

An **Ultrasonic SONAR sensor** is a device that uses sound waves to detect objects and measure distances. It works by emitting ultrasonic pulses and analyzing the time taken for the echo to return after bouncing off an object. This allows it to calculate the distance to the object based on the speed of sound.

Working Principle:

1. The sensor **sends** an ultrasonic sound wave.
2. The wave **hits an object** and reflects back.
3. The sensor **receives the echo** and calculates the distance

Sensors:

- **HC-SR04** (Used in Arduino projects)
- **Ping)))** Sensor (Used in robotics)

Applications:

- ✓ Obstacle detection in robotics
- ✓ Automatic parking systems
- ✓ Water level measurement
- ✓ Navigation for autonomous vehicles