

## I. IDENTIFIKAČNÍ ÚDAJE

<b>Název práce:</b>	Real-Time Driver Advisory System for Fuel Economy based on the ADASIS data
<b>Jméno autora:</b>	Bc. Milan Cvetkovič
<b>Typ práce:</b>	diplomová
<b>Fakulta/ústav:</b>	Fakulta dopravní (FD)
<b>Katedra/ústav:</b>	Ústav dopravní telematiky
<b>Oponent práce:</b>	Ing. Matowicki Michal
<b>Pracoviště oponenta práce:</b>	Ústav aplikované matematiky

## II. HODNOCENÍ JEDNOTLIVÝCH KRITÉRIÍ

<b>Zadání</b>	<b>mimořádně náročné</b>
<i>Hodnocení náročnosti zadání závěrečné práce.</i>	
<p>This thesis according to author aims on addressing following issues:</p> <ul style="list-style-type: none"> <li>• Development and usage of ADAS to improve fuel economy,</li> <li>• Usage of Electronic Horizon data structure in ADAS applications,</li> <li>• Development and implementation of predictive algorithms in Modelica programming language,</li> <li>• Testing and evaluation of developed algorithm in terms of fuel efficiency,</li> <li>• Development of cross check algorithm in terms of user acceptance.</li> </ul> <p>Author of the thesis stated number of ambitious goals to achieve within complex project. Due to large scope of the work originating from definition of the problem through reviewing of current EU legislatives, state of the art, design and deployment of the system all the way to verification of algorithm, fulfilling of all goals seemed extremely difficult within diploma thesis.</p>	
<b>Splnění zadání</b>	<b>splněno s menšími výhradami</b>
<i>Posudte, zda předložená závěrečná práce splňuje zadání. V komentáři případně uveďte body zadání, které nebyly zcela splněny, nebo zda je práce oproti zadání rozšířena. Nebylo-li zadání zcela splněno, pokuste se posoudit závažnost, dopady a případně i příčiny jednotlivých nedostatků.</i>	
<p>Issues regarding describing, and development of the ADAS and RTDAS systems are very well described and certainly prove the value of master's thesis. However I would recommend to develop more sections describing state of the art in field of other RTDAS systems aiming to adjust optimal speed of vehicles for fuel consumption economy, as well as proper discussion of conclusions. Author only briefly states that issue planned to be elaborated in work as "Development of cross check algorithm in terms of user acceptance" is not part of the thesis in the end, which stands for whole 1 page length chapter of thesis. This gives an impression of unfilled assumptions taken at the beginning of the work about scope of thesis. Similarly discussion of conclusions could use some more effort in describing main benefits of proposed solution and discuss project results to wider extent.</p>	
<b>Zvolený postup řešení</b>	<b>správný</b>
<i>Posudte, zda student zvolil správný postup nebo metody řešení.</i>	
<p>The methodology applied in the thesis was very interesting and the algorithm itself was rather well described and depicted in the appendixes. Author proved to have significant knowledge in the topic and put lot of effort to thoughtfully analyze and design proposed RTDAS algorithm with utilization of existing EU supported standards like electronic horizon. Master thesis surely presents description of an ambitious and useful project. However, validation and control of the algorithm efficiency could be described and documented in more detail.</p>	
<b>Odborná úroveň</b>	<b>B - velmi dobře</b>
<i>Posudte úroveň odbornosti závěrečné práce, využití znalostí získaných studiem a z odborné literatury, využití podkladů a dat získaných z praxe.</i>	
<p>Professional level of thesis is at good level. Student stated at the beginning of work clear goals of project, and through following chapters aimed on achieving them. Unfortunately maybe only due to very brief description of some, thesis</p>	

leaves impression of some grey spots in it. Nevertheless sole methodology and process of creation the algorithm and defining new system was done carefully and deserves high grade.

**Formální a jazyková úroveň, rozsah práce**

**B - velmi dobře**

*Posuďte správnost používání formálních zápisů obsažených v práci. Posuďte typografickou a jazykovou stránku.*

Thesis is written in clear and understandable English language. Despite minor spelling errors (e.g. page 25 point 3 „Low cots Advanced Driver...“), general language is good.

There are however moderate flaws in structure of the thesis. Paper is not clearly divided into introduction, literature review, project description and results sections. Especially literature review could be elaborated in a way better describing state of the art for the advisory systems deployed in nowadays vehicles. Chapter 2 could be better developed to exceed 3 pages which in my opinion is too short for separate chapter.

**Výběr zdrojů, korektnost citací**

**C - dobře**

*Vyjádřete se k aktivitě studenta při získávání a využívání studijních materiálů k řešení závěrečné práce. Charakterizujte výběr pramenů. Posuďte, zda student využil všechny relevantní zdroje. Ověřte, zda jsou všechny převzaté prvky řádně odlišeny od vlastních výsledků a úvah, zda nedošlo k porušení citační etiky a zda jsou bibliografické citace úplné a v souladu s citačními zvyklostmi a normami.*

While describing the data used in system, not all of them are referenced to a literature (see subsection 1.3.3 META-MESSAGE description). The same follows for subsections 1.3.4 and 1.4. Another formal shortcoming is sourcing of figures. Very few figures have source described in caption which should be fulfilled even for own sources. Furthermore, figures should be described and introduced in text more thoughtfully. Author seems to mix 2 formats of referencing. He uses number referencing as well as author and year in brackets in text without including reference in the list (page 37, (Department of Transportation U.S. – NHTSA, 1999).

More thorough review especially of the proposed system validation and conclusion section would be useful.

**Další komentáře a hodnocení**

*Vyjádřete se k úrovni dosažených hlavních výsledků závěrečné práce, např. k úrovni teoretických výsledků, nebo k úrovni a funkčnosti technického nebo programového vytvořeného řešení, publikačním výstupům, experimentální zručnosti apod.*

I consider this thesis to fulfill both formal as well as factual requirements on a master's thesis. The topic of thesis itself is very interesting and important for urban and electric mobility. I am convinced that analysis of actual state of art and solutions existing together with planning of system validation and deployment took lot of effort and hard work. It is a great pity it was not presented in thesis in more depicting way.

This thesis is fully compliant with the requirements. The issues mentioned in this review are rather minor and consider formal aspects rather than technical and methodological ones.

**III. CELKOVÉ HODNOCENÍ, OTÁZKY K OBHAJOBĚ, NÁVRH KLASIFIKACE**

*Shrňte aspekty závěrečné práce, které nejvíce ovlivnily Vaše celkové hodnocení. Uveďte případné otázky, které by měl student zodpovědět při obhajobě závěrečné práce před komisí.*

Předloženou závěrečnou práci hodnotím klasifikačním stupněm **B - velmi dobře**.

**Proposed questions:**

1. What other existing systems aiming on improving fuel economy in vehicles did you find in literature prior to deciding of your methodology, and why you decided for this particular one?

2. In chapter 6.3 and 6.4 you depicted tables with data describing influence of proposed system on fuel consumption, travel time, speed and delays. What is the source of data for this comparison? How did you achieve systems results, and what data was used as control group?

Datum: 28.12.2017

Podpis: 