ISSN (Print) : 2320 – 3765
ISSN (Online): 2278 – 8875

International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

(A High Impact Factor, Monthly, Peer Reviewed Journal)

Website: www.ijareeie.com

Vol. 8, Issue 5, May 2019

IOT Based Women's Security System

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ABSTRACT: The main aim of project to the process of real time women security purpose, As we know we celebrate 8march is an International women's day. Now a day the harassment case, sexual violence against women's is increase day by day so that we design such a project for women's safety name as "IOT base women security system. In this project GSM & GPS module is work as sending sms and track the location of people found in dangerous situation. So we design such project only for the help of women security and avoid to the women violence.

KEYWORDS: ATMEGA328 / ARDUINO, GPS Module, GSM Module, WI-FI Module ,Women's ,Security.

I.INTRODUCTION

We know those now days the crimes against the women's are increasing day by day. The women's are not safe in their own cities. Every day we see at least one news on women's harassment.

So as considering today's situation we design such a project for women's security, named as 'IOT based women's security system'. In this project we uses GSM Module, GPS Module, these modules are transferring message and locating the actual location of for the person.

This project have additional advantage, this is IOT based due to this data stored by using WI-FI module through the think-speaker server. The system makes uses of AEMEGA328 ardiuno-uno board, LCD display, GSM for sending data, GPS for location tracking, WI-FI module for sending data on server, it required 12v power supply.

It has a manual switch, when switch is pressed data sending process will be start. The think-speak data is send to the graphical format. So this system helps to the women's security.

II. INTERNET OF THINGS

The Internet of things (IoT) is the extension of Internet connectivity into physical devices and everyday objects. Embedded with electronics, Internet connectivity, and other forms of hardware (such as sensors), these devices can communicate and interact with others over the Internet, and they can be remotely monitored and controlled.

The definition of the Internet of things has evolved due to the convergence of multiple technologies, real-time analytics, machine learning, commodity sensors, and embedded systems. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), and others all contribute to enabling the Internet of things. In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", covering devices and appliances (such as lighting fixtures, thermostats, home security systems and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers. The IoT concept has faced prominent criticism, especially in regards to privacy and security concerns related to these devices and their intention of pervasive presence.

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III. KEY FEATURES OF THE SYSTEM

The main key feature of the women's security system are, it will automatically sends the message using GSM. GPS will automatically trace the position of a user who is in danger. GPS track the position sending suitable message like GPS to smart phone . GPS location can be easily locate on Google map or Google earth. Then through the WI-FI module longitude and latitude will send on server.

IV. SYSTEM SETUP

The setup requires the Arduino Uno board. This is the main block of the system. The GPS & GSM is used for tracing location and sending message respectively. A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone.
GSM Modem comes in interfaces like USB, and Serial. GSM Modem is however the main difference is that GSM Modem is wireless, while dial-up modem is wired (telephone previously).
A GPS modem is a specialized type of modem which detects location from satellite directly with longitude and latitude coded format. GPS Modem comes in interfaces like USB, and Serial. GPS Modem is However global positioning system.
GPS is used here to interface with microcontroller and microcontroller command to the GPS modem with AT (abbreviation of Attention) command set implemented in our program. If voltage difference in microcontroller and GPS modem voltage level shifter IC required using.

A.BLOCK DIAGRAM

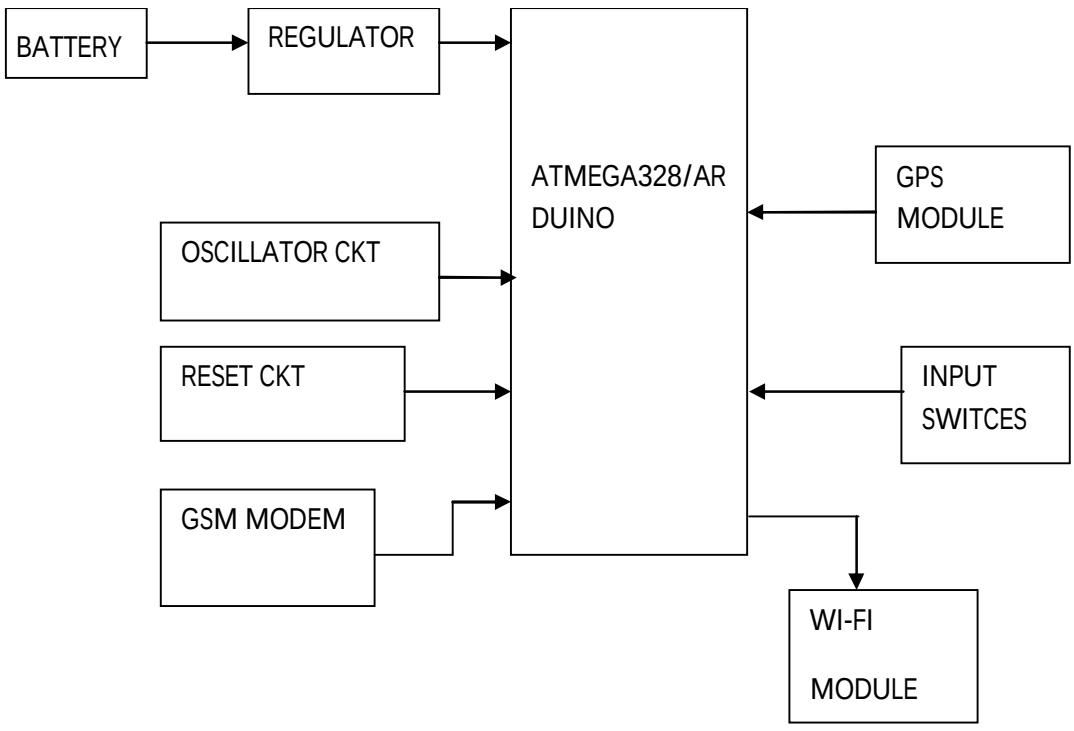

Figure 1: Block diagram of IOT based s women's security system

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B.CIRCUIT DIAGRAM

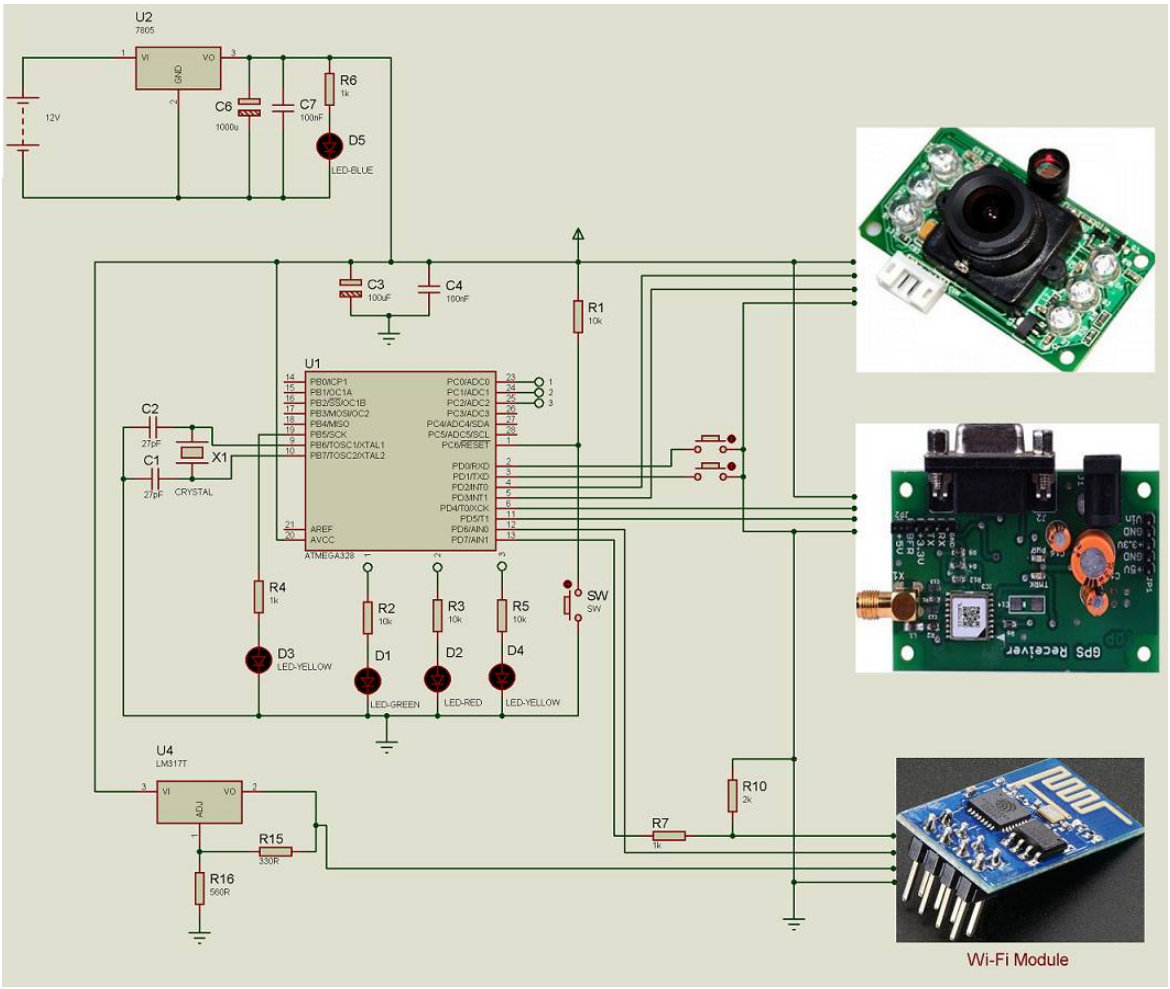

Figure 2: circuit diagram of women's safety device using IOT

V. MODULES WITH WORKING PRINCIPLE

Here circuit requires 5V and 12V regulated DC supply. We used here 230V to 12V-0-12V step down transformer. The output AC of transformer 12V is rectified by center tap rectifier. Rectified output is pulsating it is pure by the capacitor filter of 1000uf 25V. Now the out of capacitor is DC 12V-15V to charge the battery, which is required to convert in 5V for other circuit it is regulated for microcontroller and other devices, here we have used LM7805 regulator for getting 5V regulated DC, For LCD display and ultrasonic sensors. And LM317 for 3.3V supply for Wi-Fi module. LED red and LED blue is used to indicate 5V and 12V supply with current limiting resistor of 2.2K and 1K ohm.

MCU (atmega328 microcontroller) works with 16MHz frequency used for (timer configuration), the unwanted frequency produced is bypassed by the capacitor of 27pf capacitor. Reset pin is connected to resistor of 10K whenever reset requires the reset switch (2 lead push to ON switch/ micro push to switch) required pressing.

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Atmega328 microcontroller pins 14, 15, 16, 17, 18, 19 are connected to LCD as RS, E, D4, D5, D6, D7 respectively. LCD shows text as our programming conditions.

Pin 0 RXD (0) and 1 TXD (1) are serial communication pins used to interface with GPS and GSM modem. These modem has TXD and RXD pins for transmitt and receive data or commands serially. Microcontroller (arduino board) works with 5V DC and GPS/ GSM works with same supply so level shifter IC not required to communicate each other. In GSM module fast LED blinking notify searching for network connectivity. Slowly blink notify connected with network, now we can transmitt SMS with location in longitude and latitude format.

Wi-Fi modem is connected to 12 and 13 pin of microcontroller to TX and Rx pin for Wi-Fi modem ESP8266. It requires 3.3V supply provided with LM317 variable voltage regulator, with 330 ohm and 560 ohm resistors.

Buzzer is just used for notification alert that dust been is full, controlled via 3 pin of microcontroller, transistor is used to driver buzzer to provide proper required current.
All capacitors of 0.1uf & 100uf connected to reduce unwanted spikes in the circuit, spikes produced by inductive load/ sparking contacts of loads. Capacitor of 1000uf/25V at regulator output is connected for the cancel loading effect in the circuit while driving the high current source.

VI. RESULT & CONCLUSION

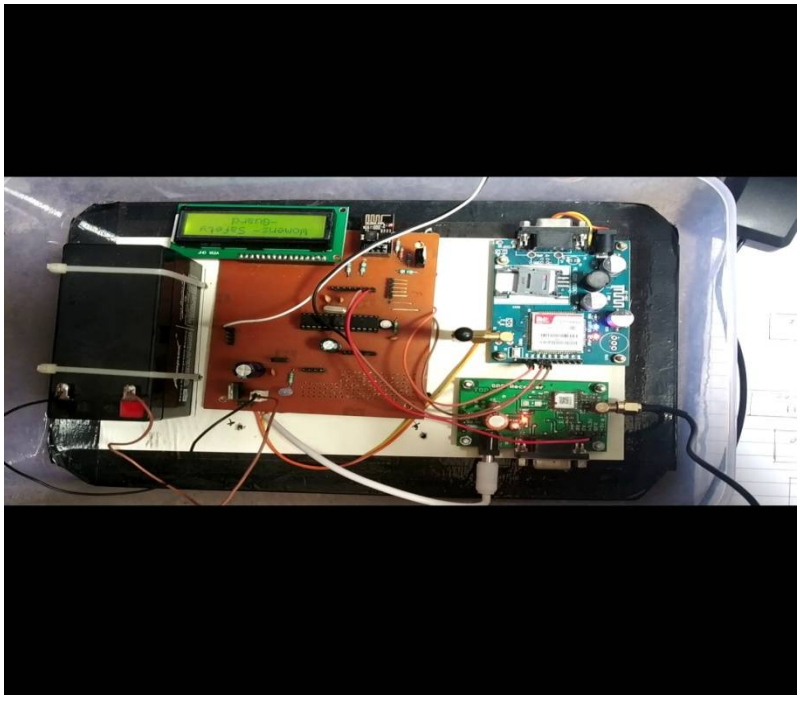

Figure 3: Implemented prototype

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A safety device for women, which can be carried using "INTERNET OF THINGS". This may help women when there is any emergency. The GPS sends message automatically to the nearby police station and relatives by tracking their location. This may help women to move freely wherever she wants. Being safe and secure is the demand of the day. Our effort behind this project is to design and fabricate a gadget which is so compact in itself that provide advantage of personal security system. This design will deal with most of the critical issues faced by women and will help them to be secure. This system helps to decrease the crime rate against women.

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