© International Journal of Combinatorial Optimization Problems and Informatics, Vol. 9, No. 2, May-Aug 2018, pp. 1-2. ISSN: 2007-1558.

Editorial for Volume 9 Number 2: The defiance related with a Smart City

Carlos Alberto Ochoa Ortíz Zezzatti

One of the main challenges facing cities today is to improve the mobility of citizens and the transport of goods. The concept of mobility in a Smart City refers to the sustainability, safety and efficiency of infrastructures and transport systems. A Smart City is committed to managing traffic to improve productivity and decongest the city. At the same time, it seeks to reduce transportation costs and fuel consumption, reduce environmental impact, CO2 emissions and noise pollution. Smart Cities encourage the use of renewable energies and sustainable modes of transport.

Smart City manages traffic according to the volume of vehicles and the needs of each moment of the day, both in the hours of maximum traffic and in those of little, taking into account not only the needs of mobility but also that of neighbouring merchants and citizens in general. The traffic congestion is one of the main problems of the largest cities. The fundamental element is the control of the traffic light network, varying its frequency and synchronizing it to get more fluid traffic, prioritizing traffic on alternative routes, facilitating access routes and evacuation in case of road accidents. For this reason, it is very important to support a series of sensors, such as vehicle and camera detectors. Another traffic regulation system is the control of the access roads with variable speed, which, depending on the volume of traffic, modifies the speed limit and discourages excesses. The speed control totems are a good option to reduce the speed of vehicles in main arteries or tourist areas of the walk.

The relentless bombardment of new technology around cars-especially electric cars-and the safety of vehicles have allowed us to go beyond passive safety and focus more on active safety. The United States Department of Transportation states that more than 81% of the annual vehicle accident rate could be avoided by using modern technology, such as radar-based safety devices. The use of the Internet of Things will allow this. A very high percentage of the incidence of this type of accident is related to the lack of control of the vehicle derived from the alcoholic intake, which affects an increase in deaths derived from the collision in a traffic accident.

In this research, it is intended to develop a model of IoT-based sensors associated with the traffic of a smart city, and the approach linked to the information that must be stored of each car that passes close to it using a reactive radar model. The technology that helps prevent a crash comes under active safety. Learning from autonomous driving vehicles along with new age sensor technology and advances in computing and communications will soon see the production of such automobiles.

The paper is structured as follows: Section II presents some relevant aspect about the new technology to support traffic management in a smart city. In section III shows the importance of colour blindness people and traffic lights and how it affects the traffic management. Section IV presents a review of the literature of traffic light detection. Section V shows the design of the hybrid intelligent system to support colour blindness people and section VI presents the implementation of the hybrid intelligent application in the mobile device. Finally, in Section VII there are conclusions and proposals for future works.

New technology to support traffic management.

In the future, there are some characteristics that support the traffic management. Below are some of the features that are to come and are aimed at preventing accidents and making vehicles well equipped for active safety and traffic management.

Vehicle to vehicle communication:

Understanding GPS coordinates and speed will begin to play an important role in facilitating this and will depend a lot on the sensor technology of the new era that will focus on cars to communicate. The sensors also detect pedestrians, bicycles within their proximity and adjust the speed of the car accordingly, in addition to that they can learn from the information that is collected, especially for later use by numerical prediction.

This will also help to create a traffic management system based on the network. Vehicles will coordinate with traffic signals directly and get rid of any human error. Today's high-end cars are already equipped with features such as blind spot warning, lane assist screen, main screen that helps avoid a collision, but in the future, these features will soon make the way forward safer, in a new average car. These safety features have proven to be highly effective in preventing.

Traction control system (TCS):

The traction control system prevents the wheels from spinning when starting or accelerating, particularly on slippery or wet surfaces. While the anti-lock braking system (ABS) prevents the wheels from locking during braking by reducing braking pressures, the TCS ensures that the wheels do not turn when driving or accelerating. To do this, the driving torque in each driven wheel is correspondingly reduced. TCS improves vehicle traction and increases vehicle safety by avoiding unstable driving situations within the limits of physics.

Active kinematic control:

Manufacturers of automatic components such as ZF and Bosch are also working on Active Kinematics Control (AKC) for passenger cars. If the rear wheels actively help the front steering angle, a passenger car enjoys greater agility, stability and comfort when changing direction. The rear trigger steering movements activate electronically active tracking actuators, either a central actuator in the middle of the rear axle or two smaller actuators in the suspension of each rear wheel, depending on the specific requirements of the vehicle.

This paves the way for new chassis technology options in virtually all segments of passenger cars and for disparate models: current models that show this technology include several Porsche sports cars, for example. At speeds below approximately 60 km / h, the AKC system rotates the rear wheels in the opposite direction to the front direction, which in turn improves agility and manoeuvrability. From around 60 km / h, the system steers the rear wheels in the same direction as the front wheels, improving directional stability and driving dynamics.

Integrated brake control:

As of 2018, a technology called: "Integrated Brake Control" will enter high-volume production with a major vehicle manufacturer. The system supports both conventional braking functions and semi-automated driving functions. IBC effectively replaces the electronic stability control system (ESC) and vacuum increase system previously used to exploit the negative pressure in the engine's air intake system to increase braking power and, therefore, works practically in all powertrain configurations. In the IBC system, a high-precision actuator is driven by an extremely fast electric motor. This engine is what allows IBC's excellent braking performance and ESC functionality.