Improved Security for the Girls Safety

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ABSTRACT- *Unfortunately, the news has recently been dominated by instances of kidnapping, rape, and abuse. Although schools and universities require students to learn about physical education and art, schools do not equip students with basic life skills - especially the skill of safety. The need for a project that instructs young girls how to defend themselves in immense.*

Keywords: GPS modem, GSM modem, hooter, accelerometer.

INTRODUCTION

These three questions have become a fixture on the national agenda, as has the issue of safety, or more precisely, freedom from violence. But women and girls have always thought about safety. How could they not, when the threat of violence is pervasive and shadows them from conception through their lifetimes? Concerns about safety limit women's mobility and activities and teach them to strategize everything from timings to travel to how to walk to the office or college toilet.

The Indian women's movement has always raised the issue of violence against women (or more broadly, gender-based violence that is directed at anyone by virtue of their gender) and the violence that follows from structural inequalities like caste, poverty or identity. There is no city or country in the world where women and girls live free of the fear of violence. No leader can claim: this is not happening in my backyard.

Now we know that girls' safety is at prior importance in today's world. There is no such system which can provide the safety to girls and therefore the girl cannot move freely. There are different products for the girls' safety such as shoes, sprays, etc. But these cannot provide safety in the adverse conditions. We are designing a module which will help the girl to protect herself. The module will be fitted to the girls' sandals. When the module she can give shock to the person harassing her.
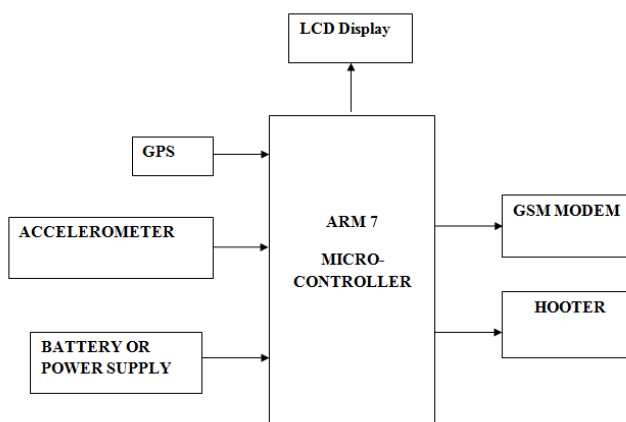

Fig.1 Block Diagram of Improved Security for The Girls Safety

Module which will help the girl to protect herself. The module will be fitted to the girls' sandals which will got activated or made ON when a girl tilt's her sandal. As soon as girl tilt's her sandal, hooter will be blown so that people present around will come to help the girl/ women. And SMS will be send to her guardian and to the police helpline along with the location using GPS and traceable through Google Maps. Thus the girl will be safe and she feels protected.

GSM MODEM
Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is the name of a standardization group established in 1982 to create a common European mobile telephone standard that would formulate specifications for a pan-European mobile cellular radio system operate at 900MHz or 1800 MHz[2].

With the help of GSM module interfaced, we can send short text messages to the required authorities as per the application. GSM module is provided by SIM uses the mobile service provider and send SMS to the respective authorities as per programmed. This technology enable the system a wireless system with no specified range limits. There is a growth in using a digital technology and wireless and mobile networks, in addition to the global expansion and services all over the world. This technology (Wireless) production is at the lowest cost for global distribution. There has also been much interest in wireless communication in industrial sector for uses in automation as well as to increase the safety and security standards [4].

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.

GPS MODEM

The GPS (global positioning system) smart receiver features the 16 channels .Ultra low power GPS architecture. This complete enabled GPS receiver provides high position, velocity and time accuracy performances as well as high sensitivity and tracking capabilities. GPS has the ability to calculate the position, time, and velocity of any GPS receiver. It does so using a process of triangulation, which works on the premise that you can find any position if the distance from three other locations is also known [2].

The ultra low power CMOS technology, the GPS receiver is ideal for many portable applications such as PDA, Tablet PC, smart phone etc. GPS satellite tracking can assist people who are responsible for the health and wellbeing of others. Two such applications include GPS for tracking dementia sufferers, and parents tracking their children. GPS can give error readings in particular conditions. Dense forest, tall buildings, cloud cover and moisture produce inaccuracies in readings but these are considered negligible when compared to the potential for inaccuracies in resultant information processing [2].

Every time the mobile phone updates the user location in the server, it requests the location of the user from the GPS.
The GPS determines the longitude and the latitude and sends them to the mobile phone [1].

Benefits-

Ultra low power consumption.
Easy and fast to install.
Superior urban canyon performance.
Low cost with high performance.

ACCELEROMETER

　　　An accelerometer is an electromechanical device that will measure acceleration forces. These forces may be static, like the constant force of gravity pulling at your feet, or they could be dynamic - caused by moving or vibrating the accelerometer. By measuring the amount of static acceleration due to gravity, you can find out the angle the device is tilted at with respect to the earth. By sensing the amount of dynamic acceleration, you can analyze the way the device is moving. Accelerometers use the piezoelectric effect - they contain microscopic crystal structures that get stressed by accelerative forces, which cause a voltage to be generated. Another way to do it is by sensing changes in capacitance. If you have two microstructures next to each other, they have a certain capacitance between them. If an accelerative force moves one of the structures, then the capacitance will change. Add some circuitry to convert from capacitance to voltage, and you will get an accelerometer.
　　　The three axis accelerometer are basically used to identify the movements across the three axis i.e. x-axis, y-axis, z-axis. Accelerometer is an electronic device which is interfaced using I2C protocol and provides the reading After every 1msec. According to the requirement of the application, the microcontroller will take the reading from the accelerometer within a fixed interval of time and do the necessary operation according to the requirement of the application.

HOOTER

　It uses wireless technology and alerts neighbors, pass by and security guards with its loud hooting noise. It is device that makes loud sound than alarm or siren. hooter will be blown so that people present around will come to help the girl/women.

LCD

　　　LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), and so on.

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, namely, Command and Data.

The command register stores the command instructions given to the LCD. A command is an instruction given to LCD to do a predefined task like initializing it, clearing its screen, setting the cursor position, controlling display etc. The data register stores the data to be displayed on the LCD. The data is the ASCII value of the character to be displayed on the LCD.

ARM 7

This generation introduced the Thumb 16-bit instruction set providing improved code density compared to previous designs. The most widely used ARM7 designs implement the ARMv4T architecture, but some implement ARMv3 or ARMv5TEJ. All these designs use a Von Neumann architecture, thus the few versions comprising a cache do not separate data and instruction caches. Some ARM7 cores are obsolete. One historically significant model, the ARM7DI is notable for having introduced JTAG based on-chip debugging; the preceding ARM6 cores did not support it. The "D" represented a JTAG TAP for debugging; the "I" denoted an ICE Breaker debug module supporting hardware breakpoints and watch points, and letting the system be stalled for debugging. Subsequent cores included and enhanced this support. It is a versatile processor designed for mobile devices and other low power electronics. This processor architecture is capable of up to 130 MIPS on a typical 0.13 μm process. The ARM7TDMI processor core implements ARM architecture v4T. The processor supports both 32-bit and 16-bit instructions via the ARM and Thumb instruction sets. The ARM7TDMI (ARM7+16bitThumb+jtag Debug+ fast Multiplier+ enhanced ICE) processor is a 32-bit RISC CPU designed by ARM, and licensed for manufacture by an array of semiconductor companies. In 2009 it remains one of the most widely used ARM cores, and is found in numerous deeply embedded system designs. The ARM7TDMI-S variant is the synthesizable core.

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