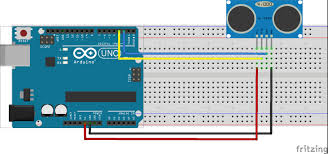
EXPERIMENT-: 6

Ultrasonic sensor with obstacle detector and distance measurement

DIAGRAM:



# Theory:-

## Concept used:-

ULTRASONIC SENSOR: Ultrasonic detection is most commonly used in industrial applications to detect hidden tracks, discontinuities in metals, composites, plastics, ceramics, and for water level detection. For this purpose the laws of physics which are indicating the propagation of sound waves through solid materials have been used since ultrasonic sensors using sound instead of light for detection.

Sound waves are having specific frequencies or number of oscillations per second. Humans can detect sounds in a frequency range from about 20Hz to 20 KHz. However the frequency range normally employed in [ultrasonic detection](https://www.edgefxkits.com/object-detection-by-ultrasonic-means) is 100 KHz to 50MHz. The velocity of ultrasound at a particular time and temperature is constant in a medium.

***Learning and Observation:-Leanings:***

* *I have learned about how to make a series circuit using an arduino and breadboard.*
  + *I have learned about how an arduino works and I also learned how current flows and how it works.*
  + *I have now gained a practical experience of how an LED and a resistor work.*
  + *I have also learned the working of a switch.*
  + *I have also learned the use of ultrasonic sensor.*
  + *By which we make obstacle dectection machine.*
  + *Also we measure distance by this.*

## Observations:-

* *When we press the switch the automated system turns on.*
* *Its start working and give the distance between sensor and object which use as obstacle.*

# Problems and Troubleshooting:-

The problems faced by me while doing this task are:-

* *The code was not working properly at first so I have to change it many times.*
* *The formula of distance is not working.*
* *At first I was not able to know the device we have to use to calculate distance.*

# Precautions:-

The precautions that we need to keep in mind while doing this experiment are:-

* *The connect wirewith different points should not be loose and the pins should be inserted properly.*
* *The pins of the ultrasonic sensor should be connected at their appropriate point that is the positive point should be connected with the p pin and the negative point should be connected with the negative pin.*
* *We should take care that the circuit is closed.*
* *While writing the code extra care should be taken while writing the syntax keeping in mind about different small and a capital words in them.*

***LERANING OUTCOMES:***

* *I have learned how to make circuits using an arduino board and a bread board and ultrasonic sensor and some other hardwares.*
* *Through this experiment I have gained the skill of making a circuit using different hardwares and controlling the functions done by that*

circuit with the help of codes. And how to use ultrasonic sensor properly.