Arduino Car Speed Detector

In this project, we will show how to design and build a simple Car Speed Detector circuit using Arduino UNO and IR Sensors.

# Introduction

A Lot of problems were facing us in the past due to car speed violation of rules, so we’ve decided to find an efficient solution to limit the speed. This is done on 2 levels. In the first level the patrolling officers usually depend on a handheld gun that works on radar technology or LIDAR technology. This Is an exhausting process as the officer has to manually check for over speeding for each vehicle. So what if the car speed detection is made automatically? A simple automatic detection of speed of a vehicle is designed in Arduino car speed detector project, where you can place the system in one place and view the results instantly without any human intervention.

# Project’s components

The suitable components for our project are:

## Arduino Uno

The Arduino Uno is an open source micro controller board developed by arduino.cc. The board is equipped with sets of digital and analog (I/O) pins. To be more specific it contains14 digital I/O pins, 6 analog I/O pins.\*\*\*\*\*\*\*

## Infrared sensors

An IR sensor is an electronic instrument that is used to sense certain characteristics of its surroundings. IR sensors are also capable of measuring the heat being emitted by an object and detecting motion. There are two types of IR sensors: active and passive. The one we are using in our project is the active IR sensor. Active IR sensors both emit and detect infrared radiation. Active IR sensors have two parts: a light emitting diode (LED) and a receiver. When an object comes close to the sensor, the infrared light from the LED reflects off of the object and is detected by the receiver.

## 16x2 LCD display module

An LCD is an electronic display module which uses liquid crystal to produce a visible image.”16×2 LCD” is named so because it has 16 Columns and 2 Rows.

## Breadboard

The breadboard is used in prototyping the electronic circuits. It is reusable so, this makes it easy to use for creating temporary prototypes. A modern breadboard consists of a perforated block of plastic with numerous tin plated phosphor bronze or nickel silver alloy spring clips under the perforations.

## Connecting wires

# Project’s Mechanism

IR Sensors are the main part of the project that detect the speed of a car. We place the 2 IR sensors with a known distance a part (which is 10m in our project). When a car passes in front of the first sensor, the IR rays reflect to the sensor and a timer starts counting , then it stops when the car passes in front of the second sensor as the same reflection happens. And as we know that velocity=distance/time ,we can calculate the speed of the car. And it will be displayed on a 16x2 LCD screen.

Arduino is a micro controller which is used in this project as its brain,It uses the IR sensors to determine if a car passed through the road , then it will start doing automatically some operations based on a code burned on it.