DESIGN AND IMPLEMENTATION OF SAFETY ARMBAND FOR WOMEN AND CHILDREN USING ARM7

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Abstract-*Women and children all over the world are facing and even subjected to unethical physical harassment. Security for women is still a major issue as the number of crimes and harassment over women and girls is increasing day-by-day. In this age of technology, mobile phone is one of the gadgets that almost everyone like and uses to keep in touch with family and friends. All they need is a device that can be carried everywhere easily.So we have designed one such gadget which alerts and protects the victims.This proposed project deals with a quick responding, cost protection system for an individual and especially for women using which a woman in anguish can call for help just with the press of a button on this smart gadget. Self Defense module for women safety is like a Smart band for Women safety. It has the ability to help women with technologies that are embedded into a compact device. It has the potential to help women with technologies that are embedded. It is specially designed for women safety and protection. This band directly gets connected to the satellite through GPS when activated. Then the location is transferred through the GSM, it also contains a shock mechanism to produce non-lethal electric shock in emergency situations to deter the attacker.*

I. INTRODUCTION

Women security and safety has risen to become agenda of many political parties. The crimes against women, as reported by the National Crime Records Bureau of India(NCRBI), have increased by 6.4 % in2012.The statistics at the NCRBIshows that onan average everythree minutesa crime is committed against women.In recent times the crime seems to be rising in an alarming rate. Around 2,44,270 crimes against women were reported in India in 2012. In 2011 registered complaints are 2,28,650where women were subjected to violence. It is a matter of fact that is just a figure. As number of cases gone unregistered due to fear, social stigma is suppressed. These figures refer to the gravity of the problem in India that a womanfaces. In the recent years, the atrocities against women have increased to a larger extent. With the figure pointing out that women and children are subjected to such atrocities, physical and sexual, there is a need to have a device that would help them to alert someone in cases of emergency. This paper proposes a device that would be turned ON by an action of human hand. The main idea is not only having an alert system but also a self-defense mechanism through which the victim remains safe from assaults.

II. LITERATURE SURVEY

The status of women in India has gone through many great changes over the past few millennia. Women in India continue to face social challenges and are often victims of abuse and violent crimes and, according to a global poll conducted by Thomson Reuters, India is the fourth most dangerous country in the world for women, and the worst country for women among the G20 countries. Women's security is a critical issue in today's world and its very much needed for every individual to be acting over such an issue. Many unfortunate incidents have been taking place in woman's case. Security is most important factor for safety of women. A lot of women safety systems are already available in the market such as:

1.Tele health and Tele medicine monitoring system using GSM and GPS: In this systema patient health can be monitored and send the information to thedoctor,but this system requires the human intervention which is a disadvantageof the system.

2.Real time home surveillance system: Here a complex system is attached to the computer at home and various sensors are attached to the main computer. If there is an intrusion, a message is send to the owner. Here the main disadvantage is that the system is not portable.

3.Android Application: There are many android applications available which do the work of tracking but requires the victim to open the application which is a long process and it can be the disadvantage.

4.Signaling System: Aperson can also be detected using the last sector (i.e. the Base station(BS)) from which a call/SMS/MMSwas initiated from the particular Mobile station(MS). This is not a full proof system because if the attackermanipulates with the victim's phone that would lead the investigation to a different direction.

III.   PROPOSED SYSTEM

Today's demand is to be safe and secure. So the women need a gadget which is small in size and can be carried easily with her which help her in the crime incidents. In this paper an alternative method is proposed for women security that may serve as a better alternative to rest of the available security methods.A prominent method of detecting a person under threat is using the GPS system. We haveincorporated the same in our prototype. The GPS system gives accuracy as high as for 40 meters.MEMS sensor is used to sense any mis happening with women according to the extraordinary movement of body. If in any case MEMS sensor is unable to sense the mis happening then the switch in the watch can be pressed manually to indicate any mis happening. As soon asany mis happening is detected by the sensor the same is indicated to controller. Upon receiving the signal, the controller starts generating shock waves through shock wave circuit and at the same time a message containing location of the victim obtained through GPS is transmitted to the relative or friend whose number is already in the program.

IV.   BLOCK DIAGRAM

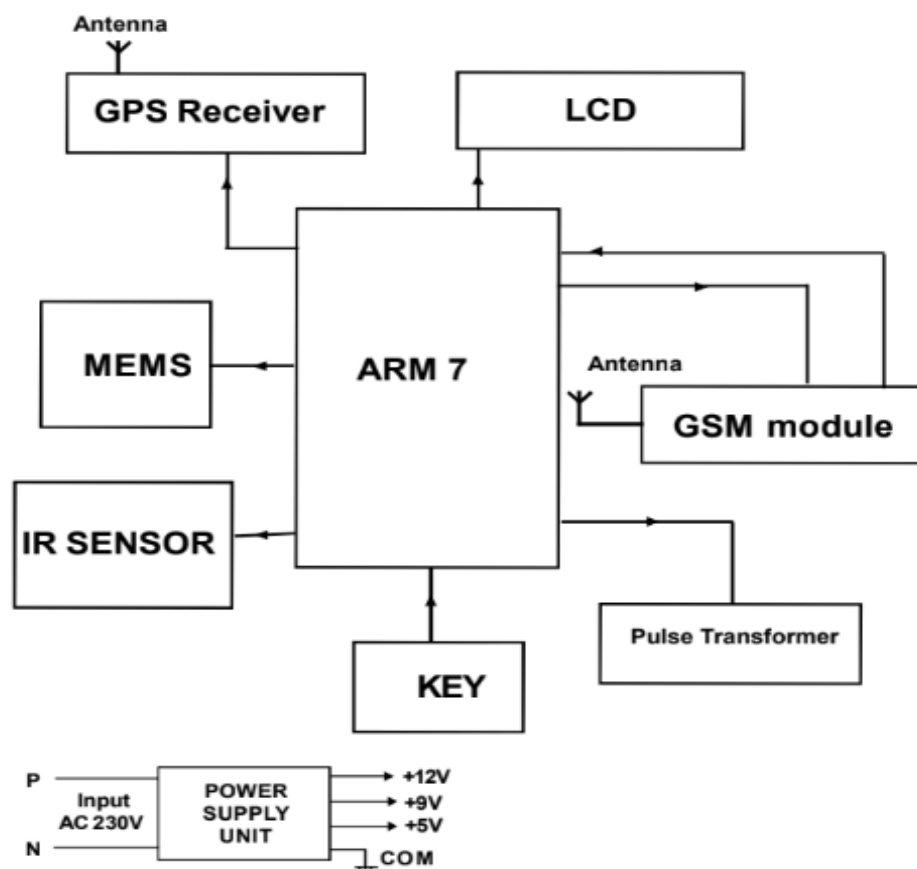The block diagram of our proposed project is as shown in the fig 1,

Fig1:Block diagram of ARM Band
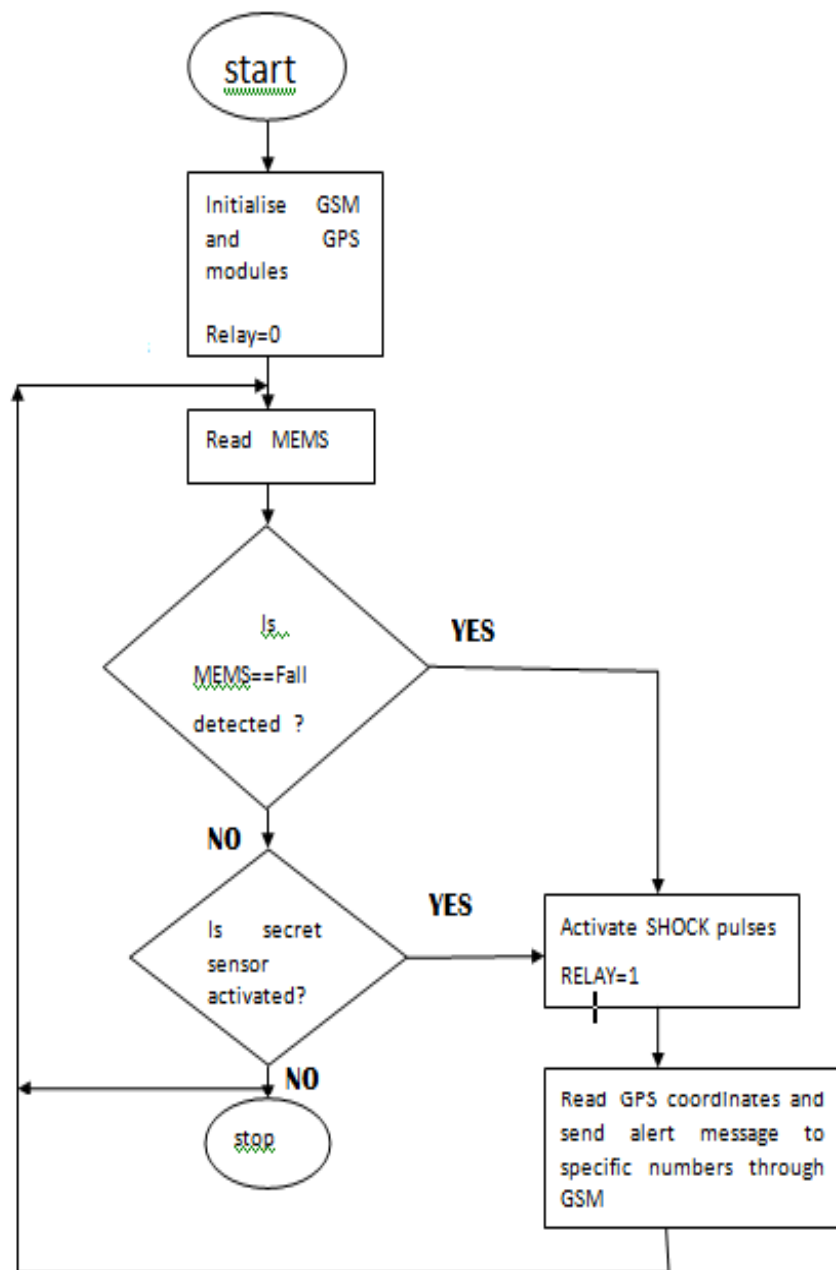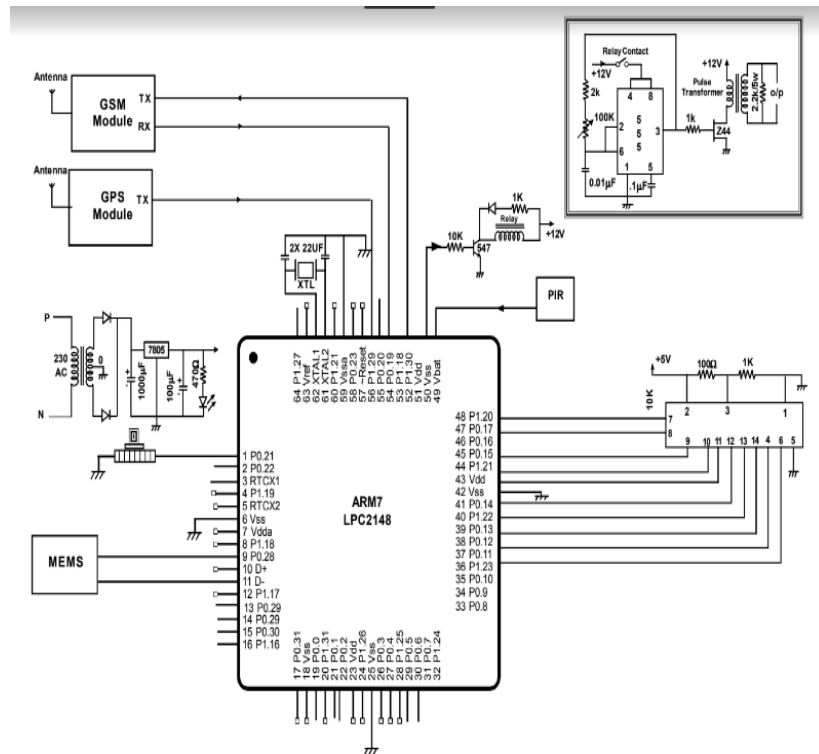
V. FLOWCHART

Fig 2:Flow chart of the prototype Algorithm

The flow chart explains the working of the prototype design under consideration. Initially the system is such that the button is not pressed. PIR sensor, switch and accelerometer are in the normal positions.In any abnormal conditions if the victim turns on the switch or any abnormality is sensed by the PIR or Accelerometer then the interrupt arises,which turns ON the shock pulses providing the self-defense for the victim.

V. IMPLEMENTATION

The prototype of the proposed safety armband is realized and the using LPC 2148 ARM7 processor.Wehave provided accelerometer sensor,PIR and switch.This is anticipating the chances of fall when attacked or assaulted. The basic implementation circuit of the armband is shown below.

Fig 3: Implementation of the circuit

VI. RESULTS

The Interfacing of ARM7 with all the other components brings the result as follows. Here we asked a person to wear our Armband and asked him to provide a jerk to our system depending on this input, thecircuit was initiated and calculation of X,Y,Z axis was done which is sensed by the accelerometer. Manual switch used in our circuit also did the same job. PIRs are basically made of a pyroelectric sensor which can detect levels of infrared radiation. Everything emits some low level radiation, and the hotter something is, the more radiation is emitted.Thus helps in motion sensing.The GSM modem also has one SIM card which does the work of sending message to a predefined number.

Fig 4: Proposed project

Generation of shock pulses after the interrupt took place from any of the three inputs, i.e., the manual keymaps or the PIR sensor. The shock pulses are indicated by the glowing of the LED light connected to the electrical shock pulse generator circuit. This information is also displayed on LCD screen.
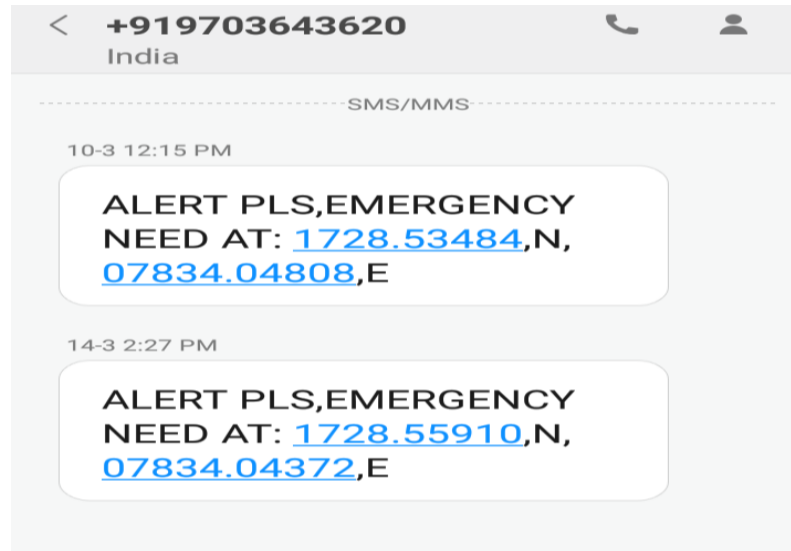

Fig 5: Message received to predefined mobile number

VI. CONCLUSION AND FUTURE SCOPE

The project would help in enhancing the safety and security of people belonging to different age groups. Theproject titled "Design and Implementation of Safety Arm Band for Women and children using ARM7 " is a model for self-defense with tracking unit with the help of Google maps and also sends SMS through the mobile communications. It provides the loved ones with the real-time location information. This project is a step closer for us to improve our social security.

Our project is a simple prototype which can be improved for future use just like in military application fortracking of a soldier if he got kidnapped.It can be incorporated with small device which provide electricshock to person who tries to attack and also gives time for the victim to reaction.

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