ISSN 2348 – 9928
IJAICT Volume 6, Issue 11, November 2019 Doi:01.0401/ijaict.2017.03.03 Published on 05 (11) 2019

SMART SECURITY SOLUTION FOR WOMEN USING WEARABLES

Ms. G. Rathi
Assistant Professor

Ms. T. Prathipa
UG Scholar

Ms. R. Ramya
UG Scholar

Ms. B. Vidhya
UG Scholar

Department of Computer Science and Engineering,
Sri Ramakrishna Engineering College,
Coimbatore, Tamilnadu, India.

Abstract*— Security because regarding girls has emerged as a critical issue among India. We perform now not lecture therefore the females are protected within India by way of road of forum plenty the last now not an awful lot 12 months crimes in opposition to women particularly over the countrywide capital. Women usually experience frightened while current singular outdoor beyond the home. It is an at all unhappy fact concerning the United States as its girls citizens are residing along concern of all time. Personal security of the girls has been the subject on worth because of each Indian citizen. A day when media broadcasts more of women's achievements rather than the harassment, the need for this device which automatically or manually senses and rescues the victim is the idea in this paper. We advocate in conformity with bear a system which is longevity built-in together with the stability more than one components, hardware correspond concerning a wearable "Smart security band". The band continuously communicates with Smart phone. The band generates a signal which is transmitted to smart phone. The application has access to GPS and GSM. Whenever the mobile receives emergency signal, it will send help request to the relatives and nearby police station.

***Keywords*— Smart Security Band, Smart phone, GPS/GSM.**

I. INTRODUCTION

The Internet of things (IoT) is the inter-networking of physical devices, vehicles and also referred to as connected devices, buildings. Internet of things embedded with electronics, software, sensors, actuators, and then community connectivity so allow it objects to collect and exchange the data. In the year 2013 the Global Standards Initiative on Internet of Things (IoT-GSI) defined the Internet of things as the infrastructure of the information society. The Internet of things allows objects to be sensed or managed remotely throughout the existing network infrastructure, creating possibilities because of more prescribe integration concerning the physical ball between the computer-based systems, or resulting into elevated efficiency, exactness yet financial gain among run- on to reduced human intervention. When Internet of things is augmented with sensors and actuators, the technology becomes an instance of the more general class of cyber-physical systems, which also encompasses technologies certain so clever grids, clever homes, sensible conductance yet the smart cities. Each thing is uniquely identifiable through its embedded computing system. Experts estimate that the Internet of things will consist of almost 50 billion objects by 2020. Typically, Internet of things is expected according to provide superior connectivity regarding devices, systems, yet functions up to expectation goes past machine-to-machine (M2M) communications yet covers a range about protocols, domains, or the applications.

The interconnection regarding it embedded units to get her with clever objects. "Things," in the Internet of things sense, can refer to a wide variety of devices certain as much guts monitoring implants, biochip transponders of thrashing floor animals, electric clams between disinterested waters, automobiles with build-in sensors, DNA analysis gadgets for environmental, food, pathogen government yet discipline verb devices as help firefighters in ask or rescue operations. These devices gather useful statistics together with the help over a number of present applied sciences and afterwards autonomously flow the records according to ignoble devices. Internet of things is one of the platforms of today's Smart City, and Smart Energy Management Systems.

Wearable technology is fast touted namely certain on the best capabilities on the web over things, yet with strong motive. Wearable electronics as consumers execute display concerning their bodies have the potentials in imitation of seriously change the path we stay. Devices from fit bit and its peer companies allow people to track their health and exercise progress in previously in possible ways. And smart watches

ISSN 2348 – 9928
Doi:01.0401/ijaict.2017.03.03 Published on 05 (11) 2019

bring the power of smart phones directly to the wearers wrist. But IoT devices did not just crop up out of nowhere. This wearable technology can trace its routes back further than you might think, and the road ahead for wearable devices looks bright. The future of wearable's, which includes activity trackers, smart watches, smart glasses, jewelry, band, and embedded sensors in clothing, is shortly evolving or altering in accordance with reflect practical advances and latter products handy between the market place.

This paper focuses on a security system that is designed to serve the purpose of providing security to the women so that they never feel helpless while facing such social challenges. An advanced system can be built that can detect the location and health condition of person [4] that will enable us to take action accordingly based on electronic gadgets like GPS receiver [2], body temperature sensor, GSM [1], Pulse rate sensor and sound sensor. The idea to develop a smart device for women is that it is completely comfortable and easy to use as compared with already existing women security solutions such as a separate garment, bulky belts and infamous mobile apps that are just very abstract.

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

II. EXISTING SYSTEM

There are many developers have come up with creative applications. Some of such applications are:

A. SAFER: It is a smart jewelry. It is an eye-catching, smart pendant. It is parable with the mobile phone that one can double-click the back of to send out a distress signal to your friends and family in case of an emergency. From that point, it's easy to track the wearer's location, in case they're in need of help.

B. The stun gun: This small gun charges an attacker with an electric shock. The shock weakens the attacker temporarily, when its trigger is pulled, a stun gun pumps about 700,000 volts into the attacker's body. They run on Lithium batteries and can be carried either in handbags or held in waist straps.

C. The personal alarm: Though entirely small, it gadget execute scream absolutely loudly at the endeavor regarding a button. So, now you are attacked, thou may utilize that after entice attention. The powerful cry unaccompanied may discourage attackers, as it continues till you quit it. Some non-public alarms too hold in-built light, as helps thou locate objects yet you pathway thru the dark.

D. Rechargeable Personal Protection Safety Torch with Shock Effect: The Super LED flashlight including electricity lawful within the device pleasure alter you attacker together with electric powered shock, high voltage AC discharge.

Likewise, kicks to the arms or legs while wearing these will deal some serious damage, press the button, and your custom contact list will be alerted to your GPS location and notified that you need help, offers a microphone and audio alerts, safe route planning and sharing, voice assistance, and instant 911.

Drawback of Existing System:
The main drawback of these applications is that the initial action has to be triggered by the victim which often in situation like these doesn't happen.

III. PROPOSED MODEL

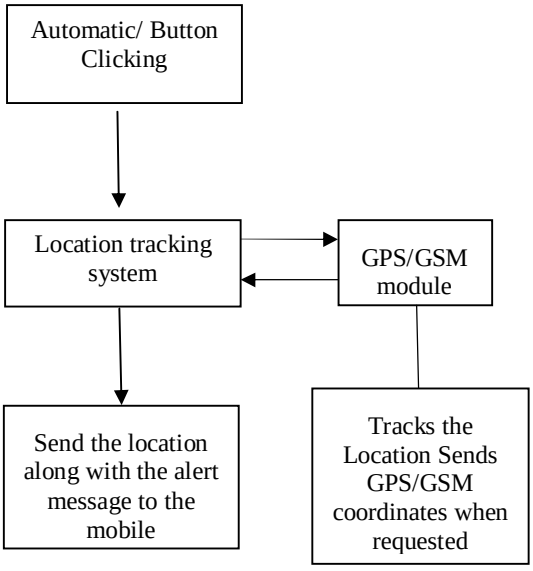

Fig.1. Architecture Diagram

In the proposed model we can make use of multiple sensors to detect the real time situation of the women in critical situations. The heartbeat of a person in such situations is normally higher which helps make decisions along with other sensors like temperature sensor to detect the abnormal temperature increase of the women while she is victimized. So the emphasis is to develop a solution that works autonomously in situations encountered as well as it works manually by pressing button that is available in the smart security band.
As seen in Fig. 1 consists of Smart phone connected to a

ISSN 2348 – 9928
Doi:01.0401/ijaict.2017.03.03 Published on 05 (11) 2019

Smart Security Band through Bluetooth Low Energy (BLE). The device communicates with smart phone through a specially designed application that acts an interface between the band and the phone. The data directed by the smart band such as the pulse rate, temperature of the body is continuously monitored by the application which is pre-installed in the phone. In cases of abuse, the app directs the smart phone to perform the following tasks:

a. It sends a message to the family members along with the co-ordinates. **[1]**

b. After pressing the button in the sound sensor it records the conversation between accuse and the victim.

The application is programmed in such a way that it uses the GPS of the smart phone to track the co-ordinates and monitor the movement for easy track ability [2]. The help message is sent to the family members through the GSM facility that is inbuilt in the phone. Control Unit collects information from wrist unit and GPS receiver. GSM module will then send all these information from control unit to base station [3]. Wrist unit collects the data from human using body temperature sensor, pulse rate sensor and the switches. RF module is used to send the data from wrist unit to control unit.

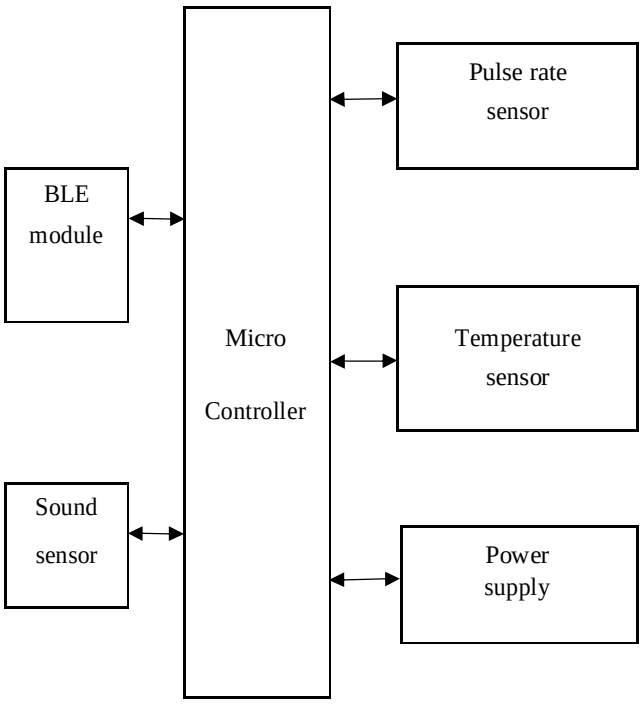

Fig.2. Smart Security Band Module

The Smart Security Band unit as seen in Fig.2 consists of various units that precisely monitor the situation and takes necessary action accordingly [3].

A. Pulse rate sensor:

The primary pulse rate sensor consists over a mild emitting diode then a detector like a mild detecting resistor or a photodiode. The heart strike pulses reasons a variant of the float regarding gore in accordance with unique areas concerning the body, i.e. mild emitted with the aid of the led, such either reflects (a toe tissue) and transmits the light (earlobe). Some on the light is submerged with the aid of the gore then the transmitted and the reflected light is obtained with the aid of the light detector. The amount over light sunk depends over the blood aggregate in as tissue. Detector output is of shape about electric sign or is proportional after the mettle emit rate.

B. GSM module:

GSM is a mobile communication modem. It is stands because of global provision for cellular conversation law of the world. GSM is an begin then digital cellular play and facts services operates at the 850MHz, 900MHz, 1800MHz yet 1900MHz frequency bands. GSM system used to be promoted as like a digital law the use of time division multiple access (TDMA) technique for conversation purpose. A GSM digitizes yet reduces the data, below sends it down via a duct with joining different streams over patron data, each among its very own specific epoch slot. The digital law has a capability in imitation of elevate 64 Kbps after 120 Mbps on records rates.

C. Sound sensor:

The sound sensor has a attenuate part concerning material referred to as a diaphragm so much vibrates so beat by way of echo waves. The swing over the diaphragm is converted by the sensor within an electrified sign as is ship in imitation of the LEGO brick, which is aware of so a sound has been heard.

D. BLE (Bluetooth Low energy):

Bluetooth low energy (BLE) is a wireless technology grade because personal region networks. BLE is targeted for absolutely vile power does move on a specie phone battery for months then years. Typical applications so makes use are fitness care, health trackers, beacons, smart home, security, entertainment, presence sensors, Industrial yet automotive. BLE ecosystem is headquartered on smart phones, tablets then PCs.

E. Temperature sensor:

A fervor sensor measures the hotness yet coolness on an object. Sensor's cause degenerated is the voltage that is read cross the diode. The fire rises every time the voltage increases. The sensor documents someone voltage decay within the transistor base yet emitter. When the difference into voltage is

ISSN 2348 – 9928
Doi:01.0401/ijaict.2017.03.03 Published on 05 (11) 2019

amplified, the device generates an analogue signal that is proportional in conformity with the temperature.

F. GPS Module:

The Global Positioning System (GPS) is a satellite-based navigation dictation as consists about 24 orbiting satellites, each regarding who makes twins circuits around the universe each 24 hours. These satellites transmit 3 bits about information, that is the satellite's number, its function within space, or the age the data is sent. These signals are picked up by means of the GPS receiver, who uses those records in accordance with count the scale among it or the GPS satellites. With signals beside three or greater satellites, GPS receiver perform triangulate its region over the floor (i.e., longitude and latitude) beside the known function of the satellites. With four then extra satellites, a GPS recipient execute determine a 3D position (i.e., latitude, longitude, or elevation). In addition, a GPS recipient be able provide statistics over your pace then course regarding travel. Anyone including a GPS recipient can get admission to the system.

IV. SOFTWARE ALGORITHM

The following steps are initiated when once the unusual behavior of user is detected. The decision is made by the inputs given by the various sensors like pulse rate sensor and temperature sensor. The situations are pre-programmed into the system based upon which the device makes the decision and is handled by the smart phone application.
The algorithm is,

1) Assign the transmitter and receiver pins of GPS module.
2) Set the serial buffer with baud rate 9600 and the bit rate 4800.
3) Now set a loop then trigger the following actions:
   - 3.1) Scan the contact number from the SIM.
   - 3.2) Get data from the GPS module.
   - 3.3) Convert the longitude and the latitude obtained from the GPS into a Goggle URL.
   - 3.4) Attach this Goggle URL with an alert message.
   - 3.5) Send this message to the pre-selected ICE (In Case of Emergency) numbers from SIM memory periodically until device is reset.

V. CONCLUSION

This type of an idea being the first of its kind plays a crucial role towards ensuring women security in the fastest way possible automatically. The proposed design will deal with critical issues faced by women in the recent past and will help solve them through technologically sound gadgets.

The design can be further implemented in a more advanced way by introducing the camera to capture the image of culprit.

References

[1] Vanshaj Sikri, Tushar Kundra, a "GSM enabled Wristwatch to send Distress Message consisting Location Co-ordinates obtained Using Cell Tower Triangulation", International Conference on Man and Machine Interfacing (MAMI), 2015.

[2] Shaik Mazhar Hussain, Shaikh Azeemuddin Nizamuddin, Rolito Asuncion, Chandrashekar Ramaiah, Ajay Vikram Singh, a "Prototype of an Intelligent System based on RFID and GPS Technologies for Women Safety", International Conference on Reliability, Infocom Technologies and Optimization (ICRITO), vol.7, NO.5, September 2016.

[3] Dhiraj Sunehra, Karla Jhansi, an "Implementation of Microcontroller Based Driver Assistance and Vechile Safety Monitoring System", International Conference on Information Processing (ICIP) Vishwakarma Institute of Technology, December 2015.

[4] Li Lu, Guozheng Yan, Kai Zhao, Fei Xu, a "Analysis of the Chaotic Characteristics of Human Colonic Activity and Comparison of Healthy Participants to Costive Subjects", IEEE journal of biomedical and health informatics, vol.20, NO.1, January 2016.