



DOCUMENT

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PROJECT

Grant Agreement No.	606645
Acronym	RPB HealTec
Title	ROAD PAVEMENTS & BRIDGE DECK HEALTH MONITORING / EARLY WARNING USING ADVANCED INSPECTION TECHNOLOGIES
Call	FP7-SME-2013
Funding Scheme	BSG-SME

Deliverable D8.1

Project website public

AUTHORS

CITY	P. LIATSI, A.UUS
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APPROVAL

Workpackage Leader	CITY	P.LIATSI
Technical Coordinator	CERTH	S. MOUSTAKIDIS
Project Coordinator	CITY	P. LIATSI

AUTHORIZATION

Project Officer	REA	K. AMOLOCHITIS
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CONSORTIUM

	Beneficiary name	Country
1	City University London (CITY)	UK
2	I&T Nardoni Institute S.R.L. (NARDONI)	Italy
3	MET GEOENVIRONMENTAL (METGEO)	UK
4	Global Digital Technologies (GDT)	Greece
5	IRIS Thermovision (IRIS)	Netherlands
6	Autostrada del Brennero SpA Brennerautobahn AG (BRENNERO)	Italy
7	Vrancea County Council (CJ VRANCEA)	Romania
8	CENTRE FOR RESEARCH & TECHNOLOGY HELLAS (CERTH)	Greece
9	Center for Research Technology & Innovation (CETRI)	Cyprus

REVISION HISTORY

VER.	DATE	PAGES	NOTES	AUTHORS (partners)
01	10/07/2014	All	First draft (structure)	P.Liatsis (CITY), A.Uus (CITY)
02	10/08/2014	All	Input from the project partners	Consortium
Final	28/08/2014	All	Approved	P.Liatsis (CITY)



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ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACU	Air-Coupled Ultrasound
DB	Database
EUs	End Users
GPR	Ground Penetrating Radar
GPS	Global Positioning System
HDV	High Definition Video
IRT	Infrared Thermography
NDT	Non-Destructive Testing
QC/QA	Quality Control and Acceptance
REA	Research Executive Agency
SHRP	Strategic Highway Research Program
WP	Work Package

1 Website structure and description

The project website <http://www.fp7-rpbhealtec.org> was created in the course of WP8 “Technology transfer to SMEs, Dissemination and Exploitation”. The website’s main function is to disseminate the scientific and academic outcomes of the RPB HealTec project to the potential user communities, the academic community and the general public.

The website structure contains pages with the general information about the project and consortium partners, news, and access to the partners area, as shown in the menu structure in Figure 1.1.

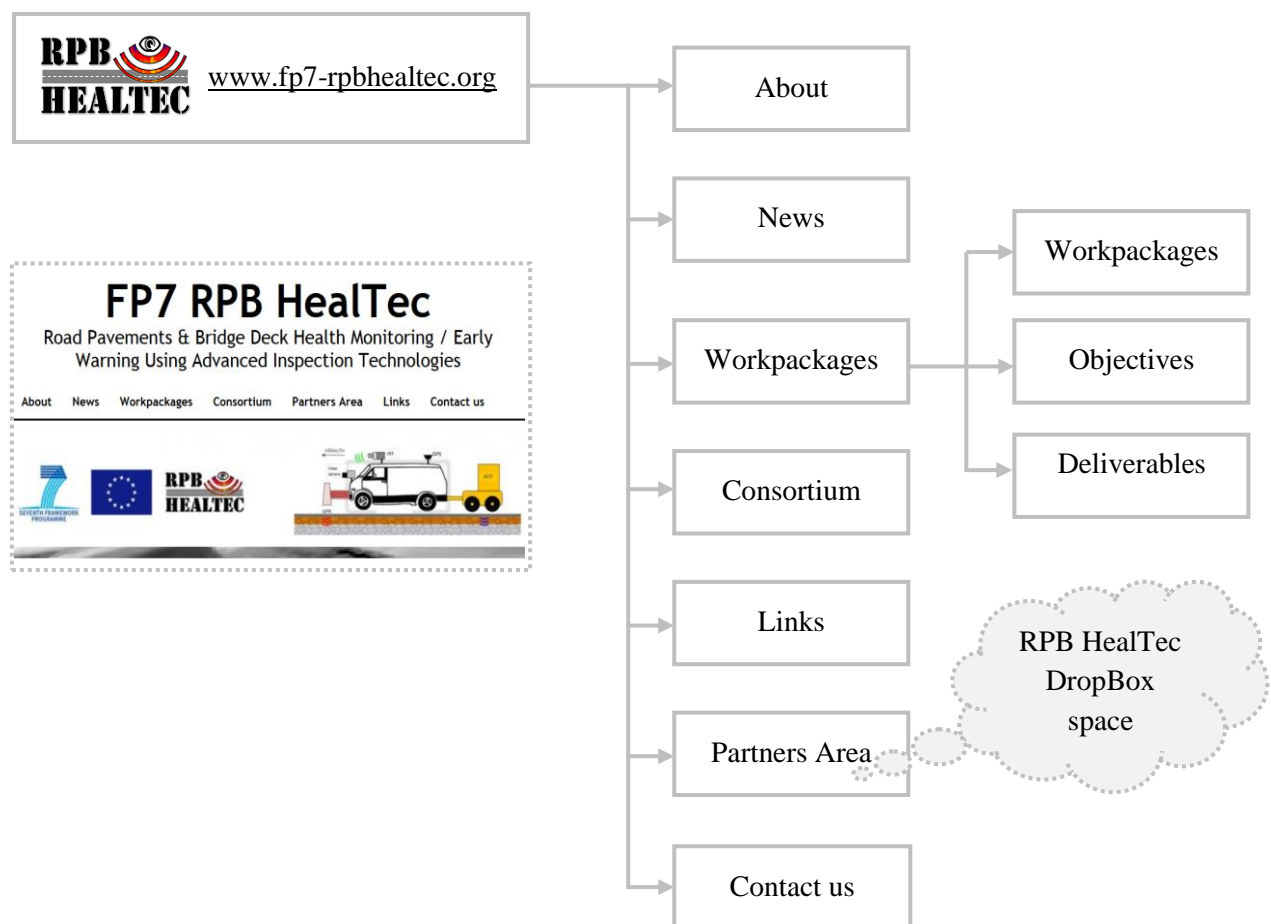


Figure 1.1 Structure and main menu of RPB HealTec website

The page header contains FP7 and RPB HealTec logotypes and the project concept representation. Figure 1.2 demonstrates the main page of the website which provides a general overview of the project.

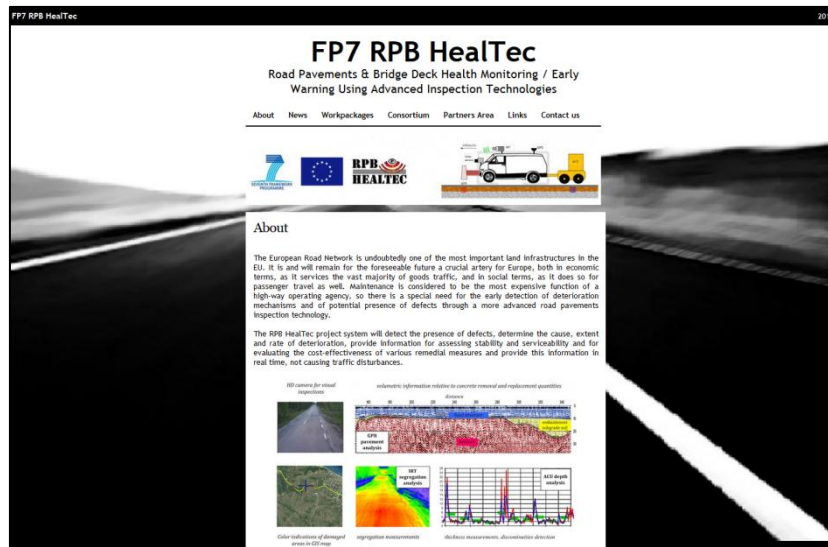
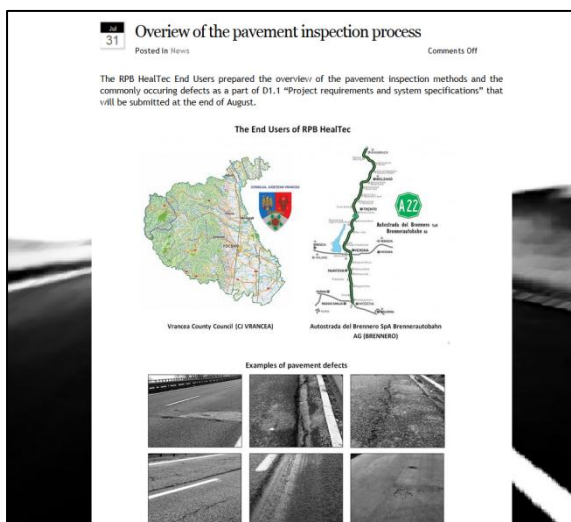


Figure 1.2 Home page of the website

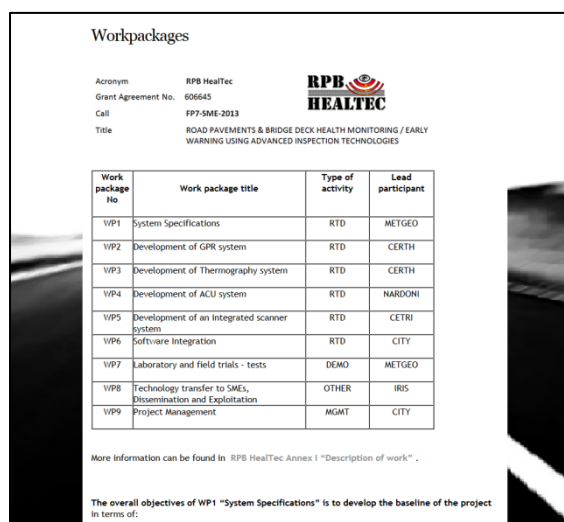
Figure 1.3 shows screenshots of some of the website pages that provide the project description and information on the current activities, including:

- the News page containing information about project meetings, publications of project results in technical papers, trade journals and conferences, and general project development results.
- the list of the project workpackages together with their description and Annex I,
- description of the project scientific and technical objectives,
- the list of the “public access” deliverables that will be uploaded after approval by the REA.

The website will be continuously updated to ensure that the results of the RPBHealTec research are timely disseminated, as they arise. For instance, the page with general characteristics of the selected NDT technologies (GPR, IRT, and ACU) will be added by the end of month 5, as part of the dissemination activities and the preparation of D1.2.



a. Recent project news



b. Workpackages

Objectives

The main objective of the project is development of a novel integrated NDT system for damage assessment, diagnosis and monitoring of pavements.

Scientific Objectives:

- To provide advanced GPR, ACU and IRT systems for prompt assessment and monitoring of pavement structures at traffic speeds (up to 60 km/h) and with the ability to detect adjacent layers of similar materials, damage assessment in quantitative terms and pavement recoverable deflection.
- To develop an advanced ACU system for the identification of the thickness of pavements, operating with a broadband frequency spanning between 50 kHz and 100 kHz and an integrated multi-channel high pass filter to filter out low frequency components and eliminate mechanical noise.
- To develop an advanced GPR system especially designed for concrete materials, operating with a radar bandwidth (100s) between 100 and 1 GHz with a desired range resolution of 3cm in concrete and a maximum depth of inspection of 1m.
- To develop an advanced IRT imaging system with precision temperature measurement of up to 20,000 points on a single image and 60 Hz image refresh time that will enable real-time imaging for continuous surveying. To extend the applicability of the IRT system by incorporating a family of interchangeable optics with different fields of view (with a minimum image width of 14ft). To achieve detection of delaminations at the maximum depth of 3 inches and to be operational at a maximum wind speed of 10 mph.
- To develop an advanced image processing toolbox incorporated in a man-machine interface that: (i) will provide pre-processing functionalities (denoising, filtering, edge preserving, registration etc) for allowing improvements of 20db in the information content of the acquired images and signals (ii) will provide graphical tools for processing, analysis and visualisation, (iii) will combine the inspection capabilities of the three NDT subsystems by employing time dependent techniques, trend analysis and data fusion and (iv) is capable of detecting different types of defects in the concrete surfaces under investigation at the maximum depth of 1m (minimum detected lateral size of damages:3cm).

Technological Objectives:

c. Objectives

Deliverables

Annex I - RPB HealTec "Description of work"

Road pavements & bridge deck health monitoring/early warning using advanced inspection technologies

Del. no.	Deliverable Title	WP no.	Nature	Dissemination level	Delivery date
D9.1	Consortium agreement signed by the partners	-	O	PP	2
D1.1	Project requirements and system specifications	1	R	RE	3
D8.1	Project Website - Public	8	O	PU	3
D1.2	Preliminary design and selection of proper sites for damage assessment and/or inspection	1	R	CO	5
D2.1	GPR procedures - guidelines and essential parameters for GPR	2	R	PU	8
D3.1	Thermography procedures - guidelines and essential parameters for Thermography (modelling)	3	R	PU	8
D4.1	ACU procedures - guidelines and essential parameters for ACU (modelling)	4	R	PU	8
D2.2	Effect of exogenous conditions on GPR data	2	R	CO	9
D2.2	Effect of exogenous conditions on the thermographic data	3	R	CO	9
D2.2	Patent search	8	R	RE	9
D8.3	Draft PUDF	8	R	PU (part)	9
D2.3	GPR system development	2	P	CO	11
D3.3	Thermography system development	3	P	CO	11
D4.2	ACU system development	4	P	CO	11
D5.1	Development of an automated scanner and its integration with NDT developed approaches	5	P	RE	14
D6.1	Integrated software development	6	P	RE	14

d. Deliverables

Figure 1.3 Examples of pages of the RPB HealTec website

The list of the consortium partners with links to their websites is accessible from the "Consortium" page (Figure 1.4.a). The "Links" page contains information for relevant conferences, magazines, and some useful links to related organisations and information sources (e.g., SHRP). It will be periodically updated with the new resources and project publications.

Consortium

City University London (CITY)
 I&T Nardoni Institute S.R.L. (NARDONI)
 MET GEOENVIRONMENTAL (METGEO)
 Global Digital Technologies (GDT)
 IRIS Thermovision (IRIS)
 Autostrada del Brennero SpA Brennerautobahn AG (BRENNERO)
 Vrancea County Council (CJ VRANCEA)
 CENTER FOR RESEARCH & TECHNOLOGY HELLAS (CERTH)
 Center for Research Technology & Innovation (CETRI)

UK
 Italy
 UK
 Greece
 Netherlands
 Italy
 Romania
 Greece
 Cyprus

a. Consortium

Links

Useful information:

- Research Executive Agency - European Commission: http://ec.europa.eu/rea/index_en.htm
- SHRP2 Solutions: <http://www.fhwa.dot.gov/shrp2/>
- European Federation for Non-Destructive Testing: <http://www.efndt.org/>
- Transportation Research Board of the National Academies: <http://www.trb.org/>
- Strategic Highway Research Program NDTtoolbox: <http://www.ndttoolbox.org/>

Conferences & exhibitions:

- VIATEC, Specialized Trade Show for Road Construction and Infrastructure Maintenance in Alpine Areas, Bolzano (Italy) Feb. 21 - 23, 2015
- DORTRANCECO, Specialized Construction, Roads and Road Complex Maintenance Exhibition, Road building machines, equipment, technologies, Road safety, Projection and building of road infrastructure objects: Logistics, Passenger and other types, Kazan (Russia) Oct. 2014
- HIGHWAY MAINTENANCE, UK's Highway Maintenance Conference and Exhibition, Derby (UK) May 2014, May 2015
- PARKEK INTERNATIONAL, Traffic, transport, parking and highway maintenance industries exhibition, Birmingham (UK) June 10 - 11, 2014, June 2015
- WORLD OF ASPHALT, International expo & conference for the Asphalt, Highway Maintenance & Traffic Safety industries, San Antonio, TX (USA) March 17 - 19, 2013
- VICNDT, World Conference on Non-Destructive Testing, Munich, 13-17 June, 2016.

Magazines & publications:

- Highways Magazine
- Pavement Maintenance Magazine
- Pavement Maintenance & Reconstruction Magazine
- Bridge Design & Engineering
- Airport Magazine
- ASPHALT Magazine
- AsphaltPro Magazine

b. Links

Protected: Partners Area

This content is password protected. To view it please enter your password below:

Password:

c. Partners area (protected access)

Contacts

City University London (CITY)

Project Coordinator Prof Panos Liatlis P.Liatlis@city.ac.uk +44(0)2070408126

Research Assistant Alena Uus Alena.Uus.2@city.ac.uk

Department of Electrical and Electronic Engineering
 City University London
 Northampton Square
 London EC1V 0HB UK

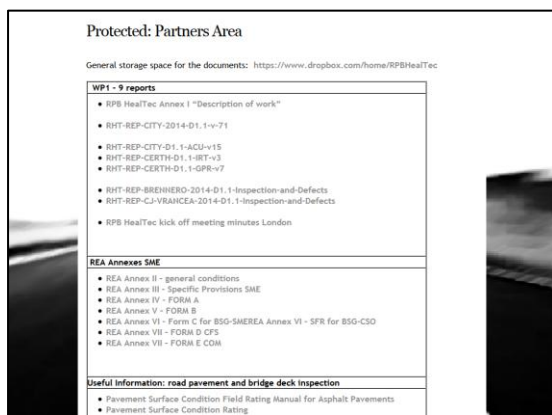
d. Contacts

Figure 1.4 Examples of pages of the RPB HealTec website

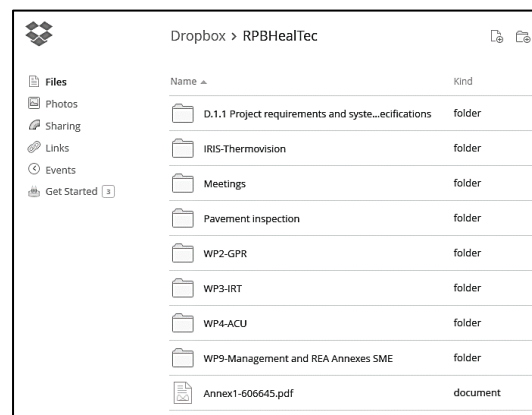
Also the contact information of the project coordinator is provided. Access to the partners area is password protected.

2 Online partners area

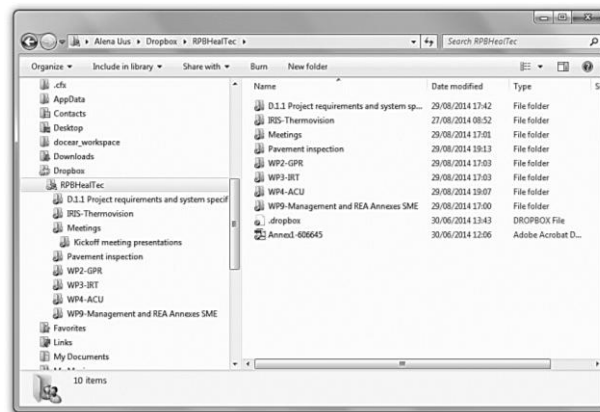
Through the password protected page (Figure 2.1.a), partners gain access to the recent versions of deliverables and some general management and research related documents. It also gives access to the online RPB HealTec DropBox protected storage space created for the exclusive use of the project partners (Figure 2.1.b). The DropBox space can also be accessed from the installed Windows application.



a. Partners area (protected access)



b. Online RPB HealTec DropBox space



c. Access to the partners area through the DropBox Windows application

Figure 2.1 RPB HealTec website partners area

Besides the storage function, the partners area on the DropBox application also acts as an online information hub for the partners for collection and organisation of information on the state-of-the-art in sensor equipment features and requirements, as well as the standards on pavement condition evaluation, defect database, inspection protocols, analysis of environmental condition, requirements for test procedures, etc.