LIVE WATCHING OF CABS FOR WOMEN SAFETY

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Abstract: Every day, every woman, young girls, mothers and women from all walks of life are struggling to be safe and protect themselves from the roving gaze of the horribly insensitive men who molest, assault, and violate the dignity of women on a daily basis. The streets, public transport, public places in particular have become the dominion of the hunters. Due to these atrocities that women are subjected to in the present scenario. A smart security wearable device for women based on the Internet of Things is proposed. It is implemented and comprises Raspberry Pi, Raspberry Pi camera, buzzer and button to activate the services. This device is extremely remote and can be activated by the victim on being attacked just by the click of a button that will fetch her current location and also capture the image of the attacker via Raspberry Pi camera. The location and the link of the image captured will be sent to predefined emergency contact number or police via smartphone of the victim thus preventing the use of additional hardware devices/modules and making the device compact. The USB camera video data are collected by the embedded Linux system. The live video streaming is performed using the web camera and live location is achieved by GPS module.

Keywords — video capture, video compression, video streaming, Raspberry Pi.

I. INTRODUCTION

Women are the backbone of any economy primarily shaping the future of the country. In the present scenario, women are keeping pace with men in every walk of life but unfortunately at the cost of being subjected to abuse, harassment, violence in public and even at their own houses. They cannot step out of their houses at any time of the day. This system is implemented by Raspberry Pi Zero. There are many apps like Be safe, with you, so most of the apps work on tracking alert models. That means the user selects a number of contacts from the contact list. Then the user sends an sos signal. When the power is off, then the total system will be off. The Raspberry Pi Zero is slower than the Raspberry Pi 3. It is used to develop a device which can protect women in such situations where communication via mobile also become challenging. Raspberry Pi3 is used for interfacing Raspberry Pi camera and buzzer, a buzzer module emits a high frequency alarm to draw the attention of the public towards the victim, a camera that captures the image of the criminal when the victim is being attacked thus helping in criminal apprehension on pressing of a button, a message sending module that is used to send the current location of the victim tracked via GPS of the user's smartphone and the link of the image captured via Raspberry Pi camera to the emergency contact numbers using SMS. Live video is streaming on emergency contact number. If there is any case of crime it becomes evidence produced to court. An embedded system are often defined as a computer that does a selected focused job. Applications like the air-conditioner, VCD player, DVD player, printer, fax machine, mobile etc. are examples of embedded systems. Each of those appliances will have a processor and special hardware to satisfy the precise requirement of the appliance along side the embedded software that's executed by the processor for meeting that specific requirement.

1 Block Diagram:
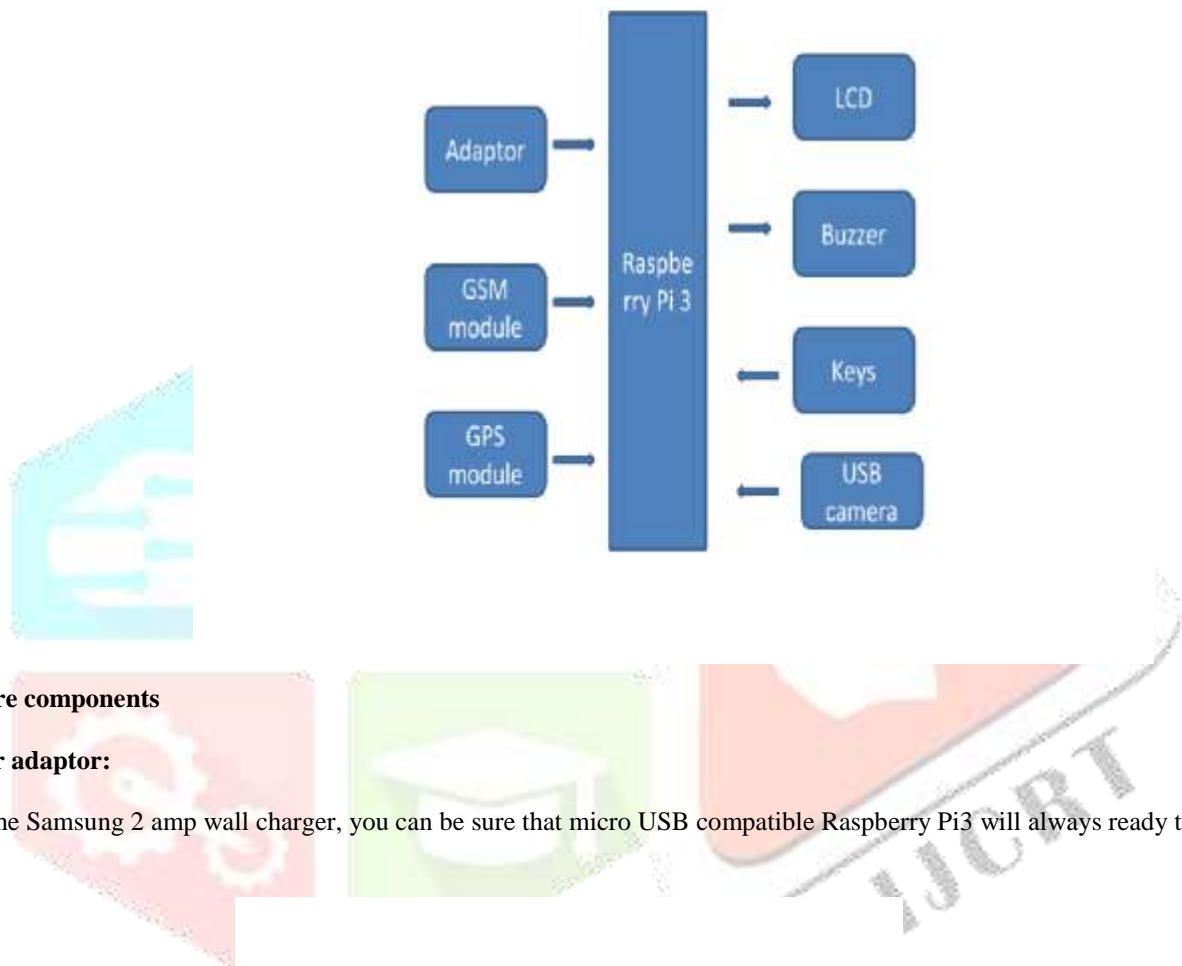
2. Hardware components

2.1 power adaptor:

With the Samsung 2 amp wall charger, you can be sure that micro USB compatible Raspberry Pi3 will always ready to use

Figure1 power adaptor

2.2 Raspberry Pi Model B :

Raspberry Pi may be a credit-card sized computer that plugs into your TV and a keyboard. It is a capable little computer which may be utilized in electronics projects, and for several of the items that your desktop PC does,

like spreadsheets, word-processing and games. It also plays high-definition video. The Raspberry Pi has the power to interact with the surface World, and has been utilized in a good array of digital maker projects, from music machines and parent detectors to weather stations and tweeting bird houses with infrared cameras. There are currently four Raspberry Pi models. They are the model A, the model B, the model B+ and the compute module. All models use the same CPU, the BCM2835 but other hardware features differ.

Figure Raspberry Pi 3 module

2.3 GSM module SIM900A :

SIM900A is built with Dual Band GSM/GPRS based SIM900A modem from SIMCOM. It works on frequencies 900/1800 MH. SIM900A can search these two bands automatically. The frequency bands can also be set bt AT commands. The baud is configurable from 1200-115200 through AT command. The GSM/GPRS modem has an internal TCP/IP stack to enable you to attach with the internet via GPRS. SIM900A is an ultra compact and reliable wireless module. This is an entire GSM/GPRS model really "> during a SMT type and designed with a very powerful single-chip processor integrating AMR926EJ-S core, allowing you to profit from small dimensions and cost-effective solutions. Feature of GSM module:

.Dual-Band 900/1800 MHz
. GPRS multi-slot class 10/8GPRS mobile station class B
. Compliant to GSM phase 2/2+
. Dimensions: 24*24*3 mm
. Weight: 3.4 g
. Supply voltage range: 5v
. Low power consumption: 1.5mA(sleep mode)

Figure GSM module

2.4 GPS receiver model 1141 :

GPS satellites broadcast signals from space that GPS receivers use to provide three-dimensional location plus precious time. GPS receivers provide reliable positioning, navigation, and timing services to users across the globe on a continuous basis in all weather, day and night, anywhere on or near earth.

Figure GPS module

Features of GPS module:

. High sensitivity - 159dBm

. Searching up to 32 channels of satellites

. LED indicating data output

. Low power consumption

. Supports NMEA0183v 3.01 data protocol

. RTCM- in ready

. Built- in WAAS/EGNOS/MSAS Demodulator

. Real time navigation for location based services

2.5 switches or pushbuttons:

This is the simplest way of controlling the appearance of some voltage on a microcontrollers input pin. This is about something commonly unnoticeable when using these components in lifestyle . It is about contact bounce, a standard problem with mechanical switches. If contact switching does not happen so quickly, several consecutive bounces can be noticed prior to maintaining stable state. The reasons for this are: vibration, slight rough spots and dirt.

Figure switch

2.6 USB camera:

Our undertaking camera is utilizing consistently gushing the video of the found place. The details are demonstrated as follows.

Particulars:

. Built-in mic with commotion decrease

. Interpolated to 25 Megapixels

. 10 level zoom on live motion picture

. Special visual effects

. True motion picture

Fundamental Requirements:

. 1 GHz

. 512 MB RAM or more

. 200 MB hard drive space

. Internet association

. USB 1.1 port

2.7 Buzzer:

The piezo buzzer produces sound based on the reverse of the piezoelectric effect. The generation of pressure variation or strain by the appliance of electrical potential across a piezoelectric material is that the underlying principle. These buzzers are often wont to alert a user of an occasion like a switching action, counter signal or sensor input. They are also used in alarm circuits.

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Figure buzzer

2.8 Liquid Crystal Display:

LCD stands for Liquid Crystal Display. LCD is finding widespread use replacing LED's (seven segment LEDs or multi segment LEDs) because of the following reasons:

. The declining prices of LCD's.

. the power to display numbers, characters and graphics. This is in contrast to lJED's, which are limited to numbers and a
 Few characters.

. Incorporation of a reloading controller into the LCD, there by relieving the CPU of the task of reloading the LCD. In
 contrast the LED must be refreshed by the CPU to stay displaying the info .

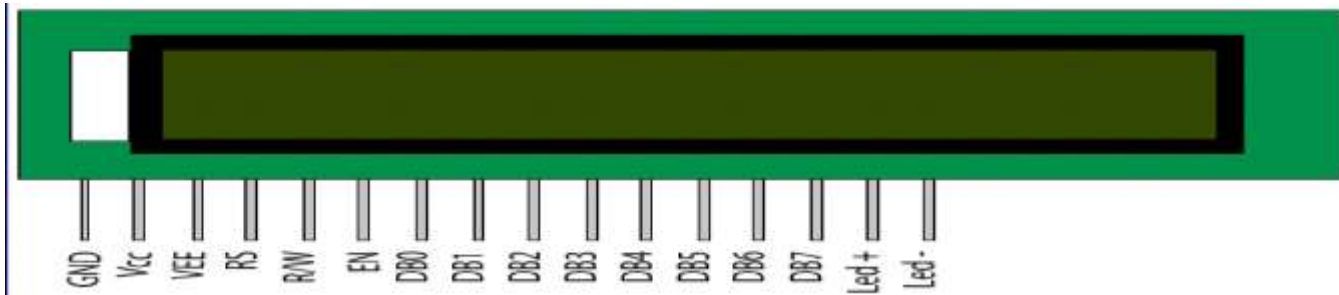. Ease of programming for characters and graphics.

Figure LCD display

4. Result:

The Raspberry pi based women safety system is successfully designed. In case of emergency users need to press a button, then a message is sent to concerned care takers/ parents and/or police using GSM.
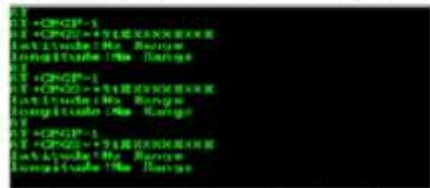

Fig.5.1 GPS tracking the current location

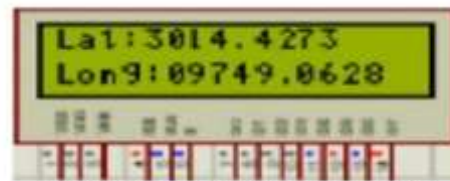Fig.5.2 SMS send to the registered numbers

Fig.5.3 Location detected on LCD

Software results

5. Conclusion:

The project mainly focuses on the low cost implementation of the device which can save the life of the women in the critical condition the proposed system provides end to end security solutions for women safety using the advanced technologies of IoT along with combined hardware technology like Raspberry pi.

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