

# Self Defense System for Women Safety with Location Tracking and SMS Alerting

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## Abstract:

In global scenario, the prime question in every girls mind is about her safety and the harassment issues. The only thought haunting every girl is when they will be able to move freely on the streets even in odd hours without worrying about their security. This project suggests a new technology to protect women. This project focuses on a security for women so that they will never feel helpless. This project is based on women security where women feel protected. This paper describes about safety electronic system for women. The system consists of various modules such as GPS, Panic Switch, Microcontroller, Buzzer, etc.

## Keywords:

Panic Switch, Microcontroller, Buzzer

## I. INTRODUCTION

In this chapter, we will learn about the different components on the Arduino board. We will study the Arduino UNO board because it is the most popular board in the Arduino board family. In addition, it is the best board to get started with electronics and coding. Some boards look a bit different from the one given below, but most Arduinos have majority of these components in common. Various kinds of Arduino boards are available depending on different microcontrollers used. However, all Arduino boards have one thing in common: they are programmed through the Arduino IDE. The thought of harassing every women is when they will be able to move freely on the streets in odd hours without worrying about their security. A new technology to protect women by focusing on a security so that they will never feel helpless. The system consists of various modules such as GPS, Panic Switch, Microcontroller, Buzzer, etc. The differences are based on the number of inputs and outputs (the number of sensors, LEDs, and buttons you can use on a single board), speed, operating voltage, form factor etc. Some boards are designed to be embedded and have no programming interface (hardware), which you would need to buy separately. Some can run directly from a 3.7V battery, others need at least 5V

Supply of 230V, 50Hz ac signal from main supply board is given to a step down transformer. In this system it is used to step down 230V AC to 12V AC supply and provides isolation between power grids and circuit. A rectifier is an electrical device that converts alternating current (AC), which periodically reverses direction, to direct current (DC), which flows in only one direction. The output from the rectifier is pulsating D.C. These pulsations are due to the presence of A.C. component in the rectifier output. The filter circuit removes the A.C. component so that steady D.C. voltage is obtained across the load.

## II. PROPOSED MODEL

A regulated power supply consists of an ordinary power supply and voltage regulating device. The output of ordinary power supply is fed to the voltage regulator which produces the final output. We provide a reliable security system for the safety of women and women using IOT technology which includes live monitoring and it also over comes the disadvantages of existing methodologies.

The location of the women is transferred to the cloud continuously using IOT module and GPS. In case of emergency the user can ask for help by pressing the Panic button. If the panic button goes high the notification will send to the authorized person. The system now sends her location to the authorized personnel number through SMS message as a security measure. The buzzer sounds continuously so that nearby people may realize the situation. The development idea is also extended to the automatic exhausting of laughing gas when the emergency panic switch is pressed. After this the live location of the women is continuously monitored using IOT technology.

**ARDUINO IDE:** Arduino is a prototype platform (open-source) based on an easy-to-use hardware and software. It consists of a circuit board, which can be programmed (referred to as a microcontroller)

and a ready-made software called Arduino IDE (Integrated Development Environment), which is used to write and upload the computer code to the physical board.

The key features are –

Arduino boards are able to read analog or digital input signals from different sensors and turn it into an output such as activating a motor, turning LED on/off, connect to the cloud and many other actions. You can control your board functions by sending a set of instructions to the microcontroller on the board via Arduino IDE (referred to as uploading software). Unlike most previous programmable circuit boards, Arduino does not need an extra piece of hardware (called a programmer) in order to load a new code onto the board. You can simply use a USB cable.

Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program. Finally, Arduino provides a standard form factor that breaks the functions of the microcontroller into a more accessible package. In this chapter, we will study in depth, the Arduino program structure and we will learn more new terminologies used in the Arduino world. The Arduino software is open-source. The source code for the Java environment is released under the GPL and the C/C++ microcontroller libraries are under the LGPL.

**Sketch** – The first new terminology is the Arduino program called “**sketch**”. Structure. Arduino programs can be divided in three main parts: **Structure**, **Values** (variables and constants), and **Functions**. In this tutorial, we will learn about the Arduino software program, step by step, and how we can write the program without any syntax or compilation error.

Let us start with the **Structure**. Software structure consist of two main functions –

- Setup( ) function

- Loop( )function

```

sketch_nov29a $
void setup()
{
}
void loop()
{
}

```

**PURPOSE** – The **setup()** function is called when a sketch starts. Use it to initialize the variables, pin modes, start using libraries, etc. The setup function will only run once, after each power up or reset of the Arduino board.

**INPUT** – -

**OUTPUT** – -

**RETURN** – -

**PURPOSE** – After creating a **setup()** function, which initializes and sets the initial values, the **loop()** function does precisely what its name suggests, and loops consecutively, allowing your program to change and respond. Use it to actively control the Arduino board.

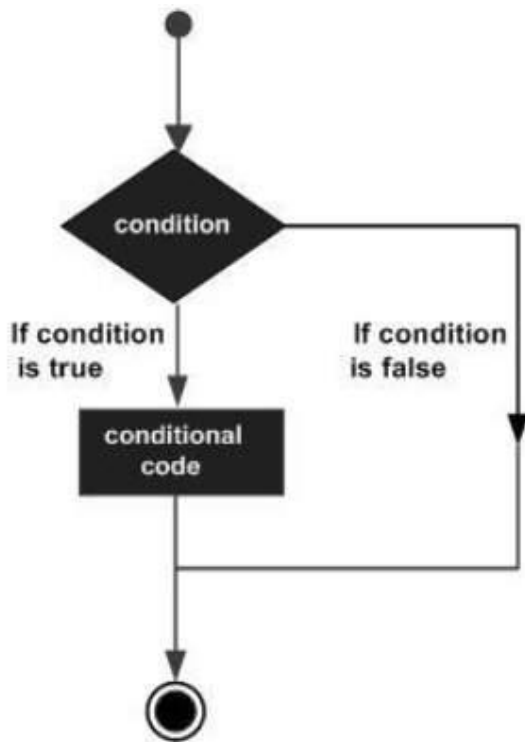
**INPUT** – -

**OUTPUT** – -

**RETURN** – -

Decision making structures require that the programmer specify one or more conditions to be evaluated or tested by the program. It should be

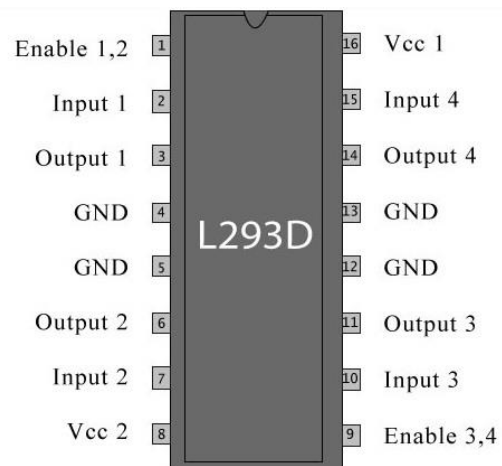
along with a statement or statements to be executed if the condition is determined to be true, and optionally, other statements to be executed if the condition is determined to be false. Following is the general form of a typical decision making structure found in most of the programming languages



**MOTOR DRIVER : L293D Description**L293D is a typical Motor driver or Motor Driver IC which allows DC motor to drive on either direction. L293D is a 16-pin IC which can control a set of two DC motors simultaneously in any direction. It means that you can control two DC motor with a single L293D IC. Dual H-bridge Motor Driver integrated circuit(IC).The l293d can drive small and quiet big motors as well, check the Voltage Specification at the end of this page for more info. You can Buy L293D IC in any electronic shop very easily and it costs around 70 Rupees (INR) or around 1 \$ Dollar (approx. Cost) or even lesser cost. You can find the necessary pin diagram,

working, a circuit diagram, Logic description and Project as you read through. Concept, It works on the concept of H-bridge. H-bridge is a circuit which allows the voltage to be flown in either direction. As you know voltage need to change its direction for being able to rotate the motor in clockwise or anticlockwise direction, Hence H-bridge IC are ideal for driving a dc motor.

**L293D PIN DIAGRAM**



**WORKING OF L293D:**There are 4 input pins for l293d, pin 2,7 on the left and pin 15 ,10 on the right as shown on the pin diagram. Left input pins will regulate the rotation of motor connected across left side and right input for motor on the right hand side. The motors are rotated on the basis of the inputs provided across the input pins as LOGIC 0 or LOGIC 1.In simple you need to provide Logic 0 or 1 across the input pins for rotating the motor. **Voltage Specification** VCC is the voltage that it needs for its own internal operation 5v; L293D will not use this voltage for driving the motor. For driving the motors it has a separate provision to provide motor supply VSS (V supply). L293d will use this to drive the motor. It means if you want to operate a motor at 9V then you need to provide a Supply of 9V across VSS Motor supply. The maximum voltage for VSS motor supply is 36V. It can supply a max current of 600mA per channel.

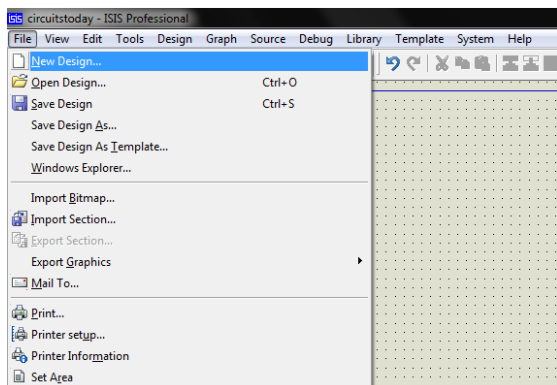
Since it can drive motors Up to 36v hence you can drive pretty big motors with this I293d.

### PROTEUS 8:

It is containing **schematic, simulation** as well as **PCB designing**. **ISIS** is the software used to draw schematics and simulate the circuits in real time . The simulation allows human access during run time, thus providing real time simulation. **ARES** is used for PCB designing. It has the feature of viewing output in 3D view of the designed PCB along with components. The designer can also develop 2D drawings for the product. **Features** ISIS has wide range of components in its library. It has sources, signal generators, measurement and analysis tools like oscilloscope, voltmeter, ammeter etc., probes for real time monitoring of the parameters of the circuit, **switches, displays**, loads like motors and lamps, discrete components like resistors, capacitors, inductors, transformers, digital and analog Integrated circuits, semi-conductor switches, relays, microcontrollers, processors, sensors etc.

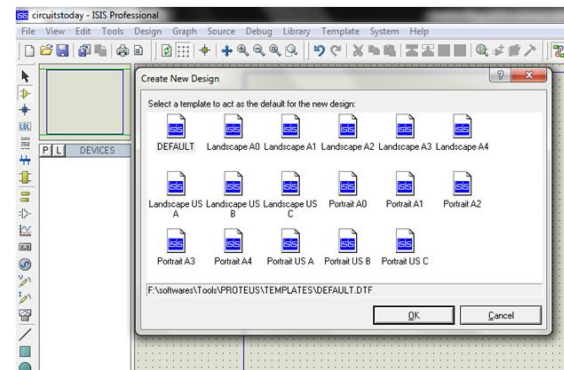
### Starting New Design

**Step 1:** Open ISIS software and select New design in File menu

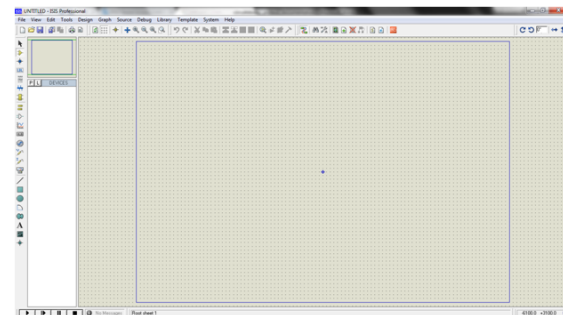


**Step 2:** A dialogue box appears to save the current design. However, we are creating a new design file so you can click Yes or No depending on the content of the present file. Then a Pop-Up appears asking to select the template. It is similar to

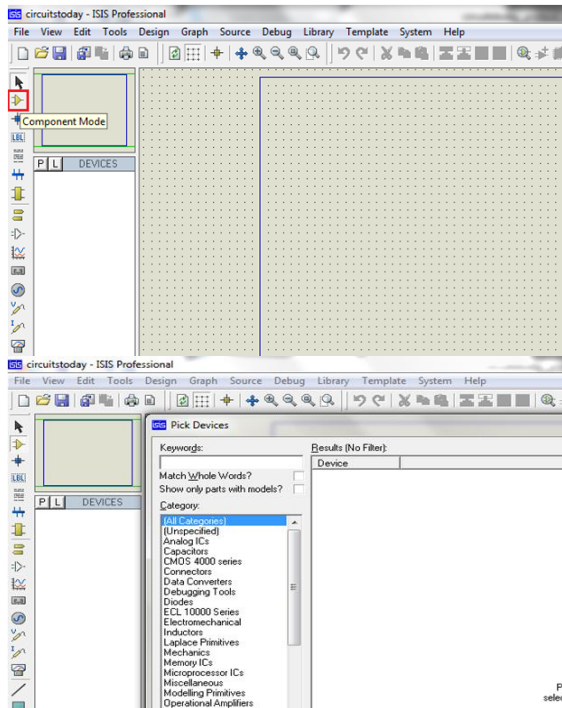
selecting the paper size while printing. For now select default or according to the layout size of the circuit.



**Step 3:** An untitled design sheet will be opened, save it according to your wish it is better to create a new folder for every layout as it generates other files supporting your design. However, it is not mandatory.



**Step 4:** To Select components, Click on the component mode button.



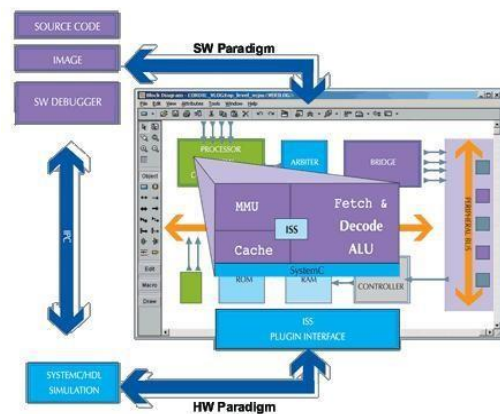
**RELAY:** A relay is an electrically operated switch. Current flowing through the coil of the relay creates a magnetic field which attracts a lever and changes the switch contacts. The coil current can be on or off so relays have two switch positions and they are double throw (changeover) switches. Relays allow one circuit to switch a second circuit which can be completely separate from the first. For example a low voltage battery circuit can use a relay to switch a 230V AC mains circuit. There is no electrical connection inside the relay between the two circuits; the link is magnetic and mechanical. Relays are very simple devices. There are four major parts in every relay.

**Choosing relay: Physical size and pin arrangement:** If you are choosing a relay for an existing PCB you will need to ensure that its dimensions and pin arrangement are suitable. You should find this information in the supplier's catalogue. **Coil voltage:** The relay's coil voltage rating and resistance must suit the circuit powering

the relay coil. Many relays have a coil rated for a 12V supply but 5V and 24V relays are also readily available. Some relays operate perfectly well with a supply voltage which is a little lower than their rated value. **Coil resistance:** The circuit must be able to supply the current required by the relay coil.

You can use Ohm's law to calculate the current

**DESIGN OF EMBEDDED SYSTEM:** Intelligent, programmable and computing electronic device designed to perform specific tasks based on a fixed time frame. An embedded system is a combination of hardware and software, perhaps with some mechanical and other components designed to perform a specific task.



### III.RESULT

IoT Platform empowering innovators and industries to prototype and scale IoT projects to production. Use the Ubidots platform to send data to the cloud from any Internet-enabled device. A cost effective GPS-GPRS based women tracking and safety system using android mobile Smart alert service for women safety system. Intelligent safety system for women security. Advanced system for vehicle and women safety. Rescue system for the

safety of women by using arduino controller could be implemented and designed.

#### IV.CONCLUSION

This device will prove to be very useful in saving lives as well as preventing atrocities against women. The device uses GPS sensor along with panic switch and emergency laughing gas exhaust system and IOT based circuit to achieve this system.

#### V.REFERENCES

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