



Workshop on

EASY OBU project

Roztoky u Prahy, Czech Republic, November 22, 2012



About project

The aim of EASY OBU is to develop and validate functions of a specific ITS system that will enable economic efficient and robust localization of vehicles, persons and/or goods and will be resistant to the outage of a satellite navigation signal. This will be achieved by the combination of inexpensive inertial sensors in an inexpensive and portable on-board-unit (OBU) with a very innovative 'non-causal filtering' approach. For this purpose data will be collected in-field and transferred to a back-office, where processing can be carried out. System interfaces will be open and well documented to encourage third party application developers. Due to a compromise between costs and localization performance the system will provide continuous location data in a real time only when GNSS signal is available, and, with a few minutes delay in case of GNSS signal outage. The location data will be stored and available in the central system and in all On-board units too. It will allow to use the system in some very specific ITS applications; search for such applications will also be a part of the EASY OBU project. For this activity ITS&S is responsible within the EASY OBU consortium and this workshop has been a part of it. More about the project: <http://easy-obu.eu/index.php?id=8> .

The aim and course of workshop

Organized event was the first of a series of project workshops. The aim was not only to obtain the necessary expertise to deal with workpackages WP2 (user requirements) and WP5 (market analysis) of the project, but also to get first feedback from potential users and system integrators. Feedback will serve to improve the quality of future workshops. The workshop was organized as a half-day event for Transport Telematic community of the Czech Republic and Slovakia. About 50 participants were present. Workshop had three main elements: project introduction, discussion and workshop for participants to formulate conclusions. The course of the workshop was conducted and moderated by Mr. Roman Srp of ITS&S, the project introduced by Mr. Ondřej Zaoral of INOXIVE, other members of the ITS&S Working Group "Easy OBU" actively participated in the discussion and formulating conclusions. The main conclusions of the workshop are listed below.

Workshop conclusions

I.

- a) Basic quality parameters of Easy OBU location data which will be available for ITS applications are the following: availability > 99.9 %, position accuracy: < 10 m (CEP95), heading accuracy: < 5 °, velocity accuracy: < 2 km/h, accuracy of distance travelled < 1 %, time accuracy: < 0.5 s, update rate: 1 Hz. Location data will be available on-line, if the GPS signal and-or GPRS communication will be available. In case of GPS/GPRS loss, the location data will occur within few minutes after GPS/GPRS recovery. The system will start to provide real time data again; at the same time it will update the routes followed by OBU unit for time of failure. Location data will be available via open interfaces on both the central system and the OBU sides.
- b) Workshop participants consider the accuracy and availability of the service to be adequate for wide range of telematic applications. However, if these parameters are available with a few minutes delay, the number of possible applications of this system can be significantly reduced and its use in transport will be possible only in very specific cases. Workshop participants are nevertheless convinced that such applications exist. Workshop participants have no specific requirements on the definition of open interfaces of the Easy OBU system. Deeper technical discussion will be possible after the project consortium presents detailed technical parameters of the Easy OBU.

II.

- a) Basic user parameters of on-board unit, that is supposed to be part of Easy OBU project, are the following: light weight (less than 1 kg), highly portable and easy to install into the vehicle (only connected to battery and ignition of the vehicle, applicable on a windscreen), highly affordable (approx. 200EUR per unit).
- b) According to the workshop participants, these parameters are interesting but some applications may require units with different characteristics in terms of their mechanical construction, resistance to moisture or dust, method of mounting or charging. Furthermore, the absence of interface between the OBU and the vehicle has been seen rather as a disadvantage. Workshop participants therefore recommend (from the perspective of Easy OBU researchers beyond the current project) to consider the use of other units (parallel to Easy OBU unit). Another possibility would be to integrate the properties of OBU Easy into existing vehicle equipment such as existing in-vehicle telematic, navigation devices or communication terminals.



III.

- a) Workshop organizers introduced some applications that, according to their meaning, may benefit from EASY OBU. Above others following applications were mentioned: proof of service for special vehicle fleets, car sharing, electronic toll collection (ECT), calculation of CO2 Footprint, generation of vehicle logs for legacy systems and recording, documentation of delivered performance in public transport.
- b) Workshop participants generally agree with proposed applications. Some other potential applications were mentioned by members of ITS&S EASY OBU WG. It was agreed the topic of applications should be discussed in more detail at another Easy OBU workshop. Participants also shared some doubts and provided some comments to the individual applications mentioned in point IIIa: they agree to be some ways to exploit the project results for special fleets of vehicles incl. vehicle recording and legacy apps; in terms of the Czech Republic and Slovakia they are rather skeptical about car sharing applications and calculations of CO2. Participants also assume the use of Easy OBU for the functions of electronic payments might be even more promising than current focus on ECT only.

IV.

- a) According to the participants of the workshop the OBU price per unit may be the limiting factor for deployment. Price level around 200EUR (per unit) promoted by EASY OBU consortium may exclude some promising applications, for example in the field of car insurance.

Enclosures

List of workshop participants

Easy OBU project presentation (in Czech language)

Presentation of opinions and requirements of selected Czech transport industry stakeholders (in English)

Editor of conclusions

Roman Srp

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Easy-OBU (Enhanced (EGNOS/EDAS) Accuracy System with GNSS Outage Bridging Unit) is a European Research Project co-funded in the 7th framework programme of the European Commission.



Workshop on
EASY OBU project
Roztoky u Prahy, , Czech Republic, November 22, 2012

List of Workshop participants

Name	Surname	Institution
Jiří	Barnet	Sherlog Trace, a.s.
Jiří	Bartoň	Rebut s.r.o.
Martin	Beneš	COFI s.r.o.
Karel	Blahna	Rebut s.r.o.
Jindřich	Borka	ČVUT - Fakulta Dopravní
Tomáš	Borovec	Deloitte Advisory, s.r.o.
Jiří	Brusch	FCC Průmyslové systémy, s.r.o.
Karel	Černý	Kapsch Telematic Services s.r.o.
Jan	Černý	Openmatics s.r.o.
Jiří	Čeřovský	D3Soft s.r.o.
Jan	Drbohlav	AŽD Praha, s.r.o.
Karel	Feix	Kapsch Telematic Services s.r.o.
Ivan	Fencel	ŘSD ČR
Martin	Hájek	CDV, v.v.i.
Michal	Hajoš	Značky Praha s.r.o.
Jan	Hladiš	ODP-software spol. s.r.o.
Karel	Hostaša	CROSS Zlín, s.r.o.
Petra	Chadimová	Openmatics s.r.o.
Alica	Kalašová	Žilinská univerzita v Žiline
Horymír	Kalmus	SWARCO TRAFFIC CZ s.r.o.
Otmar	Káninský	Telefónica Czech Republic, a.s.
Dušan	Kevický	Žilinská univerzita v Žiline
Petr	Košťák	NAVTEQ
Jan	Kotík	ČSAD SVT Praha, s.r.o.
Lukáš	Kovárník	T-Mobile Czech Republic a.s.
Michal	Kraus	Plzeňské městské dopravní podniky, a.s.
Václav	Kubašta	XT-Card a.s.
Jan	Kubíček	ČSOB, a.s.
Vladimír	Kvarda	Plzeňské městské dopravní podniky, a.s.
Jaroslav	Machan	ŠKODA AUTO a.s.
Jiří	Machovec	GLOBAL ASSISTANCE a.s.
Zdeněk	Matějec	ITS&S of the Czech Republic and Slovakia
Jiří	Matuš	AutoCont CZ a.s.

Name	Surname	Institution
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Jiří	Novobilský	CE-Traffic, a.s.
Luboš	Novotný	Mikroelektronika s.r.o.
Radek	Orság	EM TEST ČR spol. s.r.o.
Martin	Pípa	CDV, v.v.i.
Ladislav	Pivec	TSK hl. m. Prahy
Jiří	Plíhal	The Academy of Sciences of the Czech Republic
Zdeněk	Pliška	ELTODO EG a.s.
Ondřej	Pokorný	VARŠ BRNO, a.s.
Jan	Polák	COFI s.r.o.
Juraj	Rakovský	ČD-Telematika a.s.
Jana	Rojčiková	ROWAN LEGAL, advokátní kancelář s.r.o.
Jiří	Řehák	ELTODO EG a.s.
Jarmila	Slavíčková	T-Mobile Czech Republic a.s.
Milan	Sliacky	ČVUT - Fakulta Dopravní
Roman	Srp	ITS&S of the Czech Republic and Slovakia
David	Stoppani	Asseco Central Europe, a.s.
Miroslav	Svítek	ČVUT - Fakulta Dopravní
Marek	Svrčina	D3Soft s.r.o.
Richard	Sysala	evolving systems consulting, s.r.o.
Bohuslav	Šimek	NESS Czech s.r.o.
Jan	Šimůnek	ROPID
Tomáš	Šmerda	ELTODO dopravní systémy s.r.o.
David	Švingr	CHAPS spol. s.r.o.
Karel	Toman	ELTODO dopravní systémy s.r.o.
Filip	Týc	ÚAMK a.s.
Roman	Voříšek	ŘSD ČR
Vlastimil	Vyskočány	Telefónica Czech Republic, a.s.
Bohumil	Zajíček	ČD-Telematika a.s.
Ondřej	Zaoral	Inoxive s.r.o.
Jiří	Zdobnický	ČSAD SVT Praha, s.r.o.



Easy-OBU Projekt

*Průzkum trhu a diskuse
obchodních požadavků*



Projekt Easy-OBU v kostce: mezinárodní projekt podporovaný GSA se zaměřením na vývoj a tržní uvedení levného lokalizačního systému s vylepšenou kvalitou lokalizace oproti běžně dostupným řešením na trhu

- **Co děláme:** vyvíjíme produkt s otevřenými rozhraními v podobě nové palubní jednotky a centrálního systému, který je schopen poskytnout s malým časovým zpožděním kvalitnější lokalizační informaci v místech, kde mají dnešní GPS zařízení problémy
- **Kdo jsme:** mezinárodní konsorcium firem Austriatech (AT), Efcon (AT), PWP Systems (DE), Sdružení pro dopravní telematiku (CZ) a ČVUT (CZ)
- **Veřejná podpora:** projekt je spolufinancován Evropskou unií z prostředků Sedmého rámcového programu
- **Proč s vámi chceme mluvit:** shromažďujeme relevantní informace z trhu, obchodní požadavky na řešení a názory potenciálních klientů i integrátorů. Členům SDT nabízíme konkrétní formu zapojení do projektu prostřednictvím SDT.



Projekt je spolufinancován Evropskou Unií a realizován v rámci Sedmého rámcového programu. Supervizi nad projektem má GSA.

Krátkodobá ztráta signálu GNSS představuje pro řadu aplikací problém



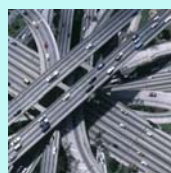
Aplikaci GNSS v některých případech komplikuje krátkodobá ztráta lokalizačního signálu, která je ale v praxi poměrně častá. Při ztrátě signálu je lokalizační informace zcela nedostupná nebo nepřesná. Tímto problémem netrpí jen GPS a Glonass, ale týká i systému Galileo.



Městské „kaňony“



Tunely



Komplikované křižovatky



Železnice

Řešení pro vylepšení lokalizace polohy při ztrátě signálu GNSS přímo ve vozidlech existují, náklady na jejich zavedení se však pohybují v jednotkách/desítkách tisíc Euro na jedno vozidlo.

3

Easy-OBU využívá nové technologie a matematické metody k radikálnímu snížení ceny za vylepšení přesnosti lokalizační informace

Uživatelský design ...

- jednoduchá OBU propojená s vozidlem pouze napájením
- standardní lokalizační informace GPS a Egnos (přes GMS) pokud je signál dostupný
- zpětně korigovaná lokalizační informace při krátkodobé ztrátě signálu



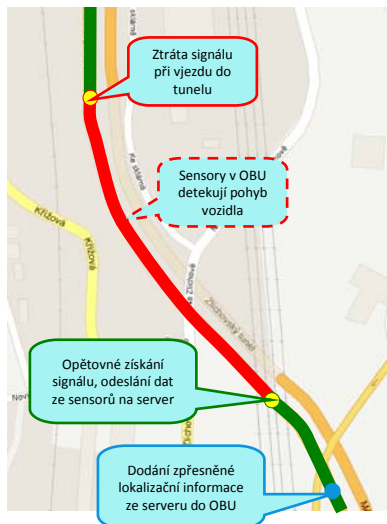
... a technologie na pozadí

- pohybové sensory integrované do OBU (gyroskop, akcelerometr)
- využití nekauzálního korekčního algoritmu pro zpracování dat z pohybových senzorů a zpřesnění lokalizační informace
- otevřená rozhraní pro integraci do aplikací na straně OBU i centrálního systému

Jednoduché, nákladově efektivní a komerčně atraktivní řešení, schopné kompenzovat 95% výpadků signálu, připravené na integraci díky otevřeným rozhraním

4

Easy-OBU nabídne zpřesnění lokalizační informace těm aplikacím, které nutně nepotřebují korekci v reálném čase



Limitem řešení Easy-OBU (a kompromis spojený s cenou jednotky) je schopnost systému poskytnout zpřesnění až s krátkým zpožděním.

Easy-OBU je vhodná pouze pro aplikace, které nutně nepotřebují zpřesňování v reálném čase:

- Aplikace, které využijí zpřesněnou informaci např. po výjezdu z tunelu, ale nepotřebují ji v tunelu samotném
- Tyto aplikace mohou být:
 - Výběr poplatků (mýto, parkování atd.)
 - Modely zpoplatněného car-sharingu
 - Kontrola dodržování trasy (např. monitoring nebezpečných nákladů)
 - Fleet monitoring s analytickými funkcemi, které potřebují přesné informace
 - Ekologické aplikace (CO₂ monitoring atd.)

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Další informace o projektu:

www.easy-obu.eu
<http://www.sdt.cz/page.php?id=102>

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EasyOBU project WP2 - interview results sheet

Name of the company		CD Telematika
Name of the company representative (interviewee)		Tomáš Vacek
General Information - Company		
Which country do you come from?		Czech republic
Which area of industry do you work in?		ICT for railways&logistics
What is the size of company you work in?		501 - 1000
How high is the turnover of company you work in?		36 mil EUR
General Information - Interview		
Which position do you have in the company?		Senior consultant
What is your industry experience?		1) GSM-R project co-ordination on behalf of CD (Czech Railways) and CD Cargo companies. 2) Methodology of calculation of demonstrable loss in regional railway public transport.
What are your primary responsibilities?		Management and co-ordination of large ICT projects.
Type of stakeholder		integrator
Current use of location information		
What are your use cases for positioning technologies?		Management of fleet of railway vehicles in order to control their operational status (120 vehicles). On-line monitoring of power consumption (20 vehicles). Integration of railway vehicles into regional integrated public transport systems (South Moravia, 50 vehicles).
Are you currently using any form of technology that provides location information?		yes, GPS technology with no combination with other solutions
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.		Operational status of vehicles, power consumption metering, public transport organizing.
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?		More availability and continuity of GNSS, so that services with a SLA could be provided. Up to now only best effort services are available when it comes to localization.
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?		No
If GNSS system is not used: Why don't you use any GNSS system?		N/A
Business requirements		
What is more important for you:		real time information in the presence of GPS and location information available with a slight delay when no GPS is available
If location information with a slight delay is preferred: What is the acceptable delay for you?		up to 5 min.
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?		no
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?		yes
If yes: Which advantages do you think Easy-OBU can give you?		Higher quality of present applications described above. Introduction of new services: tolling on railways, cargo logistic, vehicle diagnostic using sensors of EASY OBU OBUs.
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?		Tolling, cargo logistic & vehicles diagnostic via internal OBU sensors.
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?		Depending on applications specific demand on OBUs will arise: customized power supply incl. solar panels and batteries, acc. to environment different levels of mechanical, electrical, humidity resistance, operating conditions – temperature. There will be a need for an external data interface on OBU side in many applications. I some applications there might be a need for more robust/more secure communication channel that GSM/GPRS.
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:		internationally
Delivering the Easy-OBU value proposition		
What would be the preferred sourcing model?		I do not care about the isolated location information proposition, I want to have it integrated into a broader value proposition (such as fleet monitoring, behavioral analysis for insurance etc.) delivered to me as a service
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?		procured by yourself
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?		multiple hardware choices
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:		none, I am not interested in other form factors
Other relevant information		
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.		
Do you have other industries in mind, that could benefit from Easy-OBU?		

EasyOBU project WP2 - interview results sheet

Name of the company	ELTODO
Name of the company representative (interviewee)	Dušan Krajčír
General Information - Company	
Which country do you come from?	Czech republic
Which area of industry do you work in?	Electrotechnical, mechanical engineering & ITS
What is the size of company you work in?	1001 - 1500
How high is the turnover of company you work in?	46 mil. EUR in 2011
General Information - Interview	
Which position do you have in the company?	Head of technical development department
What is your industry experience?	Dynamic lane management on expressway circle around Prague - technical documentation development. R&D project INEP (inep.eltodo.cz) on dynamic lane management - main researcher. R&D project ZET (zet.eltodo.cz) on tunnel telematics - main researcher. R&D project RODOS - workpackage leader.
What are your primary responsibilities?	R&D projects: coordination and management of company research projects. Implementation: participation on projects, development of technical documentation for projects.
Type of stakeholder	integrator
Current use of location information	
What are your use cases for positioning technologies?	RFID vehicle localization for traffic management purposes (RFID in-vehicle tags collection to control traffic lights at crossings) - R&D project SATEL (satel.eltodo.cz). Using OBUs for traffic preference of public transport vehicles - in field implementation in the CZ. Using GPS for car fleet management for internal purposes of the company.
Are you currently using any form of technology that provides location information?	Infrastructure based solutions in combination with special customized OBUs are part of business solutions.
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.	GPS used only for internal fleetmanagement inside the company.
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?	Low accuracy and availability, service parameters are not guaranteed.
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?	No
If GNSS system is not used: Why don't you use any GNSS system?	N/A
Business requirements	
What is more important for you:	real time location information all the time (with costly solutions as redundancy during outages)
If location information with a slight delay is preferred: What is the acceptable delay for you?	5s
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?	Delay < 5s: intruduction of new services i the area of traffic data collection, traffic management and dynamic lane management. Delay< 3min.: zone parking zones in cities, city tolling, dangerous goods monitoring and approvals.
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?	yes
If yes: Which advantages do you think Easy-OBU can give you?	new services
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?	Zone parking zones in cities, city tolling, dangerous goods monitoring and approvals. The cost per unit for city tolling and parking, however, should be even lower than 100 EUR.
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?	More OBU types acc. to the individual applications.
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:	nationally
Delivering the Easy-OBU value proposition	
What would be the preferred sourcing model?	one time purchase of hardware (OBU) that includes the location refinement service for the expected lifetime of the hardware outsourced pay-as-you-go "on demand" model with performance guarantees, SLA on replacement of faulty units etc.
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?	procured by yourself
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?	multiple hardware choices
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:	Yes, could be any of the above mentioned HW acc. to the type of application and/or customer
Other relevant information	
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.	
Do you have other industries in mind, that could benefit from Easy-OBU?	

EasyOBU project WP2 - interview results sheet

Name of the company	Telefónica O2 CZ
Name of the company representative (interviewee)	Otmar Káininský
General Information - Company	
Which country do you come from?	Czech republic
Which area of industry do you work in?	telecommunications
What is the size of company you work in?	more than 1500
How high is the turnover of company you work in?	2100 mil. EUR
General Information - Interview	
Which position do you have in the company?	Business development manager
What is your industry experience?	Participation on HeERO - the European E-Call. Our company is primary contractor and project co-ordinator of the Czech participation on project. Business strategies of our fleet management services.
What are your primary responsibilities?	Business development of Machine-to-Machine product segment.
Type of stakeholder	integrator
Current use of location information	
What are your use cases for positioning technologies?	Fleet management services for business customers. Mobile connectivity for third party fleet management solutions on the Czech market and abroad. Participation on the Czech Republic part of the HeERO project.
Are you currently using any form of technology that provides location information?	yes, combination of GPS with inertial sensors
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.	Fleet management and Pan-European E-Call. The systems can also be used to follow and inspect behavior of drivers (HGV). It is possible due to accelerometer and gyroscope built in OBU. GPS signal outage is to be solved via map-matching algorithm on the side of central dispatch center. The map-matching is provided of-line.
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?	Week sides of present solutions provided by our company to our customers are as follows: there are many proprietary connections between OBUs and CAN-BUS, that make installations more costly, more technology and time demanding. Sometimes it is difficult to get the CAN-BUS proprietary specifications.
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?	We are experienced with EGNOS and national terrestrial DGPS system. DGPS is preferred solution since it provide more accurate and more available data.
If GNSS system is not used: Why don't you use any GNSS system?	N/A
Business requirements	
What is more important for you:	real time location information all the time (with costly solutions as redundancy during outages)
If location information with a slight delay is preferred: What is the acceptable delay for you?	5s
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?	No
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?	yes
If yes: Which advantages do you think Easy-OBU can give you?	New products and services.
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?	We do not know about any such app.
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?	Ability to provide customers with SLA services when using GNSS for mission critical applications.
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:	internationally
Delivering the Easy-OBU value proposition	
What would be the preferred sourcing model?	outsourced pay-as-you-go "on demand" model with performance guarantees, SLA on replacement of faulty units etc.
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?	procured by yourself
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?	multiple hardware choices
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:	smartphones
Other relevant information	
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.	
Do you have other industries in mind, that could benefit from Easy-OBU?	

EasyOBU project WP2 - interview results sheet

Name of the company		SECAR Bohemia
Name of the company representative (interviewee)		Jiří Barnet
General Information - Company		
Which country do you come from?		Czech republic
Which area of industry do you work in?		Electrotechnical industry, ITS
What is the size of company you work in?		1001 - 1500
How high is the turnover of company you work in?		16 mil. EUR in 2011
General Information - Interview		
Which position do you have in the company?		project managern
What is your industry experience?		E-Call HeERO - participation in the Czech Republic consortium on behalf of the company. Participation on design and pilot operation of Floating Car Data project.
What are your primary responsibilities?		Technical development co-ordination.
Type of stakeholder		integrator
Current use of location information		
What are your use cases for positioning technologies?		We develop and manufacture GNSS fleet management solutions. Our core competence is in car security, in this field we combine terrestrial beacons localization with GNSS. We are experienced with WIFI/GSM cellular/RFID localization.
Are you currently using any form of technology that provides location information?		yes, combination of GPS with logical positioning
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.		Car security, fleet management, pipelines security, FCD data.
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?		We plan to improve our systems in areas as follows: a) real time processing of more than one GNSS system (GPS), like Glonass, EGNOS, Galileo in future. b) more experience and more deployment of DGPS incl. EGNOS. c) to implement some dead reckoning techniques in commercial deployment.
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?		No
If GNSS system is not used: Why don't you use any GNSS system?		N/A
Business requirements		
What is more important for you:		real time information in the presence of GPS and location information available with a slight delay when no GPS is available
If location information with a slight delay is preferred: What is the acceptable delay for you?		1 min.
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?		Dangerous goods monitoring and enforcement, city tolling, car insurance.
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?		yes
If yes: Which advantages do you think Easy-OBU can give you?		new products
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?		Insurance apps. might be most promising.\
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?		No
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:		internationally
Delivering the Easy-OBU value proposition		
What would be the preferred sourcing model?		option b) or location refinement service only
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?		procured by yourself
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?		one hardware solution
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:		smartphones
Other relevant information		
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.		
Do you have other industries in mind, that could benefit from Easy-OBU?		

EasyOBU project WP2 - interview results sheet

Name of the company	CHAPS
Name of the company representative (interviewee)	David Švingr
General Information - Company	
Which country do you come from?	Czech republic
Which area of industry do you work in?	SW development
What is the size of company you work in?	11 - 50
How high is the turnover of company you work in?	2,5mil.
General Information - Interview	
Which position do you have in the company?	Business development manager
What is your industry experience?	Mobile solutions for journey planners. SW development, implementations.
What are your primary responsibilities?	Market analysis, business opportunities, project co-ordination.
Type of stakeholder	integrator
Current use of location information	
What are your use cases for positioning technologies?	We use GNSS data of third parties in our SW solutions.
Are you currently using any form of technology that provides location information?	yes, combination of infrastructure based solutions plus vehicle speed plus logical positioning (door open signals at bus stops), yes, combination of GPS with logical positioning
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.	The localization data are used to compare planned and actual position of public transport vehicles. Such information is than used in vehicles fleet operation and also to optimize continuity of service between different public transport modes and/or operators.
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?	I do not know.
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?	No
If GNSS system is not used: Why don't you use any GNSS system?	N/A
Business requirements	
What is more important for you:	real time location information all the time (with costly solutions as redundancy during outages)
If location information with a slight delay is preferred: What is the acceptable delay for you?	N/A
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?	Possibly in journey planning or in public transport dispatch centre new features or data quality improvement could be achieved via EASY OBU.
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?	yes
If yes: Which advantages do you think Easy-OBU can give you?	More relevant data, improved features of present services at similar costs.
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?	No
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?	Possibility to use localization refinement service in fleetmanagement systems, that have already been deployed.
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:	internationally
Delivering the Easy-OBU value proposition	
What would be the preferred sourcing model?	one time purchase of hardware (OBU) that includes the location refinement service for the expected lifetime of the hardware, Localization refinement service only
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?	procured by yourself
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?	multiple hardware choices
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:	Possibility to use localization refinement service in fleetmanagement systems, that have already been deployed.
Other relevant information	
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.	
Do you have other industries in mind, that could benefit from Easy-OBU?	

EasyOBU project WP2 - interview results sheet

Name of the company		Road and Highway Directorate	
Name of the company representative (interviewee)		Roman Vofíšek	
General Information - Company			
Which country do you come from?		Czech republic	
Which area of industry do you work in?		Road Infrastructure operator	
What is the size of company you work in?		1001 - 1500	
How high is the turnover of company you work in?		475 mil.	
General Information - Interview			
Which position do you have in the company?		Head of ITS unit	
What is your industry experience?		Coordination of ITS project, that have been deployed on the 1st Class roads and highways in the CZ.	
What are your primary responsibilities?		Co-operatoin on ITS planning, deployment and operation on the road network.	
Type of stakeholder		potential end user	
Current use of location information			
What are your use cases for positioning technologies?		We use data from our winter maintenance systems. Data also include GNSS localization of vehicles operating in field.	
Are you currently using any form of technology that provides location information?		yes, combination of GPS with logical positioning	
If GNSS system is used: Please provide a basic info about the GNSS system that is in use and the business use cases for it.		GNSS data from maintenance vehicles are collected and processes with a lot of other data from vehicles. Data are used in our expert system and allow us to control quality and economy of maintenance service.	
If GNSS system is used: What are the setbacks of the currently used GNSS system? Where do you see a potential for improvement?		No setbacks known.	
If GNSS system is used: Are you using any solution for increasing GPS precision, such as EGNOS?		No	
If GNSS system is not used: Why don't you use any GNSS system?		N/A	
Business requirements			
What is more important for you:		real time information in the presence of GPS and location information available with a slight delay when no GPS is available	
If location information with a slight delay is preferred: What is the acceptable delay for you?		time delay is not critical	
Do you have in mind an actual positioning application that would benefit from a very precise location information, even if it is provided with a small delay during GPS outage? One of your current use cases or something entirely new?		No	
Do you believe that the value proposition of Easy-OBU can give you a competitive advantage?		yes	
If yes: Which advantages do you think Easy-OBU can give you?		More reliable GNSS data	
Can you think of an application that would be made possible by Easy-OBU and its capability to provide delayed precise location information in a cheap unit costing something between 100€ and 200€ EUR?		No	
Are there any other specific business requirements (apart from the precision) you put on the GNSS positioning solution you are using or may use in the future?		Integration of EASY OBU features into deployed vehicle equipment.	
If you imagine a situation you have decided to use Easy-OBU in your company to create products/services or improve internal operations. Would you use the Easy-OBU:		nationally	
Delivering the Easy-OBU value proposition			
What would be the preferred sourcing model?		outsourced pay-as-you-go "on demand" model with performance guarantees, SLA on replacement of faulty units etc.	
Shall the mobile connectivity service (which is necessary for working of Easy-OBU) be bundled with the product, or do you want to procure it by yourself?		bundled with the product	
Would you be satisfied with only one hardware that offers the Easy-OBU proposition, or would you prefer to have multiple hardware choices?		multiple hardware choices	
While it is today technologically impossible, would you be interested in the Easy-OBU refined location feature in a different type of hardware than "beige box OBU"? For example:		integration into existing vehicle equipment	
Other relevant information			
Any other relevant info that may be useful for improvement of the questionnaire or evaluation of results.			
Do you have other industries in mind, that could benefit from Easy-OBU?			