Press release

IoT in Transportation Infrastructures

(Athens, May 2020) Situation awareness in transportation infrastructures is heavily constrained by domain-dependent data sources. A connected environment allows for a real-time management and control measures to be implemented, improving system performance in terms of users' safety and convenience. At this point, internet of things (IoT) can provide a technology level, mature enough to support Intelligent Transportation Systems (ITS).

Transportation related problems, such as traffic congestion, road safety and accident detection can be resolved by employing IoT solutions[1]. A straightforward example of IoT usage, in ITS, is the dynamic adjustment of speed limits on a highway, given a set of parameters related to existing conditions. These conditions may refer to the current weather or the car density in the highway[2].

The main objective of IoT technology in ITS is the congestion reduction and the avoidance of potential hazards. There are multiple causes that affect safety. Road-safety studies focus on specific cases including distance sensing, improper driving detection-accident prevention, weather related events-negligent driving detection and accident avoidance. Adopted methodologies can focus to a) vehicle to vehicle communication or, b) vehicle to infrastructure-based channels.

The EU funded PANOPTIS project, employs different kinds of climate sensors, e.g. wind, rain, and ice sensors, to support the monitoring of large-scale transportation infrastructures. These sensors allow access to multiple channels of information, which can be used to estimate the current road condition status and provide feedback to the drivers. Furthermore, they can adjust the current speed limit and safety distance. These technologies can be used synergistically with the vehicle to vehicle communication and these two values can be send via WIFI system to vehicles.

Additional information can be found in PANOPTIS site, just follow the link: http://www.panoptis.eu/

[1]P S Saarika, K. Sandhya, and T. Sudha, 'Smart Transportation System Using IoT', in *2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon)* (2017 International Conference On Smart Technologies For Smart Nation (SmartTechCon), Bangalore: IEEE, 2017), 1104–7, https://doi.org/10.1109/SmartTechCon.2017.8358540.

[2]Arafat Al-Dweik et al., 'IoT-Based Multifunctional Scalable Real-Time Enhanced Road Side Unit for Intelligent Transportation Systems', in *2017 IEEE 30th Canadian Conference on Electrical and Computer Engineering (CCECE)* (2017 IEEE 30th Canadian Conference on Electrical and Computer Engineering (CCECE), Windsor, ON: IEEE, 2017), 1–6, https://doi.org/10.1109/CCECE.2017.7946618.

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