Intelligent Transportation Systems in Cyprus - Past Present and Future; Prospects for a Smart Pedestrian Network (SPN)

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Intelligent Transportation Systems (ITS) in Cyprus - Past

- Sophisticated control systems for dealing with traffic congestion have been around since the 1980s
- Recent advances in electronics, communications, controls, computers, and sensors transformed transportation systems. Much research has been carried out in this direction and as a result, we have now a new field of inquiry, Intelligent Transportation Systems (ITS)
- ITS systems help to improve the overall quality of service of transportation
  - Increase average speed
  - Increase safety
  - Decrease congestion
  - Decrease idle time
  - Decrease harmful emissions
- ITS requires a good understanding of the dynamics of traffic on a local as well as global system level. The much-needed information today comes from traffic cameras, inductive loop sensors, and radar vehicle counters.
Intelligent Transportation Systems (ITS) in Cyprus - Present

- Traveler Information Systems
  - Police Mobile App
  - Bus Stop wait time

- Fleet Management
  - Government vehicles
  - Distributor vehicles

- Traffic Control Center, Ministry of Communication and Works
  - Traffic monitoring cameras at important intersections
  - Traffic light timing remote change
  - Bluetooth origin-destination routes and traffic times

- Smart Police vehicles
  - Automatic number plate recognition
  - Database for suspected offenders/stolen vehicles/expired licenses
Intelligent Transportation Systems (ITS) in Cyprus - Future

- New Bus operator contracts, that incorporate ITS from the beginning
- Transport Electrification
  - Incentives to buy Electric vehicles
  - Build infrastructure for fast charging
- Connected vehicles
  - Vehicle to Infrastructure communication
  - Vehicle to Vehicle communication
  - Vehicle to Pedestrian/Bicyclist communication
- Automated vehicles
- Smart Cities
  - Use of city-wide advanced traffic light management e.g. green wave
  - Bus, Emergency vehicles priority
- Mobility Integration
- eCall and Emergency response
ISO/TC 204 Intelligent transport systems

- **SCOPE**
  - Standardization of information, communication and control systems in the field of urban and rural surface transportation, including intermodal and multimodal aspects thereof, traveller information, traffic management, public transport, commercial transport, emergency services and commercial services in the intelligent transport systems (ITS) field
  - 279 Published ISO standards
  - 79 ISO standards under development
  - 29 participating members, including Cyprus since 2018
  - 30 observing members
  - Several active working groups on various aspects of ITS

- Support for UN sustainable goals
ISO/TC 204 Intelligent transport systems

- ISO TC/204 Working groups
  - WG 1 Architecture
  - WG 3 ITS database technology
  - WG 5 Fee and toll collection
  - WG 7 General fleet management and commercial/freight
  - WG 8 Public transport/emergency
  - WG 9 Integrated transport information, management and control
  - WG 10 Traveller information systems
  - WG 14 Vehicle/roadway warning and control systems
  - WG 16 Communications
  - WG 17 Nomadic Devices in ITS Systems
  - WG 18 Cooperative systems
  - WG 19 Mobility integration
Intelligent Transportation Systems (ITS) in Cyprus
How can ISO/TC 204 standards help?

- Government adoption of the standards
  - Inclusion in contract bidding documents
    - Worldwide, level and transparent contract terms
    - Avoid non-compliant solutions early
    - Less description by citing relevant standards
  - Easier procurement of compatible solutions, especially for future maintenance
- Local Government adoption of the standards
  - New ideas appear daily. Avoid costly mistakes by allowing technology to reach standardization before adopting
- Businesses
  - Demand solutions from suppliers that meet ISO standards to avoid substandard solutions
  - Bid on government and local government contracts on the level
- People
  - Standard based solutions are likely to be less problematic and more mature
Intelligent Transportation Systems (ITS) in Cyprus
How can ISO/TC 204 standards help?

- A small selection of ISO/TC 204 Standards to be considered in Cyprus
  - ISO 11270:2014 Intelligent transport systems — Lane keeping assistance systems (LKAS) — Performance requirements and test procedures
  - ISO 13111:2017 Intelligent transport systems (ITS) — The use of personal ITS station to support ITS service provision for travellers
  - ISO 13184:2016 Intelligent transport systems (ITS) — Guidance protocol via personal ITS station for advisory safety systems
  - ISO 13185:2015 Intelligent transport systems — Vehicle interface for provisioning and support of ITS services
  - ISO/TR 14806:2013 Intelligent transport systems — Public transport requirements for the use of payment applications for fare media
  - ISO 14814:2006 Road transport and traffic telematics — Automatic vehicle and equipment identification — Reference architecture and terminology
  - ISO 14819:2013 Intelligent transport systems — Traffic and travel information messages via traffic message coding
  - ISO 14827:2005 Transport information and control systems — Data interfaces between centres for transport information and control systems
  - ISO 15622:2018 Intelligent transport systems — Adaptive cruise control systems — Performance requirements and test procedures
Intelligent Transportation Systems (ITS) in Cyprus
How can ISO/TC 204 standards help?

- A small selection of ISO/TC 204 Standards to be considered in Cyprus
  - ISO 15638:2017 Intelligent transport systems — Framework for cooperative telematics applications for regulated commercial freight vehicles (TARV)
  - ISO 15784:2015 Intelligent transport systems (ITS) — Data exchange involving roadside modules communication
  - ISO/TR 16786:2015 Intelligent transport systems — The use of simulation models for evaluation of traffic management systems — Input parameters and reporting template for simulation of traffic signal control systems
  - ISO 16787:2017 Intelligent transport systems — Assisted parking system (APS) — Performance requirements and test procedures
  - ISO 17185:2014 Intelligent transport systems — Public transport user information
  - ISO 17267:2009 Intelligent transport systems — Navigation systems — Application programming interface (API)
  - ISO 17427:2018 Intelligent transport systems — Cooperative ITS
  - ISO 17438:2016 Intelligent transport systems — Indoor navigation for personal and vehicle ITS station
  - ISO 17572:2015 Intelligent transport systems (ITS) — Location referencing for geographic databases
Prospects for a Smart Pedestrian Network (SPN)

- Our recent work at European University Cyprus on Smart Pedestrian Networks is in alignment with work in ISO/TC 204/WG19 - Mobility integration
  - Proposed Work Item PWI 24317 Intelligent transport systems — Mobility integration — Mobility integration needs for vulnerable users and light modes of transport
- The SPN project proposes a mobile app system to help pedestrians navigate in urban areas, whereby a pedestrian (Vulnerable User) is offered a safe route to walk (light modes of transport) depending on his/her circumstances
  - Older people prefer low inclines and frequent rest stops
  - Women/children want to avoid low-lit areas and dead ends
  - People with movement disabilities avoid inclines and steps
  - All pedestrians prefer the presence of sidewalks
  - Tourists/Out-of-Towner need Suggestions for local attractions
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