HOW TO CHOOSE THE RIGHT NAVIGATION DEVICE IN TRAFFIC?

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Abstract: *Today GPS devices have become a reality in navigation and traffic. Satellite coverage of the area is extremely good and reliable, so it makes navigation more secure. Acceptable price of different GPS devices makes them available to most persons who need them, in any possible manner. It still doesn't mean that a need for classic maps in navigation has been completely eliminated. Classically prepared geographical maps for navigation require certain graphical preparation. Novelty in graphical industry represents a possibility of steganography protection of the prepared data – in this case, maps. On the other side, as possible alternatives, electronic auto and navigation maps could be named, as well the mobile communication devices and computer technique.*

Keywords*: Navigation Map, GIS, Traffic, GPS, Devices, Steganography*

1. Introduction

The interconnection between organizations and individuals, regardless to their field of work is within present conditions of global organizing, a necessity. Functions and modes of these connections determine a required space and time. Such defined and described functionalities ask for technical means and tools in order to get realized. Development and sophistication of such tools provide individuals with maximal possibilities for mobility and orientation towards fulfilling needed activities and diversified obligations. Connections between urban and sub-urban areas and quality of these connections specify a level of development of a certain society. Construction of communication and telecommunication infrastructural elements allows an active individual, group or a society to completely plan and realize defined plans in appropriate and qualitative mode. In the process, static or dynamic behaviour of all dynamic elements in a society are specified exactly by the possibilities provided by a certain infrastructure. Also, every organized dynamic activity connotes traffic of goods and commodities needed for realization of the planned activities. Nevertheless, it is especially important to underline a human component of the above mentioned – traffic and mobility of people who are also carriers of activities, and especially people authorized to completely control and manage individual activities and processes.

For a longer period of time, people were put in a position to separate physical locations of their homes and business assignments and activities, so they have to continuously travel from one position to another, spending their time in the process. Naturally, this isn't the only situation where individual is forced to change his momentarily physical location, but is certainly the most usual, on the daily basis. The other travels have sporadic and occasional character, but are also possible. Those would be different travels of a private character, according to the private needs such as vacation or touristic travels.

According to the general definition, traffic is „The passage of people or vehicles along routes of transportation...", that is, „The business of moving passengers and cargo through a transportation system…", or, „The commercial exchange of goods; trade.…". [1]

2. Some considerations

Though, the above mentioned definitions imply a traffic of messages as well, it is not the solely matter of consideration and it could be assumed that traffic of messages is included in the third part of definition, the one that mentions goods and materials. For purposes of this research, it is necessarily to combine mentioned definitions with emphasis put on business needs for traffic of people, goods and services, consequently the messages as well. In this sense, from the pragmatic aspect, it is necessarily to include into the consideration a component of transportation or transfer in a physical sense. In a technological aspect, all traffic, regardless to their sort, demand a proper organization and regulation. At the same time, primarily and basic purpose of traffic regulation is safety of all traffic participants.

Due to the specification, it is required to define term of traffic safety. Let the definition, for purposes of this research, be: "Safety is the biggest possible probability that the complete traffic system or its certain sub-system will safely function, according to the prior defined working conditions. If, from any possible reason, threats to the regular traffic occur, the implemented appliances should be projected and programmed in order to unconditionally, reliably and automatically pass to the higher level of safety, even if it means the abolition of traffic. Development and organization of traffic in present frames are a consequence, of primarily development of technical tools and infrastructural possibilities. However, it could also be put vice versa, good infrastructural possibilities are incentive for development of technical tools, means and appliances, used for a qualitative management of traffic, regardless to the its sort and shape.

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[1] http://www.answers.com/topic/traffic#ixzz1wW6IWHLb, (May, 12 2012)

Besides term of traffic, in its general sense, and transportation, this research also requires a definition of term navigation as well. Though originally navigation was connected to maritime travels, within present traffic possibilities one could mention navigation in any sort of traffic: road, maritime or, even space.
Navigation, orientation or regulation of traffic can be observed from several aspects, but traffic safety is beyond doubt, the most important.
Navigation refers to the process of monitoring and controlling the movements of objects or vehicles between two spatial positions in traffic. Positions are determined by spatial coordinated within metric space applied to the physical space where the movement takes place (Bowditch, 2002). The second important fact connected to the traffic safety is the environment in which traffic or movement generally occur. In general sense the basic demands of navigation are identical for all traffic modes. However, there are some specificities that differentiate individual sorts of traffic. Therefore, maritime traffic in certain characteristics differs from inland or air traffic.
Term navigation itself (lat. Navigare) was generally connected to the navigation and characteristics of maritime traffic where demands for elements of orientation and consequently navigation, are different, that is more demanding than the ones for inland and inland traffic. Hence, the urge for terrestrial navigation as a scientific sub-discipline emerged. According to the metrics of applied coordination system on Earth, every point – a physical location is accompanied by pair of coordinates (latitude -φ, longitude-λ) as measure of distance from the agreed original points represented by equator and meridian. The Earth, as celestial body and environment in which all sorts of traffic occur, is the environment in which people apply, according to their notifications, rules of Euclid space. However, the applied metrics is of the agreed character and submerged to changes. With its form and relationships in its environment, the Earth imposes somewhat different modes of description, so the geographic coordinates are connected to the sphere geometry which puts Euclid norms of planar environment into the situation of re-evaluating their application and importance. Navigation in such way can be observed within frames of geometry – globally and of the Euclid planar geometry – locally, within situation of locally bounded movement from one position to another in a space.
At the same time navigation connotes usage of tools such as navigation geographical maps. Geographic maps, the ones that are presently in use, are projections of three-dimensional space to two-dimensional form with data of position of a single point T (φ, λ), latitude and longitude. The third coordinate, altitude, is significant when position of an object is observed in comparison to the local horizon. Already by its purpose, map is a visual outline of certain area, described by proper symbols, which underlines relationship between elements of the space displayed. The form of map is also connected to the concrete circumstances and according to the situation it can be significant. Within present frames of technical possibilities and concrete digitalization and application of information communication technologies, this complete area is submerged to drastic modifications. Besides consideration of forms of tools that can be used for communication and navigation, this paper analyses their acceptance from participants according to traffic and transportation safety. Since some tools and their performances have a character of innovations, the results of conducted researches can be observed with a certain attention, but tools themselves can be accepted as a possibility.

3. Overview and categorisation

The subject of this research is acceptance of individual tools for navigation and orientation in traffic. At the same time, as bounded factors were observed, the application of tools, their availability in general and economic sense, functionality and pragmatic character. For this purpose, one could use strictly scientific definition of navigation, indeed in maritime conditions, as skills and sciences of managing and navigating the ship through the best route from one place to another. [2]
A simpler, traditional definition considers navigation as the best way to return home. If definition of navigation is projected to a more appropriate way to the definition of traffic, holistic approach should be applied. For instance, some authors (Kerner, 2009) claim that traffic is a phenomenon connected to the complex dynamic behaviour according to spatial-temporal patterns. This definition seeks to underline traffic within frames of space and time which define it and related problems as well (Gazis, 2002).
Strict holistic approach of traffic includes:

- Infrastructure – physical object and location where traffic of people and goods is executed. Basic objects refer to: roads, railroads, airports, ports, commodity terminals, traffic terminals and similar.
- Vehicles or means used for traffic – usually adjusted to specific mode of traffic
- Belonging and apposite operations – navigation, regulation and signalization of traffic – maps, signs, light signalization, regulation and control of traffic and similar.
- Time or duration of transportation and traffic of goods and people.

If all the above mentioned resumes to the navigation and orientation in traffic, then physical object should be replaced by belonging codes and symbols that will be organised in forms most similar to navigation maps, popularly called "auto-maps".
Concrete presentation of such maps in present technical and technological possibilities can overtake different forms, with the same purpose as before. Basic purpose is help in navigation and objective insurance of safe traffic and transportation defined in certain time and space.

[2] http://www.fms-tivat.me/predavanja3god, (Mart, 10 2012)

Holistic observation of pragmatic aspects of traffic refers to the mentioned terms and specifications, but concrete situations can require fulfilment of additional specific terms (transportation of special and specific cargo). Traffic safety is unquestionably the most important aspect of traffic. However, its specificity is usually the consequence of enlarged or increased need for safety conditions which should be provided during transportation of specific cargo, such as hazardous cargo.
Insisting on spatial-temporal frame of traffic demands an integral approach for appreciation of specificities, or at least, providing frames in which these specificities will be considered. In spatial sense, traffic requires physical environment for its realisation. Temporal component isn't independent, or individual. Traffic is a process made of line of activities, so it does have its duration, or, it is timely limited. Duration as indicator or variable determines traffic in a way that it specifies or limits range of individual factors which indirectly define traffic as unity. At the same time, concrete situation of traffic considers if not ideal, than at least optimal conditions which provide such a space. The same conditions are basics for determination and calculation of time that is duration of traffic as a concrete process.
Further on, space as determinant of traffic, should be considered as physical and geographical determinant realised through infrastructural possibilities and options which still define duration of traffic activity or its temporal component. Weather conditions, in sense of momentarily climate conditions, are also important factor which influence duration of the process and can emerge as consequence of spatial conditions. Equally, traffic is necessarily connected to the infrastructure and infrastructural possibilities. That connection reflects through two basic features of traffic: compactness and safety.
Traffic as scientific discipline corresponds to other scientific disciplines in such mode where basic subject of consideration is connected to appearances, processes and subjects through which other sciences and scientific disciplines influence or determine traffic. This helped basic sciences, such as maths and physics, to get involved in theory of traffic, in line with construction science and other applied sciences, more or less specific to their subject of analysis.
When several sciences or scientific disciplines correspond in a certain mode, than they also share perceptions of terms, facts and data of interest to all of them. Strictness of mutual definition that will consider required specificities is a prerequisite of qualitative research and concrete conclusions.
For purpose of this paper it is important to valuate importance of two sciences: geodesy and cartography. Namely, connectivity between geodesy and cartography is pragmatically involved in traffic as science. On basic level of abstraction, one can obviously notice dependence between qualitative traffic of people and goods and accomplishments and applied scientific facts of these two sciences.

4. Navigation and orientation in space and basic tools

Cartographic projections actually enable mapping the points of curved surface, whether sphere or rotational ellipsoid of planet Earth or other celestial bodies into a level, through application of mathematical procedures. Their application is multipurpose, especially in geodesy and navigation (Brewer, 2005). Cartographic mapping determine dependence between coordinates of points of Earth ellipsoid and coordinates of their projections on level. Achieved projections or planar overview of bodies is usually connoted as map. Map, a geographic one or navigation, is basic tool in navigation, regardless to traffic sort. Accordingly, map can have a specific purpose which makes its creation more complex since it requires additional data.
Traffic cards or maps intended for navigation and orientation in traffic, aside from positional coordinates contain a whole line of symbols that determine through their shape and colour the importance of an object recorded on a map. In time when one can easily use devices as GPS (Global Positioning System), discussion of navigation maps could lose its importance. GIS is American space global navigation satellite which provides reliable positioning, on all points available through contact with four or more satellites. Satellites provide a signal for geo-positioning anywhere on the Earth, with momentarily 28 active satellites of which four are reserves.
Neither temporal and climate conditions neither day period represent limitation. However, GPS appliances as basic element of satellite managed navigation are still not available to all since their price is limitation factor. This however doesn't eliminate need for maps since there is always a possibility of damage on the appliance or a problem of communication character on a global level. On contrary, GPS is a useful tool for creation of maps and land measurement, which involves in this specific problem both geodesy and terrestrial (and even space) navigation.
Besides, navigation by GPS appliance is semi-interactive, meaning that a navigator or person who navigates vehicle has to communicate with appliance audio-visually that decreases momentarily safety of traffic. Equally, the navigator is completely adrift to the information received by satellite. Combined with visual control of space, navigation still possesses a high safety. However, one should in every moment be aware of the surprise factor.
Screen of GPS appliance is interactive cartographic projection of navigator's environment which, besides certain dynamic characteristics, retains all other features of a regular map. In its display and symbolism it is even poorer than traditional maps, but not in sense that it questions traffic's safety.

5. Research and hypotheses

Research, mostly undertaken in the Republic of Croatia, within one year (March 2011 – March 2012) tried to accumulate relevant indicators which would connote a relationship between active participants – navigators in traffic

according to some specific values which define it. These indicators were determined according to authors' opinions. Hypotheses of this research are connected to safety in navigation and traffic in general and usage of tools and devices for navigation and orientation. Some other elements important for safe and regular traffic supported in navigation by some tools available or which could become available to participants in traffic.

When making these hypotheses some facts were neglected, such as the fact that active participants in traffic cannot recognize some of the offered tools in the future as well. In so far that some tools were presented as a possibility of a momentarily realisation and significant application in practice. Since navigation tools in space, and time, are only a part of traffic safety prerequisites conditions put by research, participants of this research were also asked about other indicators such as vehicles' safety. Hypotheses were:

- The examinee is an active participant in traffic who possesses the competencies of navigating the traffic medium.
- The examinee is participant in different forms of traffic and according to modes and duration with major emphasis put on duration of traffic.
- The examinee uses some of tools in navigation and orientation in space and time of trafficking.
- The examinee has a personal perception of quality and importance of individual tools with emphasis put on a quality and reliability of tool's technical performance.
- The examinee will try to use more modern forms and technical solutions of tools since they provide a better safety in traffic.

Due to confirmation of the quoted hypotheses, a questionnaire has been undertaken among population which hasn't been categorized in any way except by discriminatory question about the competencies in navigating the vehicle. Also, it should be noted that population refers to road traffic and personal vehicles so this questionnaire has been limited by its character, since it doesn't cover other sorts of traffic or other types of road traffic. Limitations within road traffic are derived in purpose having in mind that, for example, a truck driver has also a personal car, which mostly covers the mentioned area. Naturally, freight traffic of goods can be specific by some factors, such as transportation of a hazardous cargo, which still doesn't influence basic conditions of navigation and orientation. The other hypothesis is the assumption that majority of traffic participants act in space-limited area, that is, they rarely travel on longer destination or in the areas classified as unfamiliar. This implies the necessity of tools such as navigation maps regardless to their performance. The third hypothesis should be a confirmation of users' conscience of exquisite technical solution as a reliable element of traffic's safety. The fourth hypothesis is connected to device or tool in navigation and orientation during traffic and transportation. Any sort of appliance the user could handle during the trafficking, practically presents a certain copy of a real environment where traffic takes place. This indicates a map regardless to its shape: printed, digital, electronic and others. Therefore, it is absolutely certain that some forms of maps are used during the trafficking.

5.1. Questionnaire and interpretation of questions

The questionnaire was undertaken among population of 119 examinees. Pool was of integral type and included 115 questions of all sorts. Questions were made so to confirm the a priori defined hypotheses. The questionnaire read:

1. *What's your gender?* The question wasn't supposed to be discriminating, but in case of factor analysis in which gender could be important for analysis, this kind of data would be useful.
2. *How old are you?* Similar to the question above, this either shouldn't have a discriminatory character in a gerontology sense, but answers could be valuable when analysing correlations of other answers related to the age of examinee – traffic's participants.
3. *How long (in years) do you have a driver's licence?* Experience in driving and lengths of the official licence is extremely important and so is the correlation with other questions related to the competencies and experience.
4. *How many cars do you have?* The offered brands of vehicles were given according to the European classification of personal vehicles. This question was important for analysis of relationship between participants of traffic and other important elements of safe traffic.
5. *How often do you drive a car?* The question should have revealed whether a person regularly participates in traffic.
6. *How often do you drive on more distanced routes?* This question could have been separated to two in order to get an answer to question whether this concerns the regular distant relations – tours or whether it concerns occasional longer travels to different destinations. This ambiguity was partially eliminated in seventh questions which read
7. *How often do you drive in new and unfamiliar area?*
8. *Arrange according to significance, to your opinion, the following element of traffic*: Safety in traffic, Good regulation and signalization of traffic, Good signalization on highways, Proper distribution of restaurants and gas stations, Reliable navigation devices, Technical validity of vehicles, Health condition of all passengers, qualitatively constructed highways, Qualitative and safe help on highways, and choice nothing of the mentioned. Answers offered for categorization cover the main conditions of safe and reliable traffic. The following group of questions relate to sorts of tools in navigation and orientation during the trafficking. Along the explanations of questions, examines are also offered the explanation of forms of tools considering their realisation and usage. Some of the offered solutions are only the propositions with no practical importance so besides them, the way of application and advantages of their usage were also described.

9. *E-paper is a screen technology designed to imitate look of regular ink and paper by reflecting the daylight. It is made of plastics so that it can be furled and occasionally filed with new contents. Would you buy such an e-Map for navigation in driving?* Electronic paper has two different parts, of which the first one is electronic ink (e-ink), and the other is electronics which enable overview of text and images on electronic ink, that is places on the front side of electronics. E-Paper reflects light similar to regular paper and it doesn't require back lightning. There are several different technologies in production of e-Paper. Some of them use a substance of plastic bottom combined with electronics, which enables the deflection. It also provides easier reading from screen so it is not required to refresh it on regular basis. Application of e-Paper includes readers of eBooks, capable to present digital versions of books and e-Magazines, time tables on bus stations and electronic commercial panels. Similarly auto maps can be prepared and used for navigation in traffic. E-Paper isn't a digital paper so one can write on it with e-Pencil.
10. *Infrared-design is a new publishing technique which enables printing of two different contents on the same bottom, readable under infrared light. Would you buy such navigation maps which would contain much more additional data for safe traffic?* The usual maps which are used in road traffic, besides positioning based upon two coordinates (latitude and longitude) can also include data of third coordinate, altitude, though without impression of three-dimensional space. On the other hand, too much data can make map hard to read and use, though some of data on these maps could be necessary. Another important fact is that maps, just after they are published, very quickly become inaccurate since the presented locations change regularly. Infrared-design as publishing technique represents a group of rules which enable a combination of two prints or two pictures. Both pictures aren't visible at the same time, under the daylight or artificial light, since one of them is visible only under the infrared-design. Infrared-design can that way play an important role in protection of data that is a steganography technique which protects specific document, or map in this particular case map, from the falsification. Naturally, there are additional possibilities. Infrared-design as publishing technique, within this research, shouldn't be changed with application of devices used in combination with infrared rays, such as night recordings. For more information, check (Ziljak at al, 2011). Things visible to human eye under the normal conditions is only a segment of spectrum which includes radio waves, infrared and ultra-purple, x-rays and gamma rays as forms of electromagnetic radiation. A possibility of expanding the visibility due to electronic devises represents a very powerful technique and application of IR part of spectrum when it can be seen. Infrared light has less energy than visible light, with proportionally higher wave lengths. Infrared part of spectrum has wave length of 1 to 15 microns or 2 to 30 times longer wave length (and 2-30 times less energy) than visible light. Infrared design is a new technique that has primarily found its application in different aspects of product's protection from falsification since every scanning or photocopying of those documents destroys picture readable under the infrared light. In such way highway maps can be supplemented with different data, such as tourist information, locations of important objects with description of their offer, and those can be helpful to participant of traffic.
11. *If you have a possibility, would you buy GPS (Global Positioning System) navigation devic*e? GPS devices and GIS system were already described in upper text. GPS is surely the most modern navigation device that is device which provides the highest level of safety in orientation and navigation. However, the usual rule is that improved devise in case of their failure have higher risks. The crash of communication system is possible, though with small probability, while location process engages at least 4 to 38 satellites. However, GPS devices do have two disadvantages, at least known till this moment. One of them is of economic nature and it limits users in procurement. The other is the required level of knowledge in order to handle them, though it doesn't connote large effort but it does demand certain adjustment of users. In conditions of development and improvement of such devices one could expect broader application and lower prices of these devices.
12. *For navigation in driving you will use the possibilities of mobile phones (Google navigation and alike)?* In general trend towards mobility in executing all activities, the producers of mobile phones have started to implement software which enables similar possibilities, though not completely, offered by producers of GPS devices through Google navigation on mobile phones. Regarding the broad application of mobile phones, one could expect that this aspect is the most common under the assumption that users are able to apply all possibilities offered in this way.
13. *If you were asked to decide between offered devices and appliance it would be?* This question motivated examinees to choose one of the options offered in questions 9-12.
14. *Do you believe GPS device should be a standardised part of the car equipment similar to air-pillows or space sensors?* Question should have revealed the opinions of examinees about the necessity of supplementing the vehicles with equipment which should fulfil required conditions in traffic navigation and orientation.
15. *According to your opinion, grade the following navigation tools in comparison to their reliability?* Since tools and devices mentioned in questionnaire are also factors of safety in traffic, this question asked examinees to range, according to their own opinions, the importance and reliability of described tools and appliances. The offered possibilities included traditional navigation map and making inquires by local population in line with needs and possibilities during the traffic realisation.

5.2. Results of questionnaire and profile of examinees

Questionnaire took 119 examinees of which 2 questionnaires are considered unfinished so they aren't taken into consideration. Between 119 examinees, 71 (59.66%) is male while 46 (38.66%) were females. Questioned population, according to their age mainly belongs to the age group 20-39, 46 examinees (38.66%) are younger than 30 and 33 (27.73%) are younger than 40 which makes ¾ of examinees. The rest of app 25% belongs to age group of 40-60. According to length of their driver's licence, examinees are almost uniformed distributed so percentage varies from 20 to 25% with interesting deviations in class of 16-20 years old. Upon automobile's brands examines mostly own middle class of cars, with 74 (62.18%) or with lower class of cars 29 examinees (24.37%). Since 92 examinees (77.31%) stated that they daily drive cars, a correlation can be explained between categorisation of cars and their purpose as everyday trafficking vehicle. At the same time, almost 2/3 (64.31%) examinees drive on longer relations, in average once a month. Navigation in new and unfamiliar field indicates once again a uniformed distribution with an average of app 32% in category of very rare, once a year and once a month.

Collected indicates that 51.26% considers traffic safety as the most important, while 19.33% puts safety on the second place. The second factor is technical validity of vehicles which 29.41% examinees put on the first place, while the same percentage puts it on the second place. The other factors primarily choose otherwise neglected values. Reliable navigation tools are nevertheless recognized by 26.89% examinees as an important factor in traffic.

Analysis of application of tools and devices for navigation implies that readiness for purchase of e-Map is uniformed distributed between purchase and indecisiveness while only ¼ (25.21%) state negatively. Infrared design map would choose 47 examinees (39.50%) while others are equally indecisive or they don't want to buy such a map. GPS devices, with acceptable price would buy 98 examinees (82.35%). A smaller number of 70 examinees (58.82%) would use a mobile phone in navigation while 35 of them wouldn't (29.41%)

If they have to choose between offered possibilities, 90 examinees (75.63%) would use GPS device while the others would use either mobile phone or a tradition map. These results could have been expected considering the fact that e-Paper and infrared design are still not in usage so their possibilities aren't familiar. However, interesting fact is that only 55 examinees or 46.22% believe GPS devices should be a standardised part of vehicle's equipment. Categorisation of navigation tools is visible in Table 1. The majority, or 66.39% examinees considers GPS device as the most reliable device so they put it on the first place, while 17.65% puts the traditional map on the second place. The third place was given to it in case of providing the required information.

Table 1. *Grade upon reliability*

According to your opinion, grade upon their reliability	I	II	III	IV	V	VI
e-Map (e-Paper)	2,52%	12,61%	17,65%	18,49%	25,21%	21,01%
regular navigation map (paper)	17,65%	12,61%	18,49%	13,45%	20,17%	15,97%
infrared design map with several different data of the field (double print)	0,00%	13,45%	15,13%	27,73%	21,01%	21,01%
regular mobile device with possibility of navigation	3,36%	31,09%	19,33%	23,53%	12,61%	8,40%
GPS satellite device (according to its price)	66,39%	14,29%	9,24%	3,36%	4,20%	0,84%
local population	8,40%	14,29%	18,49%	11,76%	15,13%	30,25%
unfinished or un-displayed	1,68%	1,68%	1,68%	1,68%	1,68%	2,52%

6. Conclusion and suggestion of further researches

Safety in traffic depends upon different factors. However, within present frames with developed network of highways of high quality all these factors (quality of highways, quality of signalization and traffic regulation, factors depending on individuals such as technical validity of vehicles and drivers' competencies) make traffic safe in a satisfactory level.

Situation changes when traffic is re-allocated in local and additional network of highways. Navigation then becomes more demanding and usage of tools and devices more required. If conclusions are to be derived from accumulated data, average opinion can be profiled about the navigation and orientation of users/participants of traffic.

Participant of traffic is mostly oriented on shorter traffic relations which probably connect residence with working places, meaning that traffic becomes a routine in which navigation and orientation do not represent a problem. Longer traffic relations are rare and usually take place on highways, though this claim is assumption that cannot be derived out of accumulated data. If participant of traffic required device for orientation and navigation within present frames he could have chosen different tools and devices. Their usage requires certain practice and knowledge regardless to the traditional map or contemporary GPS device.

The assumption that car industry will try to include such a sort of devices into the standardised equipment, is primarily based upon keeping the track with industry in area of telecommunication. Somebody once said that were cars improved with speed of improving and developing computers, the whole traffic would already be executed in the air.

Regardless to the all above mentioned the main direction of development in this area should be realisation of safe traffic in which human lives will be maximally protected. In the process the same attention should be given to the protection of the environment in which traffic occurs.

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