

Study on Smart Security Technology for Women based on IOT

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Abstract:

In the current situation, the important goal is to provide security to women from issues of women harassment. The only thought haunting every girl is when they will be able to move freely on the streets even at any time without worrying about their security. This paper suggests a new idea to use technology for women safety. "Over 34,600 cases of rape have been reported across the country last year with Madhya Pradesh and Delhi topping the infamous list of states and union territories ,this statistics released by the Country's National Crime Records Bureau(NCRB) had revealed" That's a HUGE number! We propose an idea which changes the way everyone thinks about women safety. We propose to have a device which is the integration of multiple devices, hardware comprises of a wearable "Smart band" which continuously communicates with Smart phone that has access to the internet.

The application is activated and loaded with all the required data which includes Human behavior and reaction. This generates a signal which is transmitted to the smart phone. The application has access to GPS and Messaging services which is pre-programmed in such a way that whenever it receives emergency signal, it can send help request along with the location co-ordinates to the nearest Police station, relatives. This action enables help instantaneously from the Police.

Key Words: Smart Band , Sensors , GPS/GSM , Smart Phone Application.

1.INTRODUCTION

This is a security system that is designed to providing security to women so that they never feel helpless while facing such critical situations. An advanced system can be built that can detect the location and health condition of women that will enable us to take action accordingly.

We can make use of number of sensors to precisely detect the real time situation of the women in critical situations. The temperature of a women in such situations is normally higher which helps to make decisions.

The Smart band integrated with Smart phone has an added advantage so as to reduce the cost of the device and also in reduced size. The GPS and the GSM can be used of a smart phone [2]. This also enables in reduced power use and that the watch can be installed with Bluetooth 4.0 BLE (Bluetooth Low Energy) which comes in handy for several days on a single shot of charge.

2.EXISTING SYSTEM

Keeping the same concern in mind many developers have come up with innovative applications. Few of such applications are as follows-

A. SHE (SOCIETY HARNESSING EQUIPMENT):

It is a garment embedded with an electronic device. This garment has an electric circuit that can generate 3800kV which can help the victim to escape. In case of multiple attacks it can send around 80 electric shocks [3].

B. ILA SECURITY:

The co-founders of this system, have designed three personal alarms that can shock and disorient potential attackers and hence safegaurd the victim from perilous situations.

C. VITHU APP:

This is an emergency app initiated by a popular Indian crime television series "Gumrah" aired on Channel [V]. When the power button of the Smartphone is pressed twice consecutively, it begins sending alert messages with a link of the location of the user every two minutes to the contacts.

D. SMART BELT:

This system is designed with a portable device which resembles a normal belt. It consists of Arduino Board, screaming alarm and pressure sensors. When the threshold of the pressure sensor crosses, the device will be activated automatically. The screaming alarm unit will be activated and send sirens asking help [3].

The main drawback of these applications and services is that the initial action has to be triggered by the victim which often in situation like these doesn't happen. So the emphasis is to build a solution that works autonomously in situations encountered.

3.PROPOSED SYSTEM

In this proposed system we have remove the disadvantage of the existing system.In cases of critical situation occurs ,the app directs the smart phone to perform the task that it Sends message with latitude and longitude of that location to the family members and nearest police station.

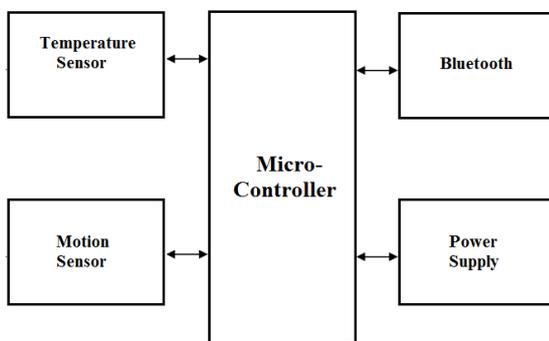


Fig 1 : Smart Band Modules

To remove the drawback we have added some extra modules are as follows :

A . GPS MODULE:

Global positioning system (GPS) is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from various satellites to reach the receiver. In six different orbits approximately 12,500 miles above the earth, 24 MEO (Medium-Earth Orbit) satellites revolve around the earth 24 hours and transmit location every second as well as present time from atomic clocks and by monitoring blood flow through skin when is in contact with the wrist band at each pulse. networked satellites and are tracked to uplinks data for synchronization. The system uses four frequencies in the Lband which ranges from 1.2 to 1.6 GHz.

B. GSM MODULE:

GSM is used to send data from control unit to base unit .We can use GSM 300 which operates at frequency 900MHz. It has up link band of 890MHz to 915MHz and down link Band of 935MHz to 960 MHz GSM takes

advantages of both FDMA & TDMA. In 25MHz BW, 124 carriers are generated with channel spacing of 200 KHz (FDMA). Each carrier is split into 8 time slots (TDMA). At any given instance of time 992 speech channels are made available in GSM 300[4].

C. BLE(BLUETOOTH LOW ENERGY):

BLE 4.0 is designed to connect devices with low power consumption. A study by Beacon software, Aislelabs, reported that peripherals, such as proximity beacons, usually function for an year with a 1,000mAh coin cell battery. This is possible due to the power efficiency of Bluetooth Smart protocol which only transmits small packets as compared to Bluetooth Classic which was compatible for audio and high bandwidth data [5].

D. TEMPERATURE SENSOR (LM 35):

Human body temperature is of vital importance to maintain the health and therefore it is necessary to monitor it regularly. We can measure the body temperature using various temperature sensors. For instance, LM35 series are precision integrated circuit sensors whose output voltage is linearly proportional to the Celsius temperature. It operates linearly +10.0mV/°C scale factor with 0.5°C accuracy. In emergency cases body temperature varies drastically which can trigger module for rescue.

E. MOTION SENSOR:

A Motion Sensor is a device that detects moving objects. A motion detector is often integrated as a component of a system that automatically performs a task or alerts a user of motion in a specified area. Motion sensors form a vital component of security.

F. MICRO-CONTROLLER:

The Atmel8-bitAVRRISC-based microcontroller combines 32 kBISPflashmemory with read-while-write capabilities, 1 kBEEPROM, 2 kBSRAM, 23 general purpose I/O lines, 32 general purpose working registers, three flexible timer/counterswith compare modes, internal and externalinterrupts, serial programmableUSART, a byte-oriented 2-wire serial interface,SPIserial port, 6-channel 10-bitA/D converter(8-channels inTQFPandQFN/MLFpackages),programmablewatchdog timerwith internaloscillato, and five software selectable power saving modes.The device operates between 1.8-5.5 volts. The device achieves throughput approaching 1MIPSpers MHz.

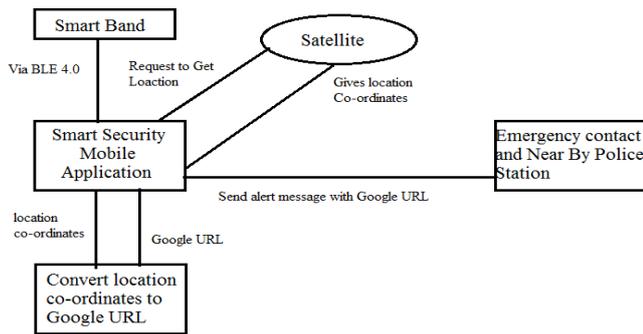


Fig 2 : Flow of System

Smart phone connected to a Smart Band through Bluetooth Low Energy (BLE). The device communicates with smart phone through a specially designed application that acts an interface between the device and the phone. The data directed by the smart band such as the temperature of the body along with the motion of the body is continuously monitored by the application which is pre-installed in the phone.

Location co-ordinates are converted to the Google URL and then smart security mobile application send this Google URL along with alert message to an Emergency contact and near by police station.

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