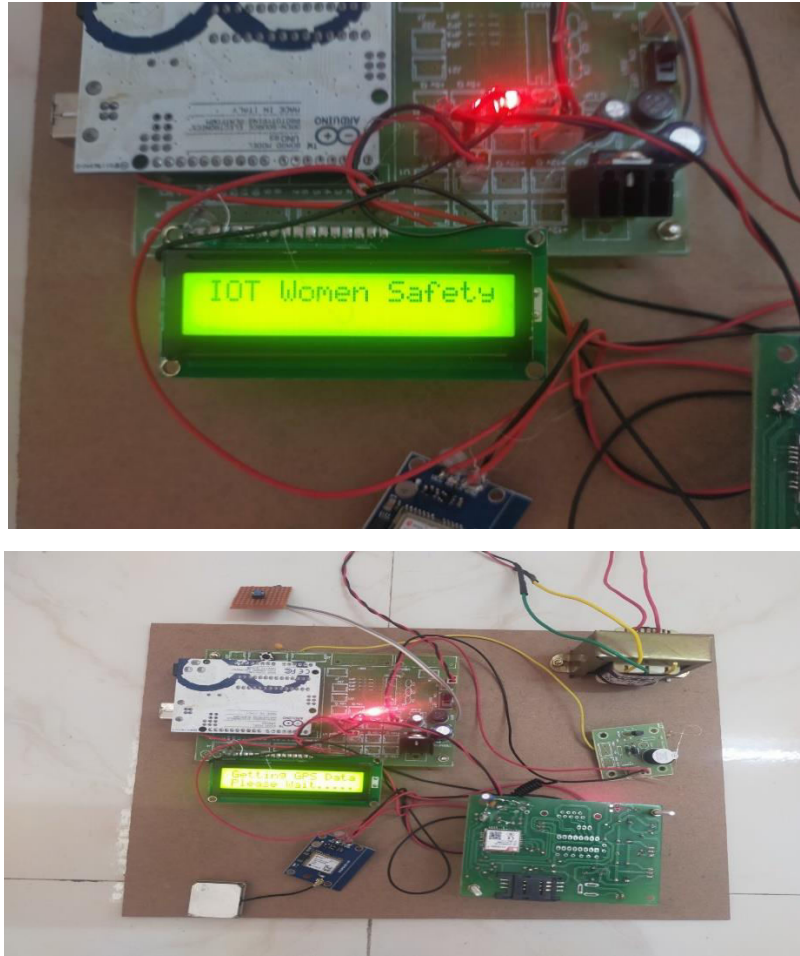


Fig. 3:Implementation and result of women security device.



Fig. 4: GPS Location alert when panic.

6. CONCLUSION

In this Paper an alternative approach for device switching which combines fingerprint identification technique with Web server and GPS functionalities has been proposed. The devices switching from remote location removes the necessity of the person to be present near the device to operate it. This approach allows more than one person to control the device functionality and the authentication facility provided by the switch helps to reduce the fault correction time.

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