TEN BASIC ANSWERS TO QUESTIONS ABOUT RED LIGHT SYSTEMS BASED ON ARTIFICIAL VISION

El 63% de los conductores españoles no respetan los semáforos en rojo.

RED LIGHT ENFORCEMENT systems, based on artificial vision, help enforce traffic rules in cities by means of the automatic detection of vehicles whose drivers run red lights.
They are video analysis solutions that continuously monitor traffic lights. When a vehicle runs a red light the camera sends the traffic violation management center the data associated with the possible violation and the visual evidence of the events. This visual information is conclusive and allows the person responsible for safety to quickly verify if there has been a violation, and if so, to issue the appropriate penalty with minimal risk of error. The automatic processing of citations for red light violations with systems based on video analysis has resulted in an average 65% reduction of incidents and the accidents they cause.

1. What is a RED LIGHT violation?

The violation occurs when a driver deliberately crosses a traffic light intersection when the traffic light is red.

2. Is the RED LIGHT violation a serious problem in our cities?

Running a RED LIGHT and other traffic controls such as the STOP SIGN or the YIELD SIGN are the most frequent cause of urban accidents. According to investigations based on police reports about accidents on highways and urban areas that allow for the detection of up to 13 different types of violations, 22% of accidents are the consequence of a traffic control violation. Of the accidents that involve the observance of traffic controls, 24% are RED LIGHT violations.

These studies yield information about the reasons why drivers are more likely to get injured in accidents that involve RED LIGHTS than in other accidents. In 45% of the cases involving this type of violation the occupants of the vehicles were injured, compared to 30% in other accidents.

According to a study conducted by OCU (Consumers and Users Association) In November 2010 in 36 Spanish cities with over 100,000 inhabitants, 63% of drivers ignored red traffic lights. In the nation's capital the percentage increases to 71%. This means that 7 out of every 10 drivers systematically run red lights.

3. What is the frequency with which drivers run RED LIGHTS?

According to data collected by the SICAM RED LIGHT traffic violation detection system in various intersections of our capital (Madrid, Spain), drivers frequently run red lights. On the average, a driver runs a red light every 12 minutes. During rush hour the frequency is higher. For example between 8 and 9AM a driver runs a red light every 5 minutes. We have detected instances during which 5 vehicles run a red light simultaneously when the light changes.

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4. Isn't conventional police action sufficient?

Achieving compliance with traffic rules in dense urban areas using traditional means poses special challenges for municipal police. When they identify a driver who commits a violation they generally have to follow him to stop him, which prevents them from continuing to identify other violators who cross the same intersection, in addition to putting other drivers, pedestrians and themselves in danger.

On the other hand it is impractical for municipalities to attempt to have their municipal police patrol intersections with the frequency needed to identify all of the drivers that run red lights. RED LIGHT video analysis systems allow the police to focus on ensuring that other citizen safety matters are observed.

5. What safety benefits does a SICAM RED LIGHT video analysis system offer?

It is proven that these systems achieve a reduction in the most commonly occurring accidents due to running a RED LIGHT: vehicle collisions at intersections, crash after reaching, hitting pedestrians, running over motorcyclists, etc. A recent study in California shows how violations decreased by 50% after the installation of video analysis systems in nine intersections and similar decreases were reported in neighboring intersections, as drivers assumed they were being controlled as well.

Later reports from traffic authorities confirm a 32% decrease in right angle collisions and a 10% decrease in injuries.

6. Is there a RED LIGHT violator profile?

A profile can be constructed from data obtained about the behavior of the violators through the SICAM RED LIGHT video analysis system installed in various intersections. One study compared drivers who ran a RED LIGHT with others who had the opportunity to do so but didn't. The RED LIGHT violators were younger, less likely to use a seat belt, had worse driving records and drove smaller and older cars than the drivers who stopped. These violators turned out to be more likely to violate other traffic safety rules like speed limits.

7. Does the SICAM RED LIGHT video analysis system record every vehicle that crosses the intersection?

No. One of the system camera is constantly monitoring the status of the traffic light via image processing algorithms and color analysis. When the light turns red, a black and white camera whose mission it is to read the license plates of possible violators synchronizes itself with the color camera. If a vehicle crosses the violation zone at this time the SICAM RED LIGHT system generates an automatic event, which it communicates to the violation management center. It provides data such as the license plate, the date, the time and exact event location as well as the following visual evidence: a video of the sequence of events, five color photographs and one in black and white with license plate detail.

8. Does somebody review the evidence before the drivers are cited?

Yes. When the qualified employees with responsibility over the management of these violations receive the notification of a possible violation and the corresponding data from the SICAM RED LIGHT system, they have access to view the evidence through a management platform, which allows them to verify and classify with complete reliability.

The complete synchronization among the SICAM RED LIGHT system cameras based on image analysis, together with the subsequent verification of the violation through the photographs and the video, eliminates the traffic light control phase error that produces alerts when the light is yellow.

9. Do the RED LIGHT systems based on video analysis violate driver privacy?

No. Driving is an activity that is regulated in urban roads. Obtaining a driver's license implies the commitment to abide by certain traffic rules and signs. Therefore neither the law nor common sense suggest that drivers should not be observed while on the road or that their actions should not be documented.

10. Is it expensive to invest in a SICAM RED LIGHT program?

The decrease in urban accidents signifies the minimization of direct and indirect costs they cause in communities:

- Frees up the police force to focus their efforts on other security matters
- Funds can be used for processing costs, sanitation, restructuring of deteriorating infrastructures, etc.

On the other hand, if we consider the existing relationship between the investment costs for this technology equipment and the average volume of violations that occur in our traffic light intersections , we can assert that the ROI is virtually immediate. In addition, the system is re-deployable in different problem intersections (when one intersection has been “corrected”, the system can be relocated to another one).

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