PRIYADARSHINI J.L. COLLEGE OF ENGINERRING, NAGPUR

DEPARTMENT OF ARTIFICIAL INTELLIGENCE

PROJECT NAME: HOUSE SAFETY ALARM

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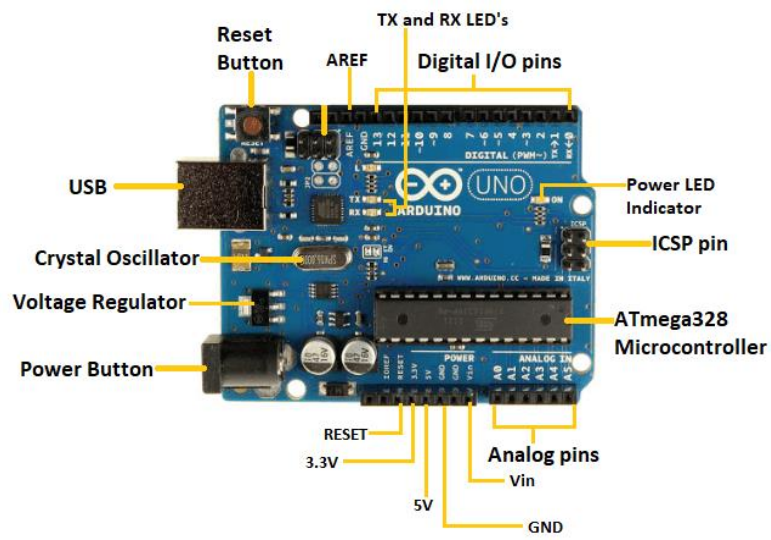
COMPONENTS USED IN PROJECT

1. Arduino UNO
2. Ultrasonic Sensor
3. GSM Module
4. Voltage Regulator Step Down
5. Jumper Wires
6. LED Lights
7. SIM Card
8. Mobile
9. 12V Charging Adapter

EXPLANATIONS OF MODULES

- ## Arduino UNO

Arduino Uno is an open-source microcontroller board based on the processor ATmega328P. There are 14 digital I/O pins, 6 analog inputs, a USB connection, a power jack, an ICSP header, and a reset button. It contains all the necessary modules needed to support the microcontroller. Just plug it into a computer with a USB cable or power it with an adapter to get started.



- Ultrasonic Sensor

An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves, and converts the reflected sound into an electrical signal.

Ultrasonic waves travel faster than the speed of audible sound (i.e. the sound that humans can hear).

Ultrasonic sensors have two main components: the transmitter (which emits the sound using piezoelectric crystals) and the receiver (which encounters the sound after it has travelled to and from the target).

- **GSM Module**

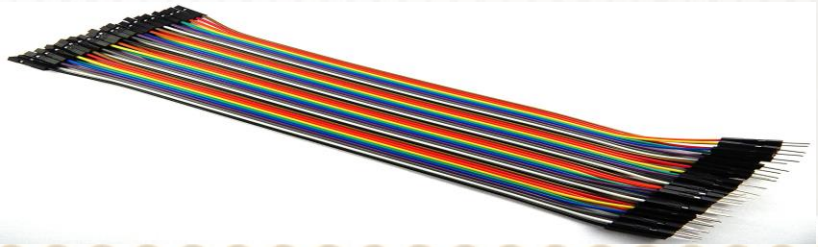
A customised Global System for Mobile communication (GSM) module is designed for wireless radiation monitoring through Short Messaging Service (SMS). This module is able to receive serial data from radiation monitoring devices such as survey meter or area monitor and transmit the data as text SMS to a host server.

- **Voltage Regulator Step Down**

A step down converter—also known as a buck converter—converts high voltage to low voltage, usually transforming AC current to DC current. A voltage regulator maintains a constant output voltage for a circuit, regardless of any changes in connected devices or electrical load.

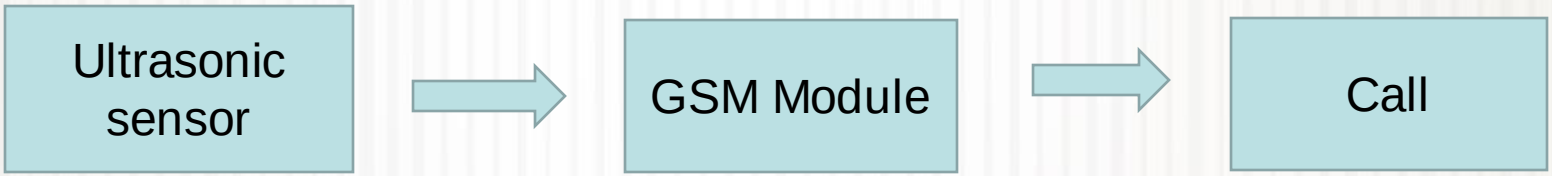
- **Jumper Wires**

A jumper wire is an electric wire that connects remote electric circuits used for printed circuit boards. By attaching a jumper wire on the circuit, it can be short-circuited and short-cut (jump) to the electric circuit.

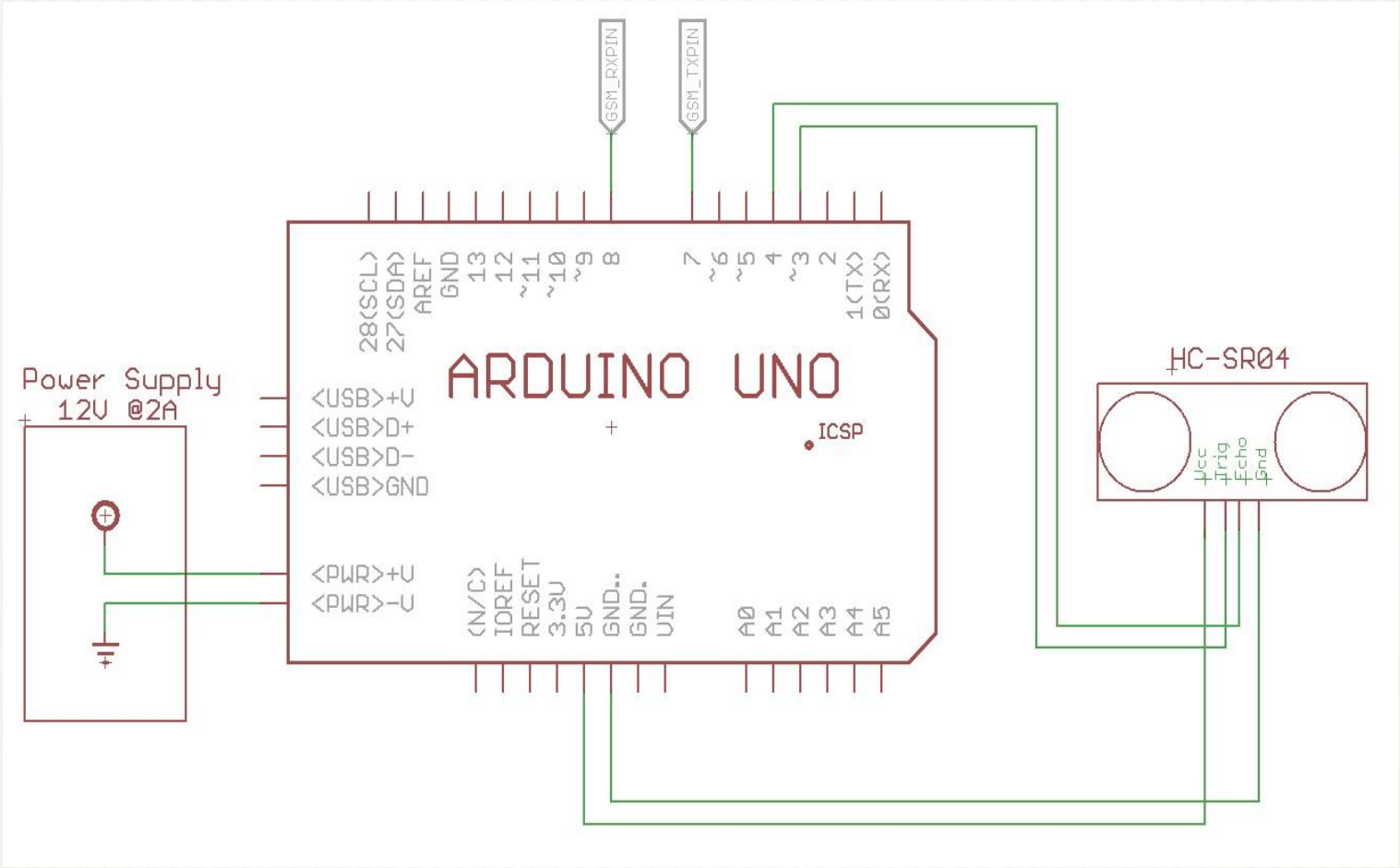


WORKING OF PROJECT

- Working this **House Saftey Alarm** is very easy. Whenever anyone comes in the path/range of Ultrasonic Sensor, microcontroller detects the distance of object from the sensor and if the object is in the defined range, it sends the High signal to the GSM module and it make call or sms.



CIRCUIT DIAGRAM OF PROJECT



CONCLUSION

- Thus, we have designed a home security alarm system using Arduino and Ultrasonic Sensor , which is handy, portable, cost-effective and highly effective as well. Such alarm system are hugely in demand for security purpose, and thus the given system can be proved useful and effective in view of the above features.

THANK YOU