

Indo-European dialogue on ICT standards & Emerging Technologies

(Growth, Profitability & Nation Building)

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IN THE FRAMEWORK OF

Project

SESEI

<http://eustandards.in/>



ITS at ETSI

ITS: a definition

- ❖ ITS means applying Information and Communications Technologies (ICT) to the transport sector to create benefits in terms of:
 - Safety on the roads
 - Transport efficiency
 - Sustainability
 - Accessibility
 - Security
 - Convenience and satisfaction for the citizen



ITS at ETSI (Term of Reference)

- ❖ To develop ITS standards and specifications:
 - to support the development and implementation of ITS Service provision across the network, for transport networks, vehicles and transport users
 - by including interface aspects and multiple modes of transport and interoperability between systems



Main focus of ITS at ETSI

- ❖ Main focus on Safety
- ❖ Co-operative ITS through communications
- ❖ Expands spatial awareness from autonomous vehicle centric systems to shared knowledge
- ❖ Every ITS Station informs its type and current location
 - Type could be car, truck, bus, bike , motorbike, pedestrian, train, tram ...



Organizing ITS work in ETSI

- ❖ Follows conventional ETSI structure and OSI model to some extent
 - ❖ WG1 - requirements and services (above OSI)
 - ❖ WG2 - architecture (all OSI layers)
 - ❖ WG3 - Protocols (OSI layers 3 and 4)
 - ❖ WG4 - Radio issues (OSI layers 1 and 2)
 - ❖ WG5 - Security issues (all OSI layers and above OSI)



ITS global co-operation

- ❖ Many SDOs and authorities working together
 - ETSI, CEN, ISO, ANSI and others developing standards for common architecture
 - EU-US Harmonization Task Group
 - Close co-operation with industry groups (e.g. Car to Car Communication Consortium, ...)



ITS in practice



ITS in practice



Police car
in pursuit
at 75km/h

All driving at 40km/h



ITS in practice



CAM →



Police car
in pursuit
at 75km/h

All driving at 40km/h
all now aware of police
car approaching them



ITS in practice



→
CAM

Police car
in pursuit
at 75km/h



All slow down to 30km/h
and move to allow the police
car to pass them



ITS in practice



Police car
in pursuit
at 75km/h



All slow down to 30km/h
and move to allow the police
car to pass them



ITS in practice



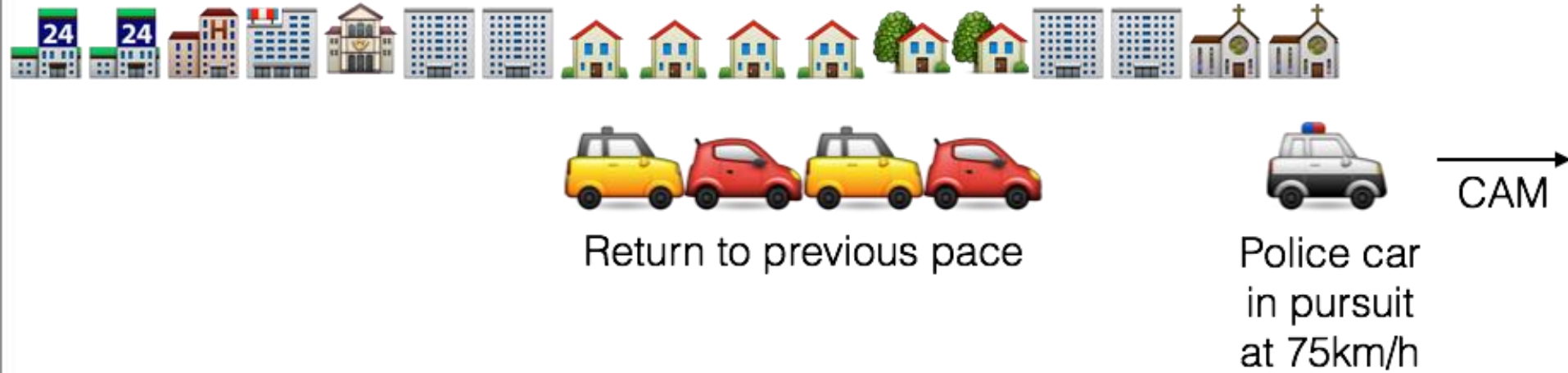
Police car
in pursuit
at 75km/h



All slow down to 30km/h
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ITS in practice



What C-ITS does

- ❖ Allows precise knowledge of location and dynamic behaviour of other entities in the local environment
- ❖ Allows determination of potential of collision, road signal reinforcement, point of interest advertisement (e.g. fuelling stations, car parks)
- ❖ Safety and efficiency improvements



Reinforces driver awareness

- ❖ Drivers are expected to be aware of their locations
- ❖ Existing in-vehicle systems (e.g. mirrors) are augmented by both autonomous (e.g. radar and acoustic sensors) and communications systems (e.g. by CAM and DENM) and public broadcast systems (e.g. by road traffic announcements on radio)



Security and Privacy in ITS

- ❖ System is designed as safety enhancing
 - To prevent accidents and to minimize their impact if they do occur
- ❖ To work the system needs to know the location of things and the relative movement of those things over a short period of time
- ❖ ITS-S identities are dynamic and not tied to a vehicle or person
 - ITS-S identities are pseudonymous with a short life (a few seconds)
 - ITS-S identities are associated with activity and authorized for activity (this allows a form of role based access control)



What's next

- ❖ Vehicles and ITS-S integrated elements of a pervasive connected environment
- ❖ Support of additional use cases addressing mobility efficiency for freight and people, environmental sustainability, accessibility,..etc
- ❖ Leverage on synergies with other domains and related TC where ETSI is already active (e.g. IoT, Smart M2M, ...etc.)



Beyond the standards

❖ Infrastructure

- Work on global harmonization of PKI and policy matters has started
- ETSI will lead with the specification of the PKI management protocols and base architecture

❖ Smart city integration

- Bringing transport and cities together to ensure that city infrastructure (e.g. parking, fuelling, signaling, routing) are integrated to C-ITS.
- Work being developed in collaboration with ETSI TC smartM2M and the partnership oneM2M



ITS in India - opportunities

- ❖ India is a significant player in global car manufacturing
 - ETSI will lead with the specification of the PKI management protocols and base architecture
- ❖ India Smart city integration
 - Bringing transport and cities together to ensure that city infrastructure (e.g. parking, fuelling, signaling, routing) are integrated to C-ITS
 - Work being developed in collaboration with ETSI TC smartM2M and the oneM2M partnership

