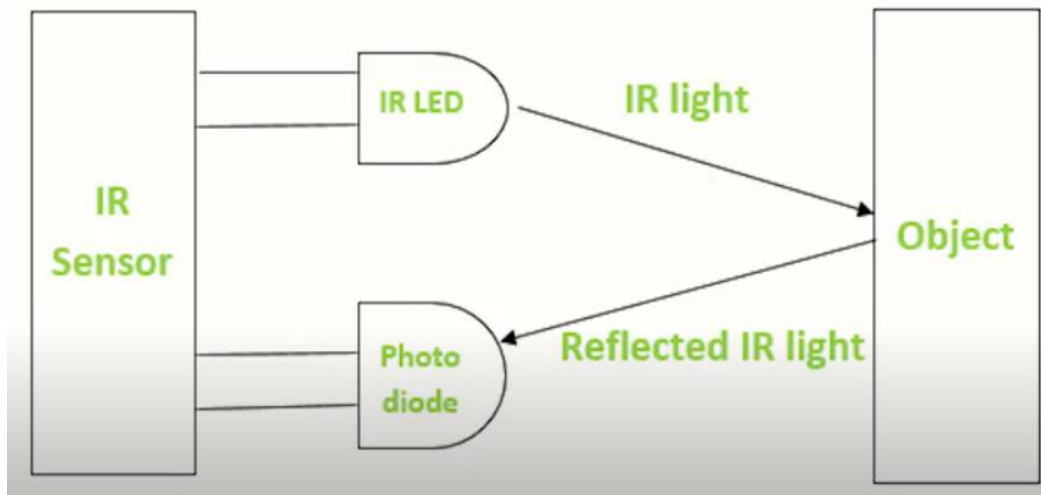


## PRINCIPLE:

As informed earlier, to make an automatic speed detector we need a device that detects and responds to some type of input from the physical environment. To make it possible we use IR Sensors. IR Sensors are the main part of the project that detect the speed of a vehicle. IR Sensor emits light to detect the object in surroundings.



Practically, you can implement the setup of IR Sensors in many ways but in this project, we need to use two reflective type IR Sensors and placed them 10cm apart.

When a vehicle travelling reaches the first sensor, the IR Sensor gets activated. From this moment onward, a timer is initiated and will continue to keep time until the vehicle reaches the second IR Sensor.

By simulating the distance between the two sensors to be 5 meters, you can calculate the speed at which the vehicle travelled from IR Sensor 1 to IR Sensor 2 as you already know the time of travel.

All the calculations and data gathering are done by Arduino and the final result is displayed on a 16X2 LCD Module.

## **TOOLS:**

1. Arduino UNO
2. IR Sensors x 2
3. 16X2 LCD Display Module
4. Breadboard
5. Connecting Wires
6. Battery 9v
7. Battery clip
8. 100R Resistor
9. 4.7k Resistor
10. 1k Resistor
11. Buzzer

## **WORKING:**

Arduino continuously reads the inputs from the IR Sensors. When a vehicle moving in front of the setup reaches the first sensor, Arduino becomes alert and capture a time stamp the moment the vehicle leaves the first IR Sensor.

Another time stamp is recorded when the vehicle reaches the second IR Sensor.

Arduino then calculates the velocity by assuming the distance as 5 meters between the two IR Sensor and displays the result in kilometers per hour on the 16×2 LCD Display.

## **Operating Arduino Speed Detector Project:**

1. Make all the necessary connections upload the code to Arduino.
2. Place the two IR Sensors on the edge of the breadboard so that the distance between them is approximately 10 centimeters.
3. Simulate a car movement in front of the sensors either by using your hands or a toy car.
4. Arduino calculates the speed and displays the result on the 16×2 LCD.

## **APPLICATIONS:**

1. Helps in capturing speed of vehicles without any human involvement.
2. This project can also be used as traffic logger, traffic counter and few other traffic related applications.