

The accident rate is increasing very speedily in today's fast moving world, one of the main reasons for this being over-speed of vehicles. Speed detection of moving vehicle using speed cameras is one of the major steps taken towards this issue so as to bring down the rate of accidents and enhance road safety.

What is a Speed Camera? A speed camera is an automated ticketing machine that includes a camera mounted invariably behind road signs or trees. It can be extremely handy to monitor the vehicles as it is not practical for the policemen to be everywhere to enforce the speed laws.

Working of the System This speed detection system sounds interesting and seems to be highly efficient in enforcing the speed limits. But, how does it work? Read on to know the working of this system.

Imagine that a vehicle is speeding by a street where the speed camera is installed. As it goes through the automatic radar, the speed limit is detected and in case it exceeds, a digital image of this vehicle is captured, which is then crypted and sent online(adsl connection) to a national treatment center.

It is here that the image is encrypted and the car's registration number is taken along with other related data like speed, time, etc. This data is compared with the database of rented and stolen cars. The police officers take over from this stage and the fine is levied on the car owner.

How is the Vehicle's Speed Detected by the Radar? Radar makes use of electromagnetic waves to detect objects and give info (speed, distance, etc) about them. It makes use of Doppler Effect to determine the vehicle's speed. They calculate and scale the variation of frequency between the received and sent radio waves (echo). The frequency will be lower if the object is moving away and is higher if it is moving closer. So, based on the level of echo, it is possible to decide the speed of the moving object.

The above technology has become old now and can be easily jammed. Now, there's a new one called LIDAR (Light Detection And Ranging), which does not make use of Doppler effect. This system calculates the distance at which the object is and from the change in distance monitored in a specific time lapse, it is easy to determine the speed. The frequencies here are higher and trickier to jam.

Speed cameras are a great boon in speed enforcement, thereby reducing the number of road accidents, making the roads safer for pedestrians and other innocent road users.