DYNARS

DYNARS is a network-wide traffic management solution to tackle the urban congestion in cities. With the increase of delays for road users in urban area, fighting congestion has become a major objective for public authorities. Budget constraints to expand the current infrastructure have added the urgency to focus on cost-effective smart traffic management solutions. In DYNARS, the new innovative traffic data source from ARS Traffic Radars is integrated within the current traffic light controllers to enable an advanced coordination of a network of intersections. This coordination is achieved by the collaboration between an Intersection Master and a Network Master, which ensure that urban congestion is solved considering traffic flow of the whole network. As a result, the outflow is improved and vehicle loss-hours are reduced.

The solution

The DYNARS system is an efficient and cost effective way to ensure road capacity is used at its fullest and the traffic flow is improved with very limited structural or organisation impact.

The DYNARS advanced user interface offers real time overview of the traffic situation and allows to interact with the traffic algorithm. Traffic measures such as green waves or emergency vehicle priorities, scenario's for events and incidents can be configured and implemented by the authorised user with the push of a button.

The DYNARS system can be installed on a preferred datacentre, or made available in the cloud and can even be provided as a service, fully managed by the Traffic Control Centre of ARS.

Richer data at a lower price

A key input of the any traffic management control system is accurate real-time measurements of the traffic condition of the network. ARS Traffic Radars are the perfect candidate for advanced data collection and constitute the first generation of intelligent roadside unit.

Their contactless detection of vehicles allows for a non-invasive installation, making use of existing infrastructure, leading to several economic and environmental benefits.

Their ability to track vehicles individually over a long stretch of road enables the system to provide a much richer range of traffic information. This innovation opens the door to a whole

new set of smart traffic management solutions starting from current traffic light control systems to future V2I communications.

State-of-the-art algorithm

With DYNAR, traffic lights are regulated by a collaboration between the local traffic light module and a network-wide control module which correlate traffic information of multiple intersections. The congestion is not solved by increasing the throughput of each intersection individually, but by considering the traffic flow of the whole network.

Locally, an adaptive control system using vehicle position from radar data makes sure that incoming traffic is served as soon as possible.

Simultaneously, bottlenecks and gridlocks at the network level are prevented by balancing the queues throughout the network. The local controller will then be advised to extend or decrease the green time in order to improve the traffic flow of the overall network.
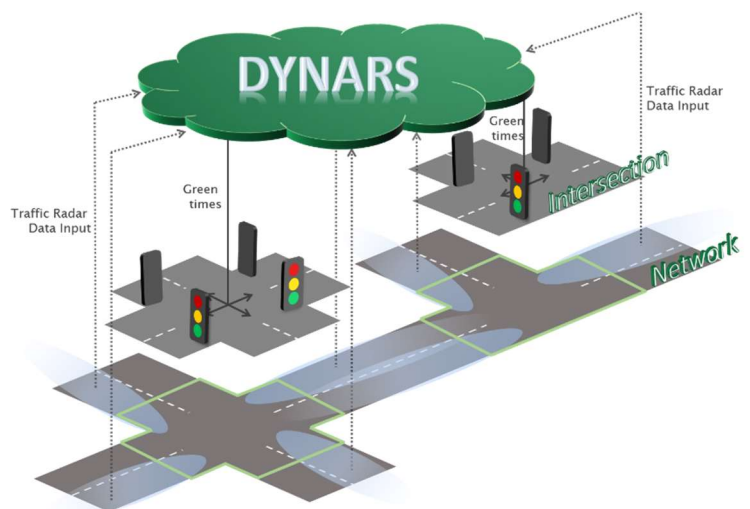
Why DYNARS?

We have been providing traffic and transport technology solutions to businesses and government bodies since 1997. We now want to offer our expertise to those who are seeking complete end-to-end solutions. We can provide you the hardware, the software and the expertise you need to acquire a tailor-made solution upon your request.

The architecture

At the road side, the DYNARS Local Processing module interfaces with the existing traffic light controller to retrieve intersection information and send back optimized green times. Intersections are managed by the Intersection Master module. This module contains advanced DYNARS algorithms which take various aspects into account. Examples include extended queue estimation from radars and the use of historical data. At the higher level, in the DYNARS Network Master, network management is implemented to optimize connected intersections. Based on the operator requirements, green waves and/or preferred routes can be configured on various parts of the network.

The system provides configuration and monitoring portals which ensures operators and supervisors are in control. Additionally, the performance of the algorithms in the system are continuously evaluated. This information is used in a direct feedback loop as well as for further improvements.

DYNARS Use Cases

The traffic management solutions developed by ARS T&TT have proven their worth during several projects including:

- o **PPA-Noord**: the pilot Amsterdam Project had the intention to verify the use of queues at traffic lights detected with radar and loops to identify if they can optimize buffer space use with the goal to prevent gridlocks for commuters traveling between Zaandam and Amsterdam.

- o **AFM Rotterdam**: this project aims to deploy an entirely autonomous system that would maintain the flow of traffic, road safety and air quality around the Maastunnel. The traffic management solution of AFM relays on traffic radars measurements to estimate queue lengths and ultimately influence the traffic control at the intersections surrounding the tunnel.

- o **Challenge Flanders**: the regional government of Flanders has been looking to test new innovative traffic management solutions for intersections. They to implement DYNARS; it is at the moment an on-going project and it will be the first implementation of the full DYNAR end-to-end solution.
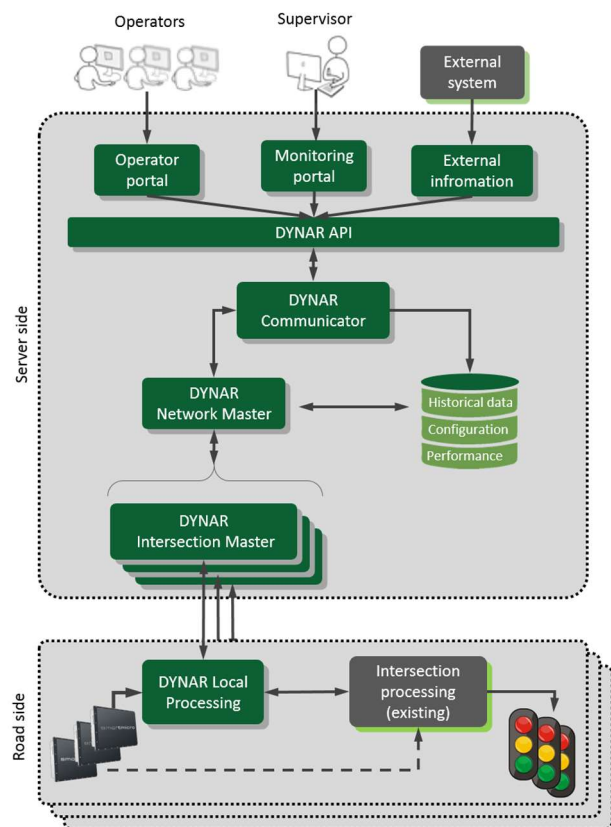
ARS T&TT Company Profile

The company was founded over 20 years ago and prides itself on delivering high quality end-to-end ITS solutions. The knowledge base at ARS T&TT is continuously growing and offers solutions in a large variety of sectors including: Smart Mobility, Traffic Management, Public Transport, Data Warehousing & Sensoring, Planning & Logistics and Enforcement.

Distributors – Call for Partners

We welcome the opportunity to collaborate with partners worldwide to deliver the highest quality ITS solutions.

If you feel your company would make an ideal partner or you know someone who may be interested, please do not hesitate to contact us.

For direct support, please contact:

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