

THE METHODS AND WAY OF UTILIZATION TELEMATICS INTO DECREASE OPERATIONAL COSTS WITH ANALYSES OF PRESENT SITUATION AND CAPACITY OF GOOD TRANSPORT AND OIL TREND PRICES

The Telematics and Intelligent Transport Systems are very important in transport system. Transport Policy put accent on Intelligent Transport System which are integral part of transport within Europe and into whole areas. The mainly function of these described methods is reach by active and coordinate activity accelerated utilization of transport telematics into road haulage. Utilization of telematics it is one of ways how to ensure mobility of vehicles and humankind.

Keywords: *economy of transport system, fuel consumption*

1. Introduction

In recent of last years was accelerate tempo of development in area of ITS (Intelligent Transport System) as in countries EU like as in intrant countries EU of Middle and East Europe. Tempo of development is concerning to areas of common management transport and systems of transport dates and informations.

I think, that today is no need to persuade leaders or managers, that these informations and the way of utilization these informations they have gold price.

This development is concerning mainly to area traffic control and systems of transport informations and also the way of utilization these information systems.

The White Paper (The white book European Transport Policy for 2010: Time to Decide was authorized in autumn 2001) [4]. In this document you can find, that the main force is put the accent on safety, enviroment and development of transport market. This transport policy is put the accent on ITS. ITS is really very important part of transport within Europe into all areas.

On the base of results, obtained from researches, telematics offers to you these purposes:

- maximize utilization of transport capacity, Telematics into logistic,
- increase of safety road transport and decrease of road accident,
- reduction of transport time over navigation system and plans transport route,
- decrease of environmental pollution and decrease of emissions,
- decrease of fuel consumption.

Telematics is shifting nowadays in all types of transport. For each transport company, which is provided cargo transport is important to transport goods in best quality on time. Surely they would like to meet smallest transportation expenses, to offer best price for their clients. That is requires utilization of sofistic systems, which are help to decrease transport cost over monitoring actual location vehicle, complex planning of routes or possibility to monitoring vehicle operation with aim to reach lowest fuel consumption.

Satellitic monitoring of vehicle has cardinal importance on cardinal decrease of costs over basic way as : transit of vehicle, acceleration of shipment to customers and decrease of the number of spent odd km near searching of customer. An advantage of this monitoring system is ability to respond on possible limitations as breach of route or breach date [1, 2].

2. The economy of transport

The biggest influence on total economy transport costs has transport management together with high transport system linked on quality logistic software together with monitoring and informatic system. After that Telematics present not only economy mentioned costs near transport realization and also optimalization traffic flow as well as increase of effects and mobility vehicles, what causes improvement enviromental quality. Professional public is an keeping with fact, that costs which are influenced by other aspects as :

- First costs on vehicle purchase.
- Fuel costs.
- Maintanance costs.
- Selecting of vehicle crew.

And from that reason is decrease of economy fuel costs in transport companies one of the pivot moment success or unsuccess management. Consumption of fuel is spooling from weights of cargo and choised oute of transport and also from motivation vehicle crew.

The whole question of reducing fuel consumption is very extensive and whole fuel consumption affects lot of factors, which has objective and subjective characters.

The consumption of fuel vehicles and mainly road vehicles is most interesting aspect for each producer and customer. And it results from share of fuel price on total transport costs. The mostly part of vehicles is powered by piston engine burned oil products. From this also results need of fine measuring consumption burning engines and also preferably immediate interpretation. Consumption of fuel is no such plan sailing, like you can think at first sight.

3. The methods of the measurement of fuel consumption

The first problem is occuring with view fuel system used by present producers of trucks [3]. The mostly part of vehicle producers used on gas feed to engine chamber – Injector Engine. This type of engine chamber consists of gas feed pump with Bosh feed pump. Standard feed pump is working on this way that by injection is one part of fuel returned back to feed pump. Returned fuel is warmed and foamy. Is it mix of fluid and gaseous state. If you would like to use direct measurement, you should have some problems near by elimination and lot of producers cleared this problem by undirect measurement by used another natural parameters. Each this method of measurement over mediaton pa-

rameters has unfortunately inaccuracy extension. Follows, these problems of measurement fuel consumption were rebounded into delimited possibilities used on direct methods in present.

- Fuel Float.
- Methods of 2 Flows.
- System Flowtronic.

Direct Measurement over float show us, true result in case only is car at rest. This way of measurement is excluding this utilization of this method. Measurement over fuel float rests in shoulder of flow main and overflow valve. Independently this way of measurement is measuring on entrance and out on oil thrower ring. This different of measured parameters is home consumption. This method of measurement near disclosure precision of flow meter by 1% and hydrograph volume hundreds of litres fuel is presenting expression error rate -19%, measurand is mixture of liquid and gaseous state of fuel.

System Flowtronic made by company Quickly AG is sparser method of measure fuel consumption. Measurement is connecting on enter on port injector with volumeter and overflow valve. By this way is increasing excessive pressure, what caused lower lifetime of port injector. On the base of experiences from these types of measurement was finishing to proposal direct measurement with such modifications: Between motor filter and port injection we will put by us proposed equipment. This equipment is composing of foam-breaking equipment, water-jacket and volumeter. Engineering solution is protected by patent right. Simply tells, fuel feed with volumeter is connecting with foam-breaking equipment, which is enclosing circulation by suction tube of port injector and radiator bypass. On this way should fuel circulate, which left tankful over jet of port injector.

Nappe fuel is not coming back, but this fuel cools down and this foam was took out and this fuel come up back to fuel pipe with volumeter. Following connection of this system measurement with adequately measurement of distances and velocity GPS and appropriate software we will meet method

of measurement, which I wanted to introduce to you in this my small lecture. Extension and function various measurements of monitored parameters (fuel consumption, driven km, immediate location) is very extensive. Such simple applications can offer to us, shortest or swiftest route, sum up length and driving time. These informations are necessary for driver book and also as supports documents for evaluation effects of transport and engine utilization and crew utilization.

Composite and latter systems can form optimal route in respect with importance of stopping places, just not only find suitable route. The base of this system is creating by map documents with utilization of mobile navigating systems and systems inbuilt into cars. In between these systems for planning routes also belongs application on transport optimization. Near this optimization is system working not only with space but also with time. After that is creating detailed time frame. In such detailed time frame you can find included period of drivers stopping places on unloadings. This system count on with lot of restrictions like restriction of entry in the concrete place, obligation with manipulation with and time between 2 unloadings. These applications for route planning are executed as modular system. One of these models can be also system for monitoring vehicle position. Actually you can check, if is vehicle moving in according with suggested route and in line with time frame and this analysis model helps to remove depressions and offer to us analysis on vehicles and vehicle crew from time line.

4. Summary

The mainly function of these described methods is reach by active and coordinate activity accelerated utilization of transport telematics into road haulage. Utilization of telematics it is one of ways how to ensure mobility of vehicles and humankind. On the present is running monumental process standardization because of utilization of telematics resources with international character.

5. Literature

- [1] de Castro E. A.; Rodrigues C.; Esteves C.; da Rosa Pires A.: *The triple helix model as a motor for the creative use of telematics*. Research Policy. Vol. 29, Issue: 2-3, Elsevier Science B.V. 2000.
- [2] Kato S.; Tsugawa S.: *Cooperative driving of autonomous vehicles based on localization, inter-vehicle communications and vision systems*. JSAE Review. No 22. JSAE and , Elsevier Science B.V. 2001
- [3] Podstanický I., Liščák Š., Drożdziel P.: *Modern method of fuel consumption measurement in vehicle transport*. Eksploatacja i Niezawodność, nr 1 (25), Polskie Naukowo-Techniczne Towarzystwo Eksploatacyjne, Polska Akademia Nauk w Oddział Lublinie, Lublin, 2005.
- [4] White Paper: *Preparation of the Associated Countries of Central and Eastern Europe for Integration into the Internal Market of the Union*. COM(95) 163, May 1995.

Ing. Jaroslav GREGUŠ

Head of Transport Department
Regional Authority Prešov
Námestie mieru 208001 Prešov, Slovakia
jaroslav.gregus@po.kud.gov.sk
