

**A SMART PREDICTIVE APPROACH TO DETECT THE ROAD TRAFFIC CONGESTION  
ON SIGNAL ALERT USING ANDRIOD APPLICATION**

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**Abstract** - Traffic congestion has a number of negative effects as a non-productive activity for most people, congestion reduces regional economic health. Delays, which may result in late arrival for employment, meetings, and education, resulting in lost business, disciplinary action or other personal losses. To avoid traffic signal standings, we are proposing one effective android application, which can pre alert the user how much time it can take to pass from traffic signal based on the user location traffic signal location. To achieve this, we need to update the traffic signal locations and timings across the city based on the paths. Based on timings and locations of the signal's user can get the pre notification about the signal timings. And another option user can update the traffic jam updates in our app.

Here by choosing of the signal location, app can estimate the distance from user current location to signal location. Based on the distance and journey speed app can calculate the journey time. Based on the journey time user can get the information about traffic signal passing time.

## **I. Introduction**

The Indian city directing structure is a blend of various related systems, wherein traffic the board expects a gigantic part. Furthermore, it will in general be communicated as one of the fundamental pieces of the sharp city[1][2]. All things considered; present day transport is failing to give a smooth transportation structure to people. The extravagant gridlocks impact people like deferments in showing up at the work environment or home, wastage of fuel, mileage on vehicles or even a preposterous outrage by the engaged and baffled drivers. Street signs give out various messages with respect to the street and what you as a driver ought to expect out and about[4]. They keep the traffic streaming openly by assisting drivers with arriving at their objections and telling them section, exit and turn focuses ahead of time[3]. Pre-educated drivers will normally try not to submit missteps or take unexpected turns causing bottlenecks. Street signs, demonstrating turns, headings and tourist spots, likewise help to save time and fuel by giving data in transit to be taken to arrive at a specific objective. Street signs are put in explicit regions to guarantee the security of drivers. These markers let drivers realize how quick to drive. They additionally advise drivers when and where to go or not to turn. To be a stupendous driver, you need to have a comprehension of what he signs mean.

With developing number of vehicle clients, traffic is developing step by step. It is alluring to have a system by which individuals can know, progressively, about the traffic condition in the courses on which they wish to travel. Thus, dealing with traffic observing has acquired huge consideration lately. A significant part of the past work focused on path framework and precise traffic, which is uncommon external the created world. For instance, in India, the traffic is profoundly tumultuous and erratic. Further, a large number of the proposed arrangements need introducing devoted sensors in the vehicles (like GPS-based following units) as well as out and about side (like inductive circle vehicle locators, traffic cameras, Doppler radar, and so forth) which are costly. Likewise, introducing sensors in countless vehicles or introducing traffic cameras at a few intersections is illogical because of money related expense and human exertion required. The strategies that utilization inductive circle vehicle locators can just use in path traffic frameworks, which isn't the situation in numerous nations. Traffic recognition utilizing traffic cameras is confined to the area where they are sent (by and large at traffic lights). To identify the street conditions, accelerometers introduced in a vehicle might be utilized. In any case, this is additionally not achievable, as the quantity of vehicles taking part in the framework will be restricted to the vehicles where accelerometers are introduced. Introducing extra gadgets on vehicles to build recognizing thickness can promptly end up being prohibitively expensive. Traffic signs are proposed to help people with streamlining traffic stream, keep up road solicitation and guide with halting prerequisites

to upgrade security. Drivers should make fitting reaction to various traffic signs like different obligatory signs, data signs and different signs to get security. Traffic signs are planned with such shapes and striking tone to get effortlessly noticed. The data removed from mathematical shape and its tone are exceptionally helpful. These calculations need to adapt to regular and complex powerful conditions, high exactness requests, and continuous requirements. The most difficult issue looked by machine vision-based identification is acknowledgment of articles in characteristic scenes. This test looked by the framework is basic in each location and acknowledgment framework, particularly with the driver emotionally supportive networks, since fast choices will affect street and driver security. It is significant that these calculations have a harmony among intricacy and exactness keeping the restrictions looked because of this placcation as low as could be expected.

## **II. RELATED WORKS:**

In India, streets are routinely checked for absent or harmed sign sheets to stay away from any security dangers. This assignment to examine the street sign condition is completed by driving a vehicle out and about of interest and noticing issues in transit physically, making it troublesome, protracted, and inclined to administrator breakdown. The principle issue of the traffic sign acknowledgment framework doesn't emerge with the location and acknowledgment of traffic sign in still picture, however it is fairly, how to get a high exactness bring about a major constant video information [5]. Generally, the Traffic sign recognition strategies can be arranged into three classifications: Color-Based Methods, Shape-Based Methods and Learning-Based Methods. We can apply the best technique relying on the idea of the issue and framework prerequisites; for instance, strategies dependent on shading data can utilized with high-goal dataset, notwithstanding, not with grayscale pictures. A. Shading Based Detection Method The prevailing shading based division is applied to distinguish areas of interes[6][7]t. Red, blue and yellow are not many explicit tones in which the traffic sings are there. These attributes, notwithstanding, are touchy to factors, for example, how long the sing have been up and the changing light conditions, making division troublesome[8]. In this technique straightforward thresholding or further developed picture division strategies are utilized to discover the district of revenue. When the outcome is gotten, it is then put away as traffic signs. The downside of this strategy is that hue of the picture got changes relying upon the hour of day, environment conditions, shadows, and different elements. The different shading based techniques proposed by various analysts is talked about. Benallal and Meunier did an investigation where the shade of a red STOP sign was noticed all through 24 hours and showed that it has more impact between 6:30am to 9pm. Broggi et al. set forward a method to beat shading territory of light source. Broggi et al. discovered a piece of street expecting it is dark in shading and subsequently assessing the light source tone, which was trailed by chromatic adjustment, have gamma work linearization[9][10]. Escalera et al. proposed a strategy for distinguishing red in Hue, Saturation, Intensity (HSI) shading space. Where the info picture is changed from Red, Green, Blue (RGB) to Hue, Saturation, Intensity (HSI), where for each pixel, shade and immersion esteem are again determined to underline the area of soaked tint.

The SACAT framework is additionally furnished with a material presentation situated on the dashboard, which licenses admittance to framework data just as performing regulatory assignments through an intelligent GUI (see Fig. 3). At last, SACAT design licenses overseeing the majority of the potential uses of on-board PC vision frameworks in an adaptable manner. Taking everything into account, SACAT upholds up to three sorts of client profiles: specifically, drivers as end clients, a vehicle organization specialist going about as a framework chairman, and a traffic authorization specialist (held for some time later). Client' ID is brought out through close to home savvy cards, which are allowed with various authorizations to get to the diverse framework functionalities.

Traffic Sign Detection can be separated into conventional methodologies and article discovery approaches like Convolution Neural Networks. In , different shading and shape-based methodologies are examined alongside their execution utilizing highlight descriptors like HOG i.e. Histogram of Oriented Gradients. The calculations contemplated were DecisionTree, Neural Network, AdaBoost Classifier, Support Vector Machines and so on the outcomes produced gave a precision around the

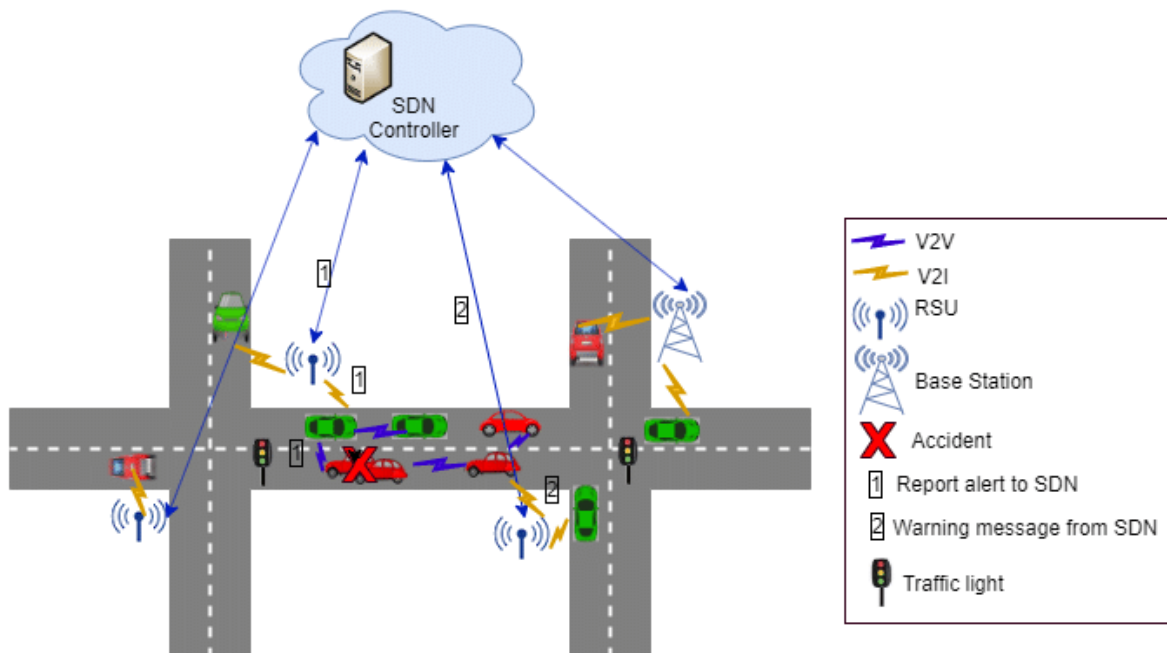
90% imprint with HOG based SVM playing out the best having an exactness of 90.2 percent. Different methodologies of Object Detection just as universal Traffic Sign Detection strategies were looked through while exploring on the theme. Factors, for example, camera position, light force, size of signs were discovered to be of most extreme significance for proficient exactness.

### III. METHODOLOGY:

A few techniques have been suggested that utilization sensors in Smart telephones for movement discovery in different conditions (Indoor limitation, traffic recognition and identifying action of an individual). The Smartphone based traffic assessment strategies deter the requirement for specific equipment introduced in vehicles or out and about side. The Nericell framework utilizes an accelerometer, mouthpiece, GSM Radio and GPS sensors accessible in Smart telephones that clients convey with them.

- The essential working guideline of our application is Global Positioning System (GPS).
- It checks the scope and longitude of the spot and pinpoints the area.
- Any change in the worth of scope and longitude will gauge the distance shrouded in a specific time stretch, and accordingly we will figure speed.
- The determined speed will be shown and contrasted and the standard worth.
- If the speed is reliably low, at that point message will be shown, and SMS will be shipped off specific contact
- It can help the people to find a way which is traffic free and not to take the route full of traffic. This will be the one of the interesting applications that one can work on and help the people to get proper message of the traffic congestion in the particular lane or the junction without any delay. This system will help in diverting the traffic and also reducing the congestion.

### IV. ARCHITECTURE:



### V. CONCLUSION:

In this paper, a framework for criminal traffic offense alarm and the board has been introduced. The proposed equipment design joins an on-board PC vision framework for traffic sign recognition and an information recorder for overseeing petty criminal offenses. The System is focused on timings and areas of the sign's client can get the pre warning about the sign timings. Also, another alternative client can refresh the gridlock refreshes in our application. The infringement record comprises of

demonstrating the sort of traffic sign, its GPS area and a photo of the environmental factors, and the vehicle's speed. A framework produced message comprises of decided area as far as scope and longitude is shipped off the prespecified contact number. This Module additionally gives the office of sharing Traffic Update through messages.

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