Design of a Smart Safety Device for Women Using Iot

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ABSTRACT: Women safety is a very important issue due to rising crimes against women these days. Presently there is indeed no good solution to this problem. Women security is need of the hour now-a-days. In India, there are many cases of women harassment and molestation. Safety of women matters let be whether at home, outdoor or it be their work place. One recent research study shows that there is a footwear chip which is sticked to the footwear that gets activated when the person long press. Focus on developing a prototype that is a smart device with the Accelerometer sensor and emergency switch to activate the alert for the safety of women. Once the device is activated itstarts alerting to the family contacts and police control rooms. An electric shock will get activated after few seconds of the device getting turned on.
KEYWORDS: IoT, women safety, Arduino Microcontroller, Communication.

I.   INTRODUCTION

At the present scenario Women are competing with men in every prospect of society. Women contribute fifty percent to the development of our nation. But the women have fear of getting harassedand killed. All these types of women harassment cases are increasing day by day. So it is very important to ensure the safety of women. The problem with apps is that they tend to be clumsy. The women have to open her phone, unlock it, open the app and then press a button. Also, most of the times, the perpetrators usually go for the phone first. The need is to develop independent devices like safety bands, rings, key rings etc. that can be carried around in disguise and used faster, and which will allow the women to send emergency messages with their location in times of distress.

Internet of Things (IoT) plays a major role in every day to day life. The major difference between IoT and embedded system is that a dedicated protocol/software is embedded in the chip in case of embedded system, whereas, IoT devices are smart devices, which are able to take decisions by sensing the environment around the device. The development of sensors technology, availability of internet connected devices; data analysis algorithms make IoT devices to act smart in emergency situations without humaninterventions. So, IoT devices are applied in different fields such as agriculture, medical, industrial, security and communication applications. IoT systems are useful within a system to do deeper automation, analysis, and integration. IoT contributes totechnology by advances in software, hardware and modern tools. It even uses existing and upcoming technology inthe fields of sensing, networking and robotics. IoT brings global changes by its advanced elements in the social, economic, and political impact of the users.

The important vision of IOT has evolved due to a convergence of various technologies, including ubiquitous wireless communication, real-time analytics, sensors, embedded systems, etc. It is a technology that allows the objects to be sensed or controlled remotely across existing network infrastructure having numerous devices connected to it. These devices collect useful data with the help of various existing technologies and then autonomously flow the data between other devices. In today's scenario, over 80% of the world population habituated towards thenew technologies developed, including the children by the usage of mobile phones, smart devices, laptops and others smart equipment's are also increased.

II. METHODOLOGY

This proposed system give a peace of mind to loved ones when they are away from their infant as they can get an update status of their wellbeing. The other advantage is the programmability of alarm conditions. In present scenario there is a drastic increase in the number of child kidnapping cases. Since crime against the children in the age of 14 years to 17 years is more popular, so parents are always worried about their children's safety. This paper proposes a voice enabled alerting system to aid to track children location in real time. Also at the present scenario women are competing with men in every field of life. Crimes against women are more common at present time. It is very important to ensure the safety of women. Hence our system provides a required safety to women so that they can do late night work.

Our proposed system consists of many sensors and controlling measures with wireless communication technology designed for the purpose of women safety.Heart beat sensor is used to measure the heart beat value of the women. Heart beat value iscontinuously monitored and displayed in the LCD module.Accelerometer sensor is used to measure the hand movementand displayed in the LCD and continuously updated in the iot app or webpage.If the Emergency switch is pressed or the movement of accelerometer is moved in the specified manner then it will be considered as the Emergency and their location will take and sent to the IOT app/webpage.

Once emergency situation rises then apart from updating their location to the care taker Electric fencer will be turned on to safeguard themselves.
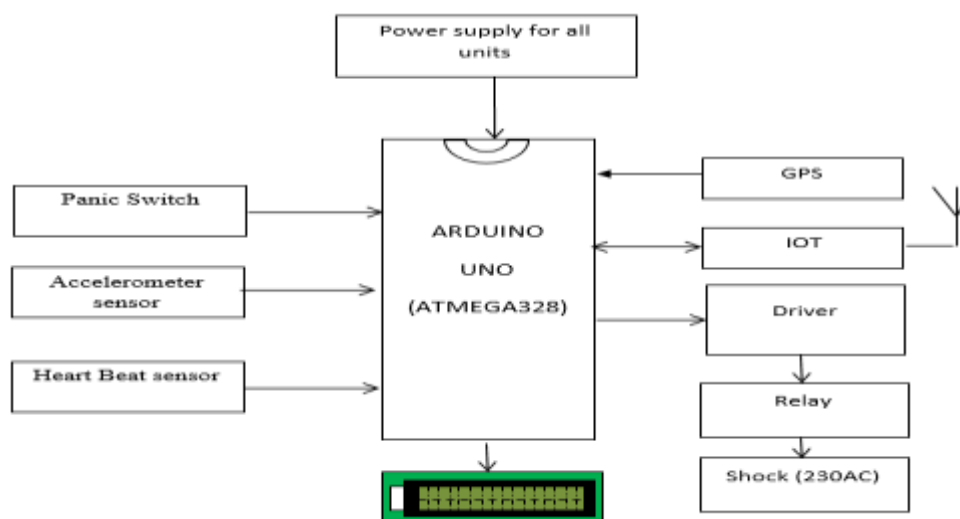

Figure 1. Block diagram of proposed system

Global Positioning Systems (GPS) are widely used in mil-tarry and civilian applications for navigation and localization. Advancements in mobile technologies further allow GPS to be integrated into mobile devices to provide various location-based services (LBS). Malicious apps with access to the GPS can easily track geographic movement traces of a person, and consequently discover sensitive personal information like home and work addresses, shopping preference, health conditions, and hobbies. To avoid being tracked, one intuitive method is to disable the GPS module on smart phones. People who are concerned about privacy may turn on GPS only when necessary. How-ever, in this paper, we reveal a new attack that tracks a person without requiring the access to the GPS module. We here in focus on driver tracking, because cars are the most commonly used transportation tool in developed countries. To attract victims, the attacker may camouflage a malicious app in the form of a free game, social network tool, music player, etc. Once downloaded, the installation of the malicious app neither requests user permissions related to locations, nor does the operation of the app rely on wireless signals for localization like Wi-Fi positioning. Hence, it does not suffer from the permission control mechanisms ofcurrent smart phones or the propagation loss of radio signals.

III. FRAMEWORK IMPLEMENTATION
i) HARDWARE IMPLEMENTATION:

This concept is focused with automatically transmitting information about emergency for women through IoT so that an instant rescue can be carried out. Frame work implementation of women safety device is shown in Figure 4. Whenever the women feels that situation is emergency then she has to press the emergency button and also can move accelerometer sensor according to the emergency movement. Then automatically GPS location will be taken and send to the iot app/ web page for their rescue. Apart from sending the location details electric fensor also will be turned ON for their safety purpose.
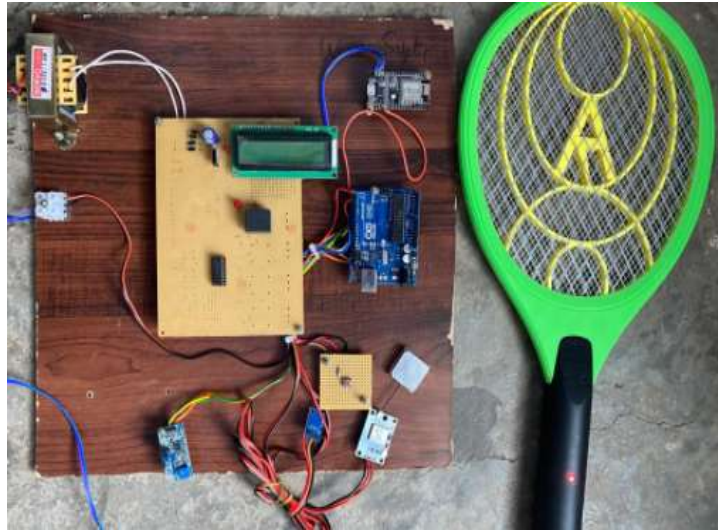

Figure 4. Framework Implementation of Vehicle Unit – 1

ii) POWER SUPPLY:

Power supply is a reference to a source of electrical power. A device or system that supplies electrical or other types of energy to an output load or group of loads is called a power supply unit or PSU. The term is most commonly applied to electrical energy supplies, less often to mechanical ones, and rarely to others.
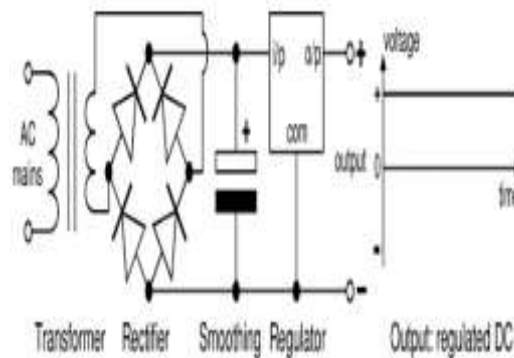
IV.   RESULTS AND DISCUSSION

Figure.12 depicts the number of accidents that happened from mid-September to mid-November. From the middle of September to the first week of October, there is an increase in the number of accidents. From the first week of September through the middle of November, there is a consistent drop in the number of accidents.
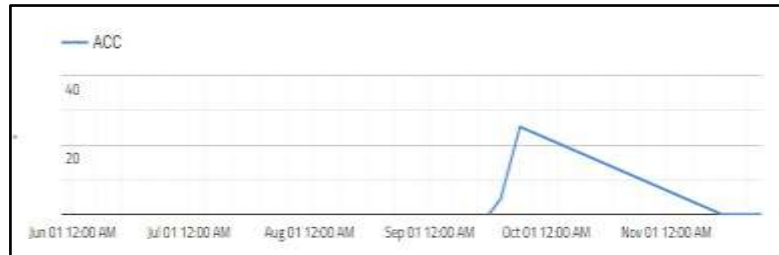
Figure 12. Monthly graph showing number of accidents occurred

Figure 13 reveals different latitude values in which accidents have occurred. Only the latitude readings from the middle of September to the middle of November are shown here. The latitude value varies depending on the location.
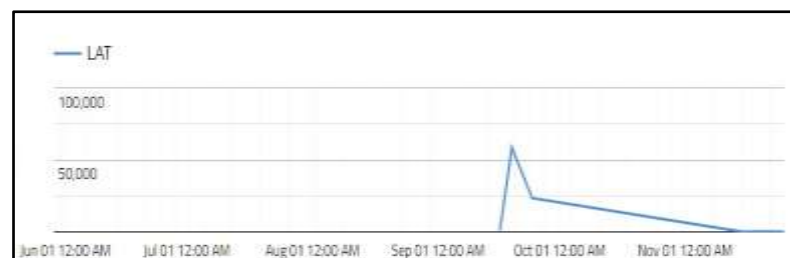

Figure 13. Latitudes of different locations – Monthly graph

Figure 14 shows the various longitude values where incidents have happened. Longitude readings are only given from the middle of September to the middle of November. The longitude value varies depending on the location.

Figure 14. Longitudes of different locations – Monthly graph

V. CONCLUSION

This work is a low-cost road safety and accident prevention system that primarily focuses on three things. The first is using IoT to automatically relay information about an accident to a local hospital. The second concept is to warn the motorist of danger zones, such as high-traffic areas, accident-prone locations, and hilly places. The third notion is concerned with improving driver communication in order to improve road safety. Thousands of lives will be saved as a result of this work, and the number of accidents will be reduced.

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