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Smart Safety and Security Device for Women Using IoT

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ABSTRACT: Women safety has perpetually been a problem even in these nowadays with most advancement in technology. girls aren't safe anyplace and area unit most vulnerable once traveling alone into lonely roads and deserted places. Existing hand-held guard once a girl is at risk and in want of self-defence then she will press the button that is assigned to her. By pressing the switch, the complete system is going to be activated then straightaway the SMS can sent to concern person with location victimisation GPS and GSM. the most purpose of this planned methodology is to supply security for girls that consists of detective work and message causation system composed of a GPS, Arduino board and a GSM electronic equipment.

Further enhancement is to made possible by using hidden camera so that it captures the photo of the culprit and stores in cloud. Audio recording and shock wave generator can also be implemented. A mobile app could be designed for women safety where safe location from victim's current location will be shown on the map.

KEYWORDS: Safety, vulnerable, device, security, message, culprit, victim.

I. INTRODUCTION

In the present state of affairs, women's safety has become one among the foremost common in society, albeit strict actions are taken against criminals, the matter still persists. Now a days, ladies must add odd hours however, attributable to insecurity they're forced relations to quit the work. If ladies wish to figure in alternative state, there'll be an issue of her safety and security to their family. Security is that the condition of being protected against danger or loss. within the general sense, security may be a thought just like safety. The import between the 2 is a new stress on being protected against dangers that originate from outside. people or actions that get in the condition of protection are chargeable for the breach of security. The word "security" normally usage is synonymous with "safety," however as a technical term "security" implies that one thing not solely is secure however that it's been secured. this technique proposes associate IoT primarily based answer to handle the matter of ladies safety which overcome the shortcomings of existing devices. The projected style contains of options to advise relations and near station house for immediate help once ladies aren't safe.

II. RELATED WORK

The proposal describes a fast responding, price protection system for a personal and particularly for girls victimization that a girl in distress will demand facilitate simply with the press of a button on this sensible gismo. A little device with a buzzer and microcontroller is meant, and it are often placed on band or watch. once any insecure state of affairs, the ladies will create use of this device to send alert SMS by pressing this buzzer to predefined numbers. However this theme cannot generate automatic causation SMS. Instead, it needs the human interaction throughout a panic state of affairs[1].

The system developed a safety device that uses an Atmega328p microcontroller without any android application which makes it a stand-alone. They surveyed the existing mechanism for detecting locations, for sending communication. This proposed which when trigged by a switch, automatically sends the location of victim to their concerned one. In addition, the device also plays a prerecorded message using speech circuit to alert the surroundings. It uses GPS and GSM modules to track the location and then send it to the family members and friends, alerting them about the current location of the women [2]. Implemented a safety device. Initially, the user's fingerprint is scanned and prestored in the device. When users begin to scan the finger, the fingerprint is scanned for a minute. If the fingerprint is scanned, the

device activates the alert buzzer for a public, and the location is sent along with the message to the police and the family. Another added feature is shock wave generator to protect herself, and group messages are sent. A sound sensor record audio, and the captured audio is delivered to all saved contacts on the mobile. It entails an app that, if installed and saved on the victim's mobile device, will utilize maps to take the victim to the safest spot from their present location [3].

Developed a safety device based on IoT technologies. It is made up of microcontrollers, neurostimulators, GPS and GSM modules. This implementation proposes that every time the victim is attacked, she must push the trigger, which triggers the function of the modules. The gadget communicates the positions to the register numbers and neighbouring police stations using GPS and GSM modules. It delivered a deadly electrical shock to the attacker by employing a neurostimulator. It also has the added benefits of sending the victims last known position if the gadget is damaged [8]. Designing an IoT based mostly guard that depends on providing security to girls by fingerprint-based technique of property to the device and alerting near police and family. It planned to spot the placement of people by victimization image data. At device GPS plotter is employed to identifies the placement of an individual victimization image and video by utilizing background data. With the assistance of the GPS plotter, it will determine the altitude, longitude and position of an individual UN agency has uploaded their pictures to social media. however, this theme cannot generate the image of an individual UN agency has not uploaded the image within the social media[9].

III. METHODOLOGY

The proposed women safety device provides assistance to a woman who might be in an unsafe situation. The device is basically prepared for all the things which may go against the need of the ladies. It uses Atmega 328p microcontroller. The device contains of button to activate the device, GPS for location chase, GSM electronic equipment for causation alert messages, buzzer for alerting the atmosphere. it's liquid crystal display that displays the message. at first the system is going to be in security mode. during this mode, the system is active and forever searching for the input from the button module. Here the button acts as a push button, whenever the ladies feel unsafe, thereby activating the full system security device. It sends a symptom to Arduino to activates GPS and GSM modules. Moreover, the latitude and therefore the great circle knowledge square measure instantly received by the GPS. The received knowledge is delivered to each the liquid crystal display and therefore the GSM module. The GSM module can forward the message to the women's family/friends. so, they will come back to grasp her current location. just in case of emergency the device is going to be triggered setting off a buzzer to beep to alert the surrounding/nearby public United Nations agency might rescue her from danger. This system is meant with ATmega328, presents a girls safety detection system victimisation GPS and GSM modems. The system may be interconnected with the warning device and alert the neighbours. This detection and electronic messaging system consists of a GPS receiver, Microcontroller and a GSM electronic equipment. GPS Receiver gets the situation info from satellites within the style of latitude and great circle.

IV. DESIGN AND IMPLEMENTATION

An embedded system is a combination of computer hardware and software, and perhaps additional mechanical or other parts, designed to perform a specific function. An embedded system is a microcontroller based, software driven, reliable, real-time control system, autonomous or human or network interactive, operating on diverse physical variables and in diverse environments.

The circuit is meant victimization Atmel high density non-volatile memory technology. The on-chip ISP flash permits the program memory to be reprogrammed in-system through Associate in Nursing SPI serial interface, by a standard non-volatile memory engineer, or by Associate in Nursing on-chip boot program running on the AVR core. package within the boot flash section can still run whereas the appliance flash section is updated, providing true read-while-write operation. By combining Associate in Nursing 8-bit computer architecture computer hardware within-system self-programmable flash on a monolithic chip, the Atmel ATmega328P may be a powerful microcontroller that gives a extremely versatile and price effective resolution to several embedded management applications. The ATmega328P AVR is supported with a full suite of program and system development tools including: C compilers, macro assemblers, program debugger/simulators, in-circuit emulators, and analysis kit,

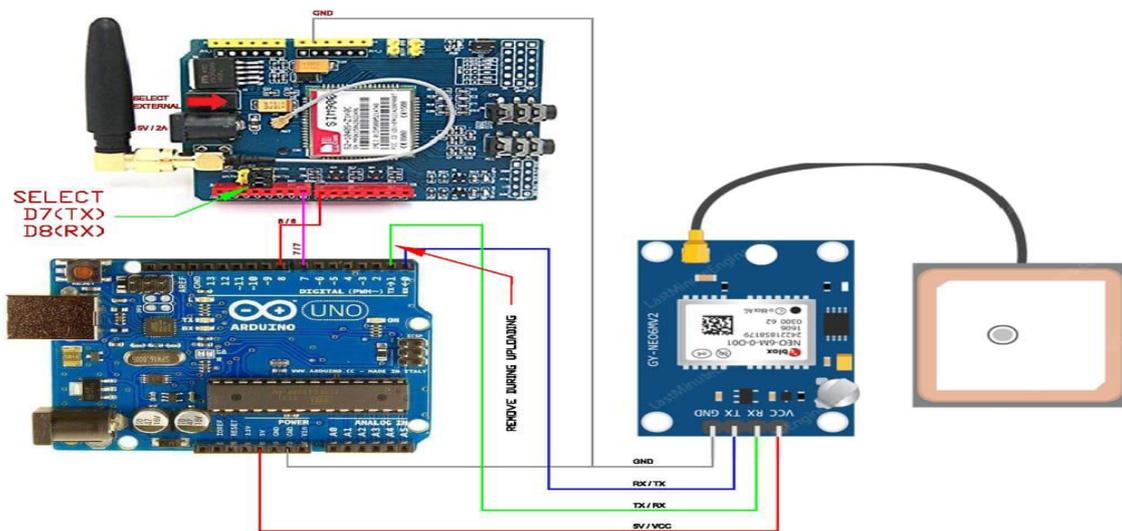


Figure 1: GPS and GSM Connection with Arduino

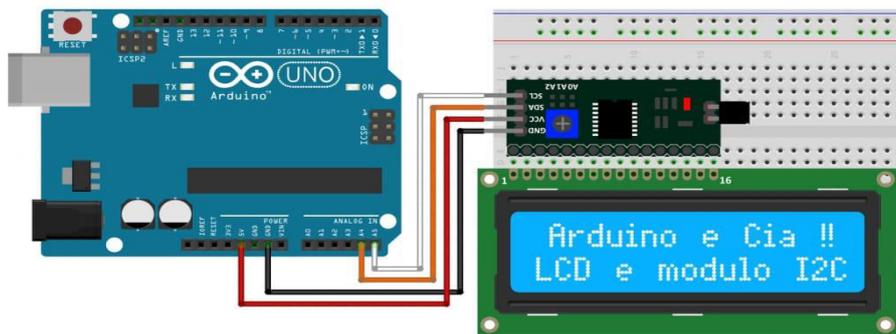


Figure 2: I2C LCD Connection with Arduino

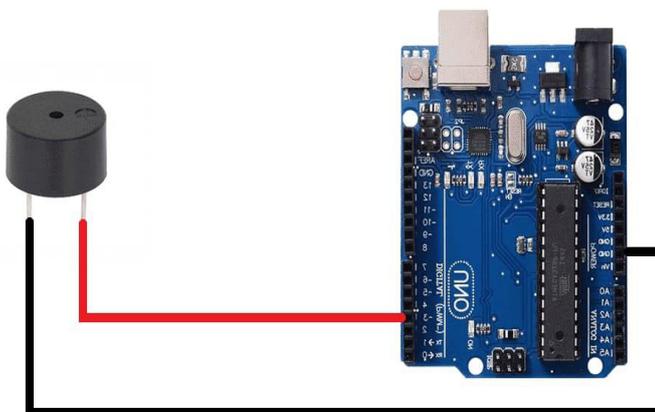


Figure 3: Buzzer Connection with Arduino



V. EXPERIMENTAL RESULTS

The main purpose of the work is to supply safety and security to the ladies in peril scenario. The button is ironed by a girl once she feels insecure. Once the button is ON, the microcontroller gets the commands and also the GPS can calculate the present latitude and great circle values of the victim. The calculated values square measure shown in Fig.4. GSM module can send SMS that contains latitude and great circle values to the numbers already hold on within the microcontroller and near police office. GSM can send SMS to the registered mobile numbers. The SMS send to the registered mobile numbers square measure shown in Fig. 5. show message on the liquid crystal display is shown in Fig.6. IoT module can track the present location of the victim and it'll update the situation on the webpage. The microcontroller can start the buzzer within the device, in order that near individuals could return to grasp that somebody is in peril and that they can return to rescue.

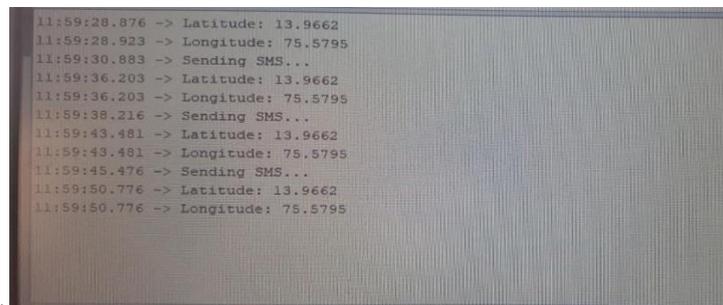


Figure 4: Calculated values on Serial Monitor



Figure 5: SMS sent to Mobile Number



Figure 6: Display message on LCD



VI. CONCLUSION

We have enforced system which will facilitate to unravel essential problems visaged by ladies within the close to past and can facilitate to unravel them with technically sound equipment's and concepts. this technique will overcome the worry that scares each lady within the country regarding her safety and security. to supply comprehensive security, the sound instrumentation, buzzer is enclosed within the style, so any near person gets alerted regarding the mis-happening. causing text messages make sure that shut relatives and police gets alerted with this location of victim. The project presents the example of a sensible device for girls safety, performance metrics ought to be thought of for any analysis to prove its potency.

VII. FUTURE SCOPE

In the future, the system may well be connected to a camera to capture pictures and record live video. Our system thought expands on the thought of planning a system that may create each place and hour safer for ladies. With one bit of a button, this technology can geotag and send an SMS aware of the native police office, shut contacts, and folks in and round the crime scene. The goal is to catch up on the time it takes the cops to urge at the scene. The Arduino ATMEGA may be equipped with a camera and mike. Using this to capture pictures and record audio of individuals United Nations agency are in issue, then send that info victimisation the GSM and GPS modules. The projected style can address important challenges that ladies have knowledgeable within the recent past and can offer technical solutions to those problems. This technology has the potential to alleviate the anxiety that each girl within the country has concerning her safety and security. The demand of the day is to be protected and secure.

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