NEWSLETTER 02
OCTOBER 2017

TIMON

EDITORIAL

Dear reader,

Welcome to the second newsletter of TIMON project! This newsletter will inform you about the latest activities in the project, as well as the developments in Intelligent Transport Systems domain.

TIMON project started back in June 2015, and the TIMON team has since achieved several milestones in the project development, primarily the collection of users' needs and their translation into system requirements and technical specifications. The TIMON team has also progressed in designing and developing the technical parts of the TIMON services. Now halfway through the projects' lifetime, a lot still remains to be done and the TIMON team is now more committed than ever to achieve the global objectives of the TIMON project and provide transport users with the best tool possible!

TIMON consists of a cooperative ecosystem integrating traffic information, transport management, ubiquitous data and system self-management to provide real-time services through a web based platform and a mobile application for drivers, vulnerable road users (VRUs) and business. These services will contribute to increasing drivers' and VRUs' safety, procuring a multimodal dynamic commuter service and an enhanced real-time traffic information API, and will be based on four main technologies: real time open data gathering, artificial intelligence, cooperative positioning and hybrid vehicular communications.

TIMON counts with an external panel of experts, who are updated on the recent activities of the project and are invited to participate in project events. City Councils, vehicles suppliers, road transport experts etc. are already part of our panel. If you are interested in joining our users panel, contact us!!

Yours sincerely,
Leire Serrano
TIMON project coordinator

IN THIS ISSUE:

TIMON TESTING WEEKS

TIMON FACTS & FIGURES

- ***TIMON***: Enhanced real-time services for an optimized multimodal mobility relying on cooperative networks and open data
- ***Project partners***: 11 organisations from across Europe:
  - University of Deusto (Spain)
  - ISKRA (Slovenia)
  - Fraunhofer (Germany)
  - CTTC (Spain)
  - INTECS (Italy)
  - Sensible Code (UK)
  - GEOX (Hungary)
  - XLAB (Slovenia)
  - JP LPT (Slovenia)
  - CORTE (Belgium)
  - TASS (The Netherlands)
- ***Aim***: develop a cooperative open web-based platform and mobile application in order to deliver real-time information and services to all transport ecosystem users, including drivers, vulnerable road users, and businesses.
- ***End result***: safer, more sustainable, flexible, and efficient transport system in Europe.
- ***Pilot sites***: Helmond (the Netherlands), Ljubljana (Slovenia)
- ***Duration***: 42 months (June 2015 – November 2018)
- ***Overall budget***: €5,605,213
- ***Funding source*** : Horizon 2020

TIMON FIRST TESTING WEEK IN HELMOND

TIMON project has gone through the first testing week in real environment with promising results. The testing took place in TASS facilities in Helmond (The Netherlands), from the 5th to the 9th of September 2016.

The main hardware parts have been tested, two cars and one motorbike equipped with on-board units (OBUs) were used to test hybrid vehicular communications along the streets of Helmond. Besides, a precise positioning hardware was also included in the testing to acquire data and refine the developed positioning algorithms.

Furthermore, the traffic prediction algorithms started to receive data and produce their first predictions using traffic cameras and weather conditions. Finally, an initial version of TIMON APP was used to test the communications between the smartphones and vehicles.

The Testing Week followed the Technical Committee meeting held in June 2016 also in TASS facilities during which the planning of the upcoming testing activities was defined.

TIMON SECOND TESTING WEEK IN HELMOND

TIMON project has gone through the second testing week in real environment in TASS facilities in Helmond (The Netherlands), from 12th to 16th June 2017. The main objective of this second testing was to check the main technologies used in TIMON once their respective WPs have been finished.

The main technologies tested have been: the hybrid vehicular communications, the enhanced positioning system, the rest API of data scraped from different data sources (open and closed), the artificial intelligence algorithms to predict traffic congestion in Helmond using TASS cameras and the multimodal planning system for all the road agents (drivers, vulnerable road users and pedestrians).

In addition to this, a first version of the TIMON APP has been used allowing the testing of the communication links between all the technologies used in TIMON project.

The performed tests have confirmed the promising results obtained during the first testing week.

TIMON INTERNAL MEETINGS

TIMON Consortium meeting in Liverpool

The TIMON project partners met on 9-10 November 2016 in Liverpool in Sensible Code premises for a joint Project Management and Technical Committee meeting.

Work Package leaders were invited to present the progress accomplished in the first 18 months of the project, and the partners were also informed about the next milestones. This meeting was the opportunity to review the results of the first Testing Week in Helmond. It was also the occasion to prepare for the upcoming review of the project by European Commission due to take place in February 2017.

Besides, members of the consortium stressed in particular the need to properly take into account users' needs and requirements in the scope of each technical WP. The decision was made to organise a webinar for the Users' Board early 2017 to make sure that they are updated and satisfied with the work being carried out.

TIMON Consortium meeting in Munich

The TIMON project partners met on 10-11 May 2017 in Munich in Fraunhofer premises for a Technical and Exploitation Committee meeting.

Work Package leaders presented the progress accomplished since the Commission's review meeting in February and discussed the next milestones. This meeting was the also the opportunity to start a more a more thorough discussion on the future exploitation of the project outputs.

A visit of the premises was also organised with demonstration of prototypes developed by Fraunhofer.

TIMON First periodic review by the European Commission in Brussels

Halfway into the project lifetime, the European Commission carried out on 9 February 2017 a first periodic review of the TIMON project, looking into the activities and outcomes achieved between June 2015 and November 2016.

For this review, the project partners were asked to contribute to the drafting of the Periodic Technical Report, which provides an overview of all the activities performed and describes the progress made in the technical Work Packages (WP) towards the creation of the TIMON services. Each WP leader presented their work during the meeting.

The Commission welcomed the work carried out so far by the TIMON team, and stressed the need to investigate and strengthen the links and synergies with the other EU-funded ITS projects. The Commission also invited the consortium to start thinking at an early stage about the avenues for future exploitation, putting forward the key role the Users' Board could play in that regard.

TIMON PROGRESSES AND ACHIEVEMENTS

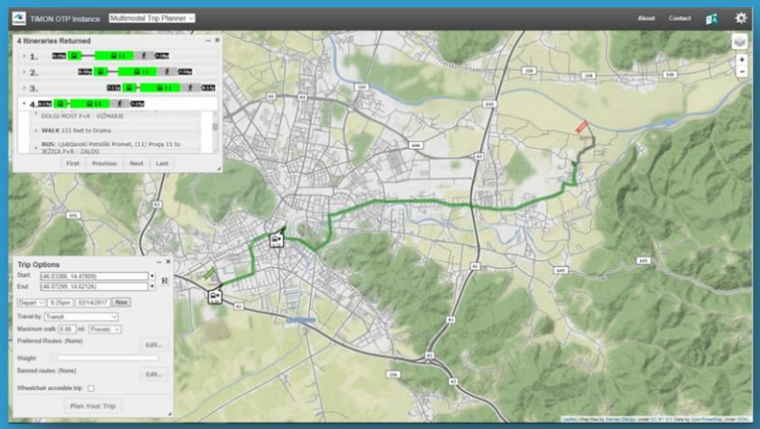
Artificial Intelligence

Artificial intelligence focused on traffic congestion prediction and multimodal route optimization. The research in artificial intelligence in TIMON started in the very beginning of the project, in July 2015, and came to an end on March 2017. This research is two-fold: the Traffic State Prediction (TSP) and Real-Time Traffic (RTT) systems; and the multimodal route planning system.

The first main result is composed of two main solutions: Traffic State Prediction (TSP) and Real-Time Traffic (RTT) systems. On the one hand, TSP system aims to predict future states of the traffic at specified time horizons while RTT provides traffic information in real time. It is important to highlight that TSP provides predictions for four different time horizons (15, 30, 45 and 60 minutes), based on the calculations made by a fuzzy artificial intelligence classifier. For this purpose, both systems use several types of data sources, managed by different partners of the project, such as: the real-time weather forecast, or the floating data of the OBUs installed in the cars.

The second main result, the multimodal route planning system, supports the optimization of citizen's individual transport, delivering information on various modes of transport, even in the same route. The system computes and suggests itineraries optimizing different criteria, such as the cost, the time, the length, the environmental friendliness or the safety. The routes are calculated using a differential evolutionary artificial intelligence algorithm which provides alternative routes based on the inherent flexibility to the users. That is, every time the user asks for a route plan, TIMON explores the possibility of offering an alternative route improving at least one aspect of the default routes given by the planning system, by slightly modifying parameters such as: the departure and arrival time, and the walking speed among others.

Public transport route considering the alternative route provided by TIMON based on the flexibility of the user:



Open Data Rest API and Visualisation

The scope of WP2 is to gather open data related to public transport, multi-modal services, traffic information and weather/pollution data. This data is then harmonised and provided to partners in the form of a Rest API, which in turn feeds into systems being built in other work packages, including traffic congestion prediction and multimodal route planning. The Rest API provides the data in both JSON and DATEX II formats depending on the data source and the end user requirements.

Additionally, data visualisations are being developed to provide partners and third parties with the ability to monitor the open data sources. This includes a data source dashboard with statuses and uptime statistics, as well as a Bluetooth traffic sensor uptime and speed measurement system.

At this stage, the data sources required for the project covering Helmond (Netherlands) and Ljubljana (Slovenia) have been identified, obtained and harmonised, and are now in the process of being integrated into the TIMON Open Platform. The data is already available to TIMON partners in the form of a REST API, and uses the DATEX II standards model to output data.

The data sources cover common aspects of public transport and multi-model commuter facilities, including public bike rental, bus and train timetables and updates, pollution levels, weather forecasts, traffic and congestion levels, and so on.

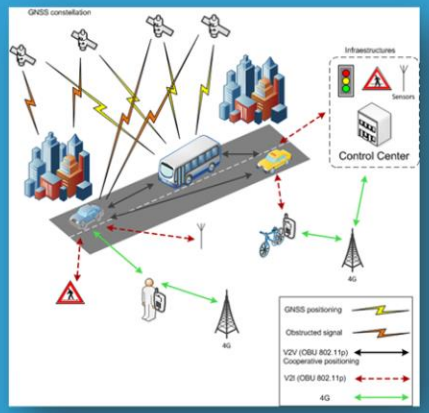
Additionally, data visualisations have been developed to provide TIMON partners and the general public with graphical representations of the data, and a Rest API dashboard has been developed for internal TIMON use as a tool to monitor the uptime and availability of the data sources.

TIMON PROGRESSES AND ACHIEVEMENTS

COOPERATIVE POSITIONING

After identifying the limitations of a standalone GNSS-based vehicle positioning, an enhanced positioning algorithm with sensor fusion techniques has been designed and tested with successful results, especially in the urban canyon environment.

The goal of this task is to study and analyze cooperative positioning solutions to enhance GNSS positioning in challenging scenarios. Here, it is considered cooperative positioning techniques that use any available ranging measurements and/or information from the smart city infrastructure, including among others, traffic control signals and communications equipment.



Cooperative positioning scenario with TIMON hybrid communications.

The proposed cooperative solutions and algorithms are designed to be integrated with the sensor fusion techniques developed also in TIMON, with the aim of improving the accuracy where standalone GNSS-based solutions are not functional, its error is not tolerable or they have limited coverage.

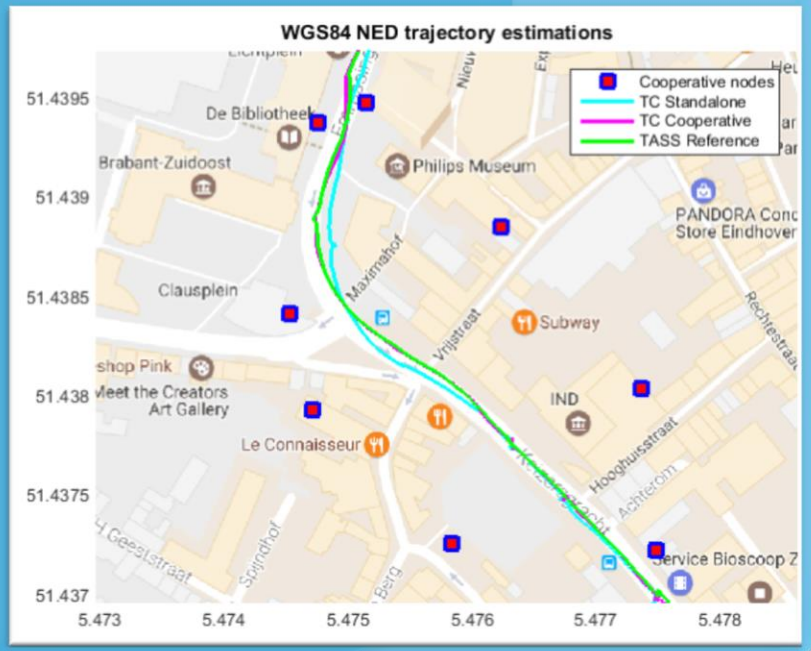
Three different cooperative positioning scenarios were identified:

- Inter-urban scenario: good GNSS signal and good cooperative nodes visibility
- Urban canyon: poor GNSS signal, strong multipath and good cooperative nodes visibility
- Urban road tunnel: GNSS-denied environment, good cooperative nodes visibility

The algorithm performance was evaluated for each scenario and for different cooperative node measurement models and signal propagation conditions. The results show a noticeable improvement of the positioning accuracy, especially in the urban canyon and in the GNSS-denied environment. In cooperative positioning simulations, the lane-level positioning accuracy was achieved in all the scenarios, thus reaching the target KPIs and ultimately, the overall work package goal.

The cooperative positioning performance is shown in the figure. It is possible to observe that the Tightly Coupled GNSS/INS/Odometry algorithm (TC standalone in the figure legend) has significant positioning error during the turn trajectory. In this situation, the cooperative version of the TC algorithm (TC cooperative in the figure legend), that uses the cooperative measurements from the nodes in view, significantly improves the positioning performance and matches the true trajectory.

Cooperative positioning in the urban canyon



TIMON PROGRESSES AND ACHIEVEMENTS

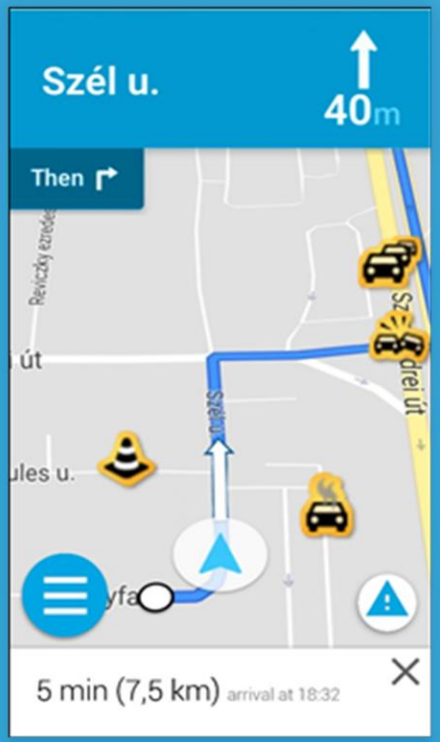
HYBRID COMMUNICATIONS

The research in hybrid communications in TIMON started at the second month of the project, in July 2015, and it is due to be finalized in May 2017. The main objective of this work package is the design and development of an ITS-G5 and LTE capable hybrid communication system which would enable the cooperation of both ad hoc and cellular radio technologies in order to provide reliable communication with low latency for the envisaged TIMON ITS applications. The work package also aims to evaluate the effectiveness of the proposed novel ITS mechanisms in a simulation environment and provide a basic hybrid hardware system incorporating some of the proposed concepts for enabling prototyping in test beds.

In order to realize the proposed hybrid communication architecture different technologies were developed within this work package. The hybrid communication system deployed on ITS stations runs Fraunhofer ESK's ezCar2X framework which is an ETSI ITS compliant protocol stack implementation amended with additional features to support hybrid communications, i.e. it supports LTE capable GeoNetworking in addition to the ad hoc communication mode via ITS-G5. Enabling geo-localized message distribution over cellular networks also necessitated the deployment of a new network entity called the Geo-messaging Server (GMS) in the cloud. GMS is responsible of managing the connected users as well as filtering and forwarding messages on their behalf to their destination over the cellular network.

Another core focus of this work package was the design and implementation of adaptive heterogeneous networking algorithms which would enable intelligent radio access technology selection in a multi-networking environment. Using such an approach enables hybrid nodes to make optimal local forwarding decisions by making use of the diverse range of information available in the user terminals. To this end, algorithms following different approaches were developed namely a rule-based algorithm based on pre-defined policies and an algorithm that aims to estimate the availability of the underlying radio access technologies for satisfying the application requirements. The algorithms were evaluated using a high-fidelity simulation environment in terms of the identified KPIs and showed improvements over the individual technologies in virtually all scenarios.

The same ezCar2X protocol stack with hybrid communication extensions used in the simulation environment was then deployed on hybrid hardware units for enabling prototyping in test beds and demonstrating the benefits of using such a system in the real world. Initial field tests in Helmond showed that by using hybrid communications instead of utilizing a single technology, noticeable improvements in terms of packet delivery ratio under delay constraints can be achieved. Further tests with enhanced algorithms will be performed in future field tests.



Visualisation of several road events on TIMON APP

SCIENTIFIC RESULTS

- P. Lopez-Garcia; E. Onieva; E. Osaba; A.D. Masegosa, A. Perallos. A Hybrid Method for Short-Term Traffic Congestion Forecasting Using Genetic Algorithms and Cross Entropy – January 2016
- E. Osaba; X.-S. Yang; F. Diaz; E. Onieva; A. Masegosa; A. Perallos. A Discrete Firefly Algorithm to Solve a Rich Vehicle Routing Problem Modelling a Newspaper Distribution System with Recycling Policy – March 2016
- P. Lopez; E. Onieva; E. Osaba; A. Masegosa; A. Perallos. GACE: A meta-heuristic based in the hybridization of Genetic Algorithms and Cross Entropy methods for continuous optimization – August 2017

TIMON ENGAGEMENT STRATEGY

Timon has developed a comprehensive Users' Engagement strategy which provides a framework for the management of the users' involvement in the project. This strategy includes in particular the designing and implementation of engagement campaigns to ensure users' participation in the pilots, and to elaborate and carry out questionnaires/online surveys to process their feedbacks from the execution of the pilots.

Part of this Engagement Plan is the organisation of 3 TIMON workshops, together with the production of specific promotional materials supporting the engagement strategy, to create initial engagement and understanding between the project consortium and selected stakeholders.

SUCCESSFUL FIRST TIMON WORKSHOP IN LJUBLJANA!

The TIMON project and future services and apps were presented during a Workshop, which took place on 15 March 2017 in Ljubljana, with the participation of the Deputy Mayor of the city Mrs. Jelka Žekar.

After the presentation of the S-ITS – the Slovenian Society for intelligent transport systems – by Mr. Robert Rijavec, the overall TIMON project was presented by Mr. Andrej Stijepić from JP LPT, while Mr. Tomaž Vrčko from ISKRA and Mr. Matija Cankar from XLAB presented the technical work carried out so far in the framework of the project.

The Workshop was also the occasion to present the TIMON User engagement strategy to a wide audience of potential users.

SECOND TIMON WORKSHOP IN LJUBLJANA

A second Workshop was organised on 20 September 2017 in Ljubljana, during the European Mobility Week. The campaign consisted on promotional materials displayed on two Ljubljana public buses, inside the buses on the LCD screens and on the bus stops throughout Ljubljana.

During this workshop, participants (registered users) were provided with detailed information about the testing phase of project and the nature of their involvement. Around 25 people from different companies attended the workshop. In additon to TIMON partners (ISKRA, XLAB and JP LPT), there were as well representative people from National Post office, Joze Stefan Institute, Slovenian cycling union, Department for environmental protection of Municipality of Ljubljana and from Ljubljana public company for transport. The main goal was to present the Mobile Application Public Beta, and in particular two major features: the Multimodal Dynamic Commuter service and the Road Hazard Warning for bicycle network service. More attention was given to bicycle users during this workshop, with the idea of getting more engagement from users.

NEXT STEPS

- **TIMON 3rd Workshop**

A 3rd TIMON Workshop will take place on 22nd November 2017 in Kino Šiška Avenue. Feedbacks will be expected from some initial TIMON Mobile Application testing from already registered users and new interested users are expected to show up and register for testing phase. After that, three Questionnaires/Online Surveys will be launched at different times in the testing process (before, during and after the testing) through UCI module, each lasting for 30 days.

- **TIMON Hackathon**

On January 2018, the TIMON consortium will organise in Liverpool, Manchester or Belfast a two-days TIMON Hackathon, with the following objectives:

- Offer a platform to promote and disseminate information about the project;
- Investigate new ways to use TIMON API and data to achieve the overall TIMON objectives, i.e. to improve road safety, achieve more flexible travel planning and reduce transport pollution.

One of the afore-mentioned objective will be selected to be the focus of the Hackathon, and form the basis of the Hackathon Challenge presented to the participants. The Hackathon will offer the opportunity to participants to use the information and tools available via the TIMON API, and to discuss with the TIMON partners the use and/or the developments of key services in line with the TIMON key objectives. They will also debate the opportunity to create own TIMON device/APP.

A Panel of 3 judges will assess the proposals made by each team of participants and award gift vouchers to the winners. The aim is to secure the participation of 60 to 70 participants. The target audience for this event will mainly be software developers with an interest in infrastructure and transportation. However, in order to maximise dissemination, the TIMON consortium will also target local transit authorities (technical teams with responsibility for real-time transport data), local government involved in urban planning and public transport, open data enthusiasts and students/teachers studying/teaching urban planning and transportation-related topics.

TIMON EXTERNAL ACTIVITIES

IMPROVING ROAD SAFETY BY USING RECORDED GPS-LOCATIONS: THE CASE OF CURVES ON THE ROAD

GeoX has produced a new video showing a possible application for the TIMON navigation system, i.e. guiding users in different road situations, and in particular when they are dangerous curves ahead.

With this exercise, GeoX showed what value could be obtained from the billions of GPS-locations recorded in navigation systems. By analysing how people are driving along the curves on the roads, the idea was to develop and integrate an alerting system that informs and warns the drivers about their (over)speed in the curve ahead.

First, the company has built an inventory of curves (categories defined by the radius and the length of the curves). Second, using the data recorded, GeoX has analysed and set up the relation between the basic road characteristics, the restrictions and the distribution of the traveling speeds. This analysis resulted in a look-up table (matrix) with recommended (or safe) speeds for each curve-type. Third, they have developed an on-the-fly curve recognition algorithm, which calculates the basic characteristics of the curves from navigation data, which was integrated into the navigation system.

The real-life working demonstration with the "Dangerous curve alerting" feature can be found in the following clip (https://www.youtube.com/watch?v=1MgrfBPCtXM).

TIMON AT THE WORKSHOP ON COOPERATIVE COMMUNICATION AND POSITIONING

TIMON was recently invited to take part to the Workshop on Cooperative Communication and Positioning, which was organised by the HIGHTS project consortium on 19th of June 2016 in Gothenburg, Sweden. The workshop was held as part of the IEEE Intelligent Vehicles Symposium. TIMON was represented at the workshop by Mr Karsten Roscher (Fraunhofer), who gave a brief presentation about the TIMON project.

Find the video of his presentation here.

During this event Mr Karsten Roscher also gave an invited talk on "Heterogeneous Networking for Cooperative Applications" informing the audience about the project and heterogeneous networking concepts utilized in TIMON.

Find the video of his presentation here.

TIMON AT EUROPEAN DATA FORUM IN EINDHOVEN

TIMON project partner GEOX represented the TIMON project at the European Data Forum (EDF), which took place on 29th and 30th June 2016 in Eindhoven, the Netherlands.

The annual European Data Forum (EDF), is one of the key events for the data science community, providing a platform of exchange for relevant industry professionals, researchers, policy makers and members of community interested in data and data science to discuss the challenges and opportunities of data-driven innovation in Europe. This year EDF was held under the theme "Scaling up the European data economy" and was attended by more than 600 participants. The event highlighted the notion that, although a lot of data is collected for analysis, the actual analysis and usage of the data remains a challenge.

TIMON occupied a busy stand at the EDF exhibition area, which was organised alongside a wide range of interesting high-level presentations from European Commission representatives, Philips, Siemens, TomTom, Tilburg University, Dortmund University and many others. The TIMON stand was used to promote the project objectives and the Mapping and Navigation SDK. TIMON has also been listed as one of the exhibitors at EDF on the EDF website, thus providing the TIMON project further exposure.

TIMON AT ITS EUROPEAN CONGRESS 2016 – GLASGOW

TIMON project partner Fraunhofer took part at the ITS European Congress on June 6-9 in Glasgow. ITS European Congresses are important platforms where diverse stakeholders exhibit and demonstrate state of the art ITS technologies and services, help create awareness about ITS and foster their communication to move initiatives forward.

At the congress, Fraunhofer stimulated interest in TIMON by introducing the research they undertake within the project namely adaptive heterogeneous networking concepts for cooperative driver assistance systems. The research involves designing network selection algorithms which detect the optimal path for sharing information between driver assistance systems in any situation. By exploiting different communication technologies i.e. ITS-G5 and LTE, hybrid/heterogeneous networking, one of the core technologies developed in TIMON, can provide improved quality of service to applications, enables efficient use of available resources, allows a straightforward inclusion of vulnerable road users in the C-ITS system and can ease the market introduction of C-ITS services.

TIMON at European Mobility Week

The TIMON project was unveiled to the wider public for the first time on 20th September 2016 in Ljubljana, Slovenia, during the European Mobility Week 2016. The European Mobility Week is an annual event that aims to present mobility alternatives to citizens, to explain the challenges that cities and towns face and to induce behavioral change towards creating more sustainable transport habits in Europe. This year the main theme was "Smart and Sustainable Mobility – an Investment for Europe" in order to encourage local politicians and the public to look at smart and sustainable mobility as an investment for Europe.

TIMON consortium partners ISKRA, XLAB and JP LPT introduced the project at the Town Square, the very centre of Ljubljana. The presentation was one of the many events taking place in the city throughout European Mobility Week. The TIMON presentation included some simulation data for smart route planning and explained how the project seeks to attain its objective of increasing road transport safety, sustainability, flexibility and efficiency.

TIMON at the EU Travel Conference

Leire Serrano and Hugo Landaluce from DeustoTech-Mobility have attended the EUTravel Conference on the Future of Multimodal Travel in Europe, which took place on 6th October 2016 in Barcelona.

Leire Serrano has presented the TIMON project in a session dedicated to Research Driven Innovations.

TIMON at the 2016 Conference on Location-based Services (LBS 2016)

TIMON project partner GEOX participated and represented the project at the 2016 Conference on Location-based Services (LBS 2016) on 15 November 2016, in Vienna, Austria.

GEOX took the opportunity of this event to make a presentation about the TIMON project as well as a successful live demonstration.

TIMON in the Social Impact Conference

TIMON project has been presented during the "Social Impact Conference" organized at the University of Deusto in March 2017. During the session, different R&D showcases were presented, emphasizing on the relation that all the research carried out at the University of Deusto has in society, such as health, citizenship and social inclusion and transport.

Leire Serrano, project coordinator of TIMON, emphasized on the direct relation that the real time transport information services has on increasing the safety in road, improving transport system efficiency and decreasing pollution.

TIMON project in "Thinking of mobility, Thinking on the road" workshop

Enrique Onieva from University of Deusto presented TIMON project in the workshop "Thinking of mobility, Thinking on the road", organized by AECLab in collaboration with Asociación Española de la Carretera. The event took place the 30th of March 2017 in Barcelona, in the facilities of DG Mobility Infraestructures of Generalitat de Cataluña (Dirección General de Infraestructuras de Movilidad de la Generalitat de Cataluña).

During the session, Enrique Onieva explained the progress on the research of artificial intelligence techniques applied to transport dynamics, emphasizing on the results on traffic congestion prediction and multimodal routes optimization.

Presentation of the TIMON Project at the Universitá Politecnica delle Marche

On 7th April 2017, Eneko Osaba from DeustoTech-Mobility gave the seminar "Application of Artificial Intelligence Techniques to Traffic Prediction and Route Planning: the vision of TIMON project" in the Universitá Politecnica delle Marche, Ancona, Italy.

The seminar was divided into two different parts: the first one dedicated to the description of the whole project. The second one was focused on the description of the systems developed in WP_3, emphasizing the process of data collection and data processing. The attendance was composed by students of the engineering faculty, and the staff of the DICEA-Dipartimento di ingegneria Civile Edile e dell'Architettura.

TIMON

TIMON project at the ITS Spain Conference

TIMON project has been presented during the ITS Spain Conference, 25-27th of April 2017, in Madrid.

Leire Serrano, the project coordinator, emphasized that TIMON brings several innovations in the area of ITS services, enabling to deliver new information services to transport users, such as driver assistance services; services for vulnerable road users; multimodal dynamic commuter services and enhanced real-time traffic API. For this, research on various enabling technologies will be carried out: artificial intelligence techniques led by the University of Deusto, cooperative positioning led by CTTC and cooperative ITS led by Fraunhofer ESK.

Furthermore, she pointed out the direct relation of the real-time transport information services has on increasing the safety in road, improving transport system efficiency and decreasing pollution.

TIMON Project presented at a Workshop on Infrastructure Cloud

TIMON project has been presented during the 2nd workshop on Infrastructure Cloud - Operation and Services Programme organise by DG MOVE in the framework of the Collaborative Innovation Days on 9 June 2017.

The Collaborative Innovation Days are a series of events aimed at assessing major advances in key areas of Freight Transport and Logistics and Transport Infrastructure. The objective of these events is to consolidate progress and draft future visions and plans, as well as to facilitate collaboration and cross-fertilization among the projects. The results of the thematic workshops will be presented during a Final Conference which will be held in Brussels on 27 September 2017.

TIMON was invited by the commission to display two posters presenting the basic information about the project, the TIMON concept as well as the opportunities for collaboration between TIMON and other ITS projects, such as:

- Exchange of scientific knowledge in the area of artificial intelligence, cooperative positioning, hybrid networks
- Collaboration in workshops: presenting the project
- Engagement as stakeholder in the TIMON User's board
- Sharing real time data

TIMON CLUSTERING ACTIVITIES

TIMON is involved in the Cluster of ITS projects funded under H2020, where ITS EU-funded projects have been collaborating to identify and exploit possible synergies in the different areas of ICT research and operation in multimodal traffic and transport.

Within the scope of this cluster, TIMON has actively participated in several activities and events, including two workshops organised by the Innovation and Networks Executive Agency.

This was the opportunity to gather the following projects: ADASANDME, AutoMate, BONVOYAGE, CIMEC, CODECS, DORA, ETC, EuTravel, HIGHTS, ITS Observatory, MASAI, MAVEN, OPTIMUM, PASSME, ROADART, SocialCar, TIMON and VI-DAS.

During these workshops, projects promoters could identify areas of common interest and set up dedicated working groups on open data, V2X applications beyond day one, and the organisation of pilots. Different partners from the TIMON consortium have been involved in these working groups, such as Fraunhofer, CTTC, Sensible Code, ISKRA and TASS.

As a result of these contacts, several actions have been held with some of the projects of the cluster:

- TIMON is currently using real time traffic data provided by the Optimum project in the REST API produced in WP2. In parallel, TIMON has shared information of the Bluetooth sensors and the inductive loops located in the city of Ljubljana;
- Contributions for the "Travel Competition Game- Help Lily through the Gridlock", shown in different conferences (i.e. ITS Europe 2016) in June 2016;
- TIMON (DEUSTO, FRAUNHOFER and CTTC) have co-organised together with the project HIGHTS a Workshop on Cooperative Communication and Positioning (CCP), in the framework of the IEEE Intelligent Vehicles Symposium, which took place in June 2016 in Gothenburg, Sweden, (http://iv2016.org/);
- TIMON actively participated in the EUTravel project Conference on the Future of Multimodal Travel in Europe, which took place on 6th of October 2016 in Barcelona, and which gathered other EU-funded ITS projects
- TIMON (DEUSTO) also attended the ITS Europe congress in Strasbourg from 19th to 22nd June 2017 to present the TIMON project. This joint event with the EU ITS cluster was the occasion to set up discussion panels with other ITS cluster projects. TIMON was involved in the 'Mobility services – from transport to mobility' session, and also participated in the 'ITS services' panel of experts and presented a demo of the multimodal route planning system developed in TIMON at the European Commission booth.

CODECS PROJECT SUPPORTING COOPERATIVE ITS

The Cooperative ITS Deployment Coordination Support (CODECS) project is a HORIZON 2020 Coordination and Support action (CSA) which started in May 2015 and will run until April 2018. CODECS follows a bottom-up approach, where interested experts can register online to join the open C-ITS stakeholder network and be involved in consultations, workshops and webinars. The consolidated results of the CODECS are documented in public deliverables and highlighted in biannual newsletters.

CODECS first developed with the stakeholders' network an inventory of initial deployment activities: technological and functional approaches to corridors and pilots; stakeholders' roles and responsibilities; use cases; C-ITS strategy status and open strategy issues. In a second step, the collected information was assessed and consolidated. The project has now entered its third phase, focusing on developing guidelines for a concerted C-ITS roll-out and discussing the findings with the stakeholder network. The final results will be published in April 2018 and shared with the Amsterdam Group, the C-ITS Platform, and Standards Setting Organisations. CODECS will organise its final event at the TRA 2018 from 16 to 19 April 2018 in Vienna. Thematic panels will highlight the most important findings.

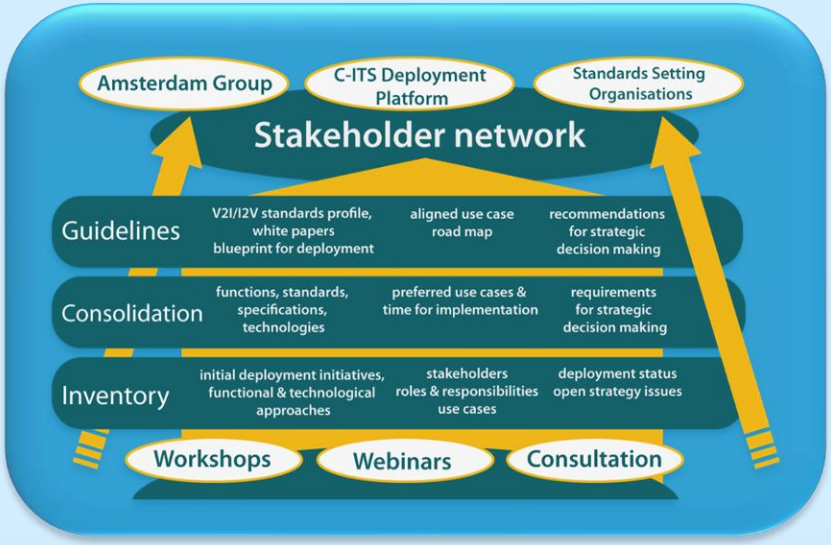
Cooperative ITS is based on short-range communication complemented by other media like cellular and broadcasting systems. In particular, designing the short-range communication ETSI ITS G5 has been driven by functional requirements for enhancing traffic safety, efficiency and driving comfort. The development of C-ITS use-cases and related specifications requires the involvement of many stakeholders and the consideration of the results of related R&D projects. Realising initial C-ITS deployment in Europe as of 2019 places special emphasis on profiling, interoperability testing and further issues related to operation. As a result, it becomes clear that driving C-ITS is a complex task involving many stakeholders, R&D and pre-deployment projects on national and European level.

CODECS supports networking the C-ITS stakeholders and deployment actors, and information sharing for:

- coordinating initial deployment activities
- aligning implementation road maps
- giving strategy coordination support
- raising awareness for the idea of cooperative road traffic

CODECS information material, newsletters, published documents as well as workshop presentations can be downloaded from the CODECS website www.codecs-project.eu.

TIMON



TIMON AT THE CONNECTED VEHICLE EVENT ORGANIZED BY EU PROJECT CODECS IN BRUSSELS

Karsten Roscher, from Fraunhofer ESK and Enrique Onieva from University of Deusto, presented the TIMON project during the Workshop on Hybrid Communication, organized by the EU project CODECS. The event took place the 19 of May 2017 in Brussels, in the Aqua Hotel.

During the session, Karsten presented the approach followed by the TIMON project to the challenge of interchanging data among different road users by means of hybrid communications. Moreover, Enrique presented the approach regarding artificial intelligence techniques used to take advantage of these data, emphasizing on the results on traffic congestion prediction and multimodal routes optimization.

TIMON USER COMMUNITY

FROM THE USERS BOARD TO THE USER COMMUNITY

TIMON has decided to change the "dimension" of its former Users' Board to build a much larger and strong TIMON Users' Community, including all potentially interested stakeholders in view of future exploitation. It is paramount for the project to keep extending it to include as many organisations/individuals as possible. The TIMON Users' Community should be considered as an embryo of potentially interested stakeholders for uptake and commercialisation of TIMON apps and services. In that respect, the partners have put efforts on contacting new possible members, through the following means:

- Through each partner own networks and business contacts;
- Through the pilots organised in Helmond (The Netherlands) and Ljubljana (Slovenia) during which the users involved in testing the TIMON technology have been approached to become full members of the TIMON Users' Community;
- Through the clustering activities with other ITS H2020 projects and the sharing of users between the ITS H2020 projects;
- Through the use of social media and content curation.

The partners have in particular organised a number of bilateral meetings over the period, sometimes in the margins of events they were attending on behalf of the TIMON project, to try and secure the participation to the Users' Community.

JOIN THE TIMON USER COMMUNITY

The TIMON consortium is actively working to expand and involve more its User Communityin the project!

The TIMON User Community serves as a forum to gather stakeholders interested in the TIMON project. The User Community discusses project progress and achievements, through physical meetings, webinars, e-mails and telephone conferences. The User Community plays a key role in ensuring that TIMON develops apps and services that are useful for the road transport community. Any contributions to the discussions of the User Community will be entirely voluntary and will be kept confidential.

In order to join the TIMON User Community, interested stakeholders must sign a short Letter of Intent, which explains the purpose and the role of the User Community.

For further information and to receive the Letter of Intent, please write to secretariat@corte.be.

FIRST TIMON USER WEBINAR

On 11th April 2016, the TIMON End Users' Board members were invited to take part in the first End Users' webinar, designed to inform End Users' Board members of the latest advances made in TIMON, provide room for discussions and ultimately gather feedback on the best way forward for the TIMON project.

The first webinar focused on the initial work done in TIMON, i.e. gathering of end user needs and identification of system requirements, the creation of the TIMON standard data model, and the various open data sources that will be used in the TIMON apps and services. The webinar also included a section, where the users' perspective on the TIMON services was analysed.

The need to ensure privacy and protection of personal data were emphasized once again as a key requirement to ensure that end users take up the TIMON apps and services. Participants also agreed that to guarantee reliability of the TIMON apps and services, they must provide data that is timely, exact, precise and available in real-time.

Since this first webinar, TIMON has continued working on the definition of the standard data set model, data harmonisation and open data sources that TIMON apps and services will make use of, as well as on the development of the core TIMON technologies. A new webinar will be organised shortly in the first half of 2017 to inform End Users' Board members about the latest advances and start discussing the next steps, and in particular the exploitation-related activities and how the TIMON Users' Board can be best use to ensure the sustainability of the project's results.

A next webinar is planned before the end of 2017.

ITS NEWS HEADLINES

** CLICK ON THE TITLE TO BE TAKEN TO THE ARTICLE*

TIMON

TIMON Consortium

Deusto University of Deusto

Fraunhofer ESK

Iskra

GeoX

CTTC

The Sensible Code Company

XLAB NOT IDLE

Javno podjetje Ljubljanska parkiriča in tržnice, d.o.o.

CORTE Confederation of Organisations in Road Transport Enforcement

tass international

intecs

Connect with TIMON

Want to learn more about how TIMON functions?
Want to discover who's behind the work done in TIMON?
Want to find out about the events TIMON is hosting?

Visit us at **www.timon-project.eu**

Or find us on **Facebook**, **Twitter** or **LinkedIn**.

Disclaimer

The TIMON project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 636220

Write to TIMON

For more information, write to:

Project coordinator – DEUSTO
Leire Serrano: leire.serrano@deusto.es
Hugo Landaluce: hlandaluce@deusto.es

Dissemination leader – CORTE
secretariat@corte.be