

# DELIVERABLE D 9.2.1

## PRESS RELEASES (FIRST)

### DOCUMENT

DELIVERABLE NUMBER	<b>D9.2.1</b>	DUE DATE	<b>JUNE 30, 2010</b>
ISSUED BY	<b>POLIMI</b>	ACTUAL DATE	<b>AUGUST 14, 2010</b>
	<b>CFC</b>	PAGES	<b>16</b>
		ANNEXES	<b>-</b>

CONTRIBUTING WP	<b>WP9</b>	Dissemination and exploitation
CONTRIBUTING TASKS	<b>TASK 9.1</b>	Dissemination of results
CONFIDENTIALITY STATUS	<b>PU</b>	

### PROJECT

GRANT AGREEMENT NO.	<b>257646</b>
ACRONYM	<b>MiSPiA</b>
TITLE	<b>MICROELECTRONIC SINGLE-PHOTON IMAGING ARRAYS FOR 3D LOW-LIGHT HIGH-SPEED SAFETY AND SECURITY APPLICATIONS</b>
CALL	<b>FP7- ICT – 2009.3.7</b>
FUNDING SCHEME	<b>STREP</b>



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<b>HISTORY RECORD</b>			
<b>ISSUE</b>	<b>DATE</b>	<b>PAGE</b>	<b>NOTES</b>
1	09/07/2010		Circulation of the first issue of the press release
2	02/08/2010	all	First draft of deliverable
3	06/08/2010	all	Deliverable revision
4	08/08/2010	all	Partners crosscheck
5	13/08/2010	all	Final control

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## 1. INTRODUCTION

### 1.1 SCOPE

Scope of the document is to describe the activities that have been done to produce the project press releases. Such activity belongs to the Work Package WP9 “Dissemination and exploitation”, specifically the Task 9.1 “Dissemination of results”. The aim of this task is to disseminate and promote the project results through substantial dissemination activities that have been taken place from the beginning of the project.

This report is on the first press release that has been written at project start as is indicated in the Work Package.

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## 2. ACTIVITIES PERFORMED

### 2.1 PREPARATION OF THE PRESS RELEASE

Prior to the kick-off meeting, CFc and POLIMI prepared the text for a press release launching the MiSPiA project. The text has been circulated at all partners, so that each of them would be able to publish in relevant websites and journals. It is asked also to partners to address local media by translating the text in local language. Here below the text of the press release defined.



FOR IMMEDIATE RELEASE

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### LAUNCH OF “MiSPiA” FP7 PROJECT

**Milan, 9 July 2010** – “MiSPiA” (Microelectronic Single-Photon 3D Imaging Arrays for low-light high-speed Safety and Security Applications) is a new Collaborative research project funded by the European Commission in its Seventh Framework Programme for research, technological development and demonstration activities (2007-2013), and was launched in June 2010 under the coordination of the Polytechnic of Milan, Electronics and Information Department. According to the Grant Agreement number 257646, signed between the Project Coordinator and the European Community, the project will be funded for €2,632,854 for performing activities for 36 months in the field of photonics.

On July 12 and 13 2010, more than 20 representatives of the MiSPiA consortium will meet in Milan for the project kick-off meeting, in order to start the project activities. They will have the occasion to present their expertise and know-how to the other members of the consortium, but also to discuss in depth requirements, specifications and constraints of the devices to be developed within the MiSPiA project.



Many social needs require the acquisition of images at low light levels (possibly with no artificial illumination), at video or even higher frame rates (possibly thousands of frames per second, fps), and also with distance-resolution (possibly millimetre precision). Nowadays the imager market offers a broad portfolio of either commercial- or scientific-grade cameras, ranging from consumer CMOS Active Pixel Sensor cameras up to high-end CCD imagers. None of them simultaneously offer high speed and ultra high sensitivity: CCDs reach sensitivity at close to single-photon level, but necessarily require cooling and long integration times (i.e. very low frame rates); APS imagers provide video-rates but with relatively limited detection efficiency, thus requiring bright illumination scenes. The MiSPiA concept is to provide simultaneously both high frame-rates and single photon sensitivity chips with monolithic integration of Single-Photon Avalanche Diode (SPAD) pixels and sophisticated in-pixel intelligence able to process at the pixel-level intensity-data and depth-ranging information, enabling 3D mapping of rapidly changing scenes in light starved environments.

MiSPiA proposes to exploit both standard CMOS technology, for cost-effective 2D imaging and 3D ranging cameras, and highly innovative beyond the state-of-the-art SOI/CMOS processing, for advanced imager performance.

MiSPiA's idea is to develop advanced microelectronic SPAD array chips able not only to count single photons ("single-photon counting"), but also to accurately tag them with their arrival time ("singlephoton timing") and so provide a full image ("single-photon imaging") of the object under investigation. Therefore, MiSPiA aims to conceive, develop and fabricate photonic and microelectronic technologies for cost-effective manufacturing of very fast, highly sensitive, two-dimensional (2D) and threedimensional (3D) SPAD cameras running at higher speed than standard video-rate.

MiSPiA consortium consists of 7 partners, who are among the leading European research groups in the fields of SPAD arrays and single-photon instrumentation (Politecnico di Milano, Italy), CMOS sensors fabrication and advanced SOI processes (Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E.V., Germany), design and fabrication of microlens arrays (Heriot-Watt University, United Kingdom), development of time-correlated single-photon counting detection modules and cameras (Micro Photon Devices s.r.l., Italy), safety applications in automotive field (Centro Ricerche Fiat sspa, Italy), then a leader in the security surveillance monitoring (EMZA Visual Sense Ltd, Israel) and finally CF consulting srl (Italy) with vast experience in the management and dissemination of European projects.

The MiSPiA Project will have major impacts on technological fields, application environments and enduser needs, because MiSPiA technology for SPAD arrays, 2D imaging and 3D ranging chips will define a new paradigm in the fields of silicon photonics and microelectronics integration and of advanced ultrasensitive time-resolved and spectrally-resolved imaging. Not only Safety and Security scenarios will benefit by MiSPiA cameras, but also completely different fields. The European Union will become more and more competitive against USA, Japan and Canada and will acquire a renowned leadership in conceiving, manufacturing and deploying ultra high sensitive and fast camera sensor chips and systems.



Novel photonics components will push towards further chances to achieve MiSPiA foreseen impacts. Growing progress in laser and LED sources, with higher efficiency and different wavelengths, can improve the 3D scene illuminator (hence signal quality and SNR), the multi-spectral ranging approach (e.g. to near ultraviolet), and the overall 3D system compactness. Also, progress in CMOS technologies, crystallographic quality, and manufacturing yield will render the SPAD chips even more appealing, due to performance improvements (e.g. lower dark-counting rate and afterpulsing, higher uniformity, etc.), and costs reduction.

Innovative scientific research and growing studies on single-photon detectors and time-resolved techniques can raise interest for further developments of smart-pixels and arrays within the MiSPiA project.

Finally, the microelectronic scalability of the proposed MiSPiA CMOS SPAD imagers will positively impact on further advancement on SPAD array density (toward megapixels), in pixel smartness (more complex in pixel and on chip processing), and overall imager compactness.

## 2.2 PUBLICATION OF THE PRESS RELEASE

Each partner proceeded in the publication of the press release as follows.

### 2.2.1 POLIMI

[http://www.dei.polimi.it/ricerca/sezioni/progetti/dettaglio.php?&id\\_sottoarea=&id\\_sezione=2&id\\_progetto=140&action=ricerca&idlang=ita](http://www.dei.polimi.it/ricerca/sezioni/progetti/dettaglio.php?&id_sottoarea=&id_sezione=2&id_progetto=140&action=ricerca&idlang=ita)



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### 2.2.2 Fraunhofer

[http://www.ims.fraunhofer.de/86.html?&L=1&tx\\_ttnews\[tt\\_news\]=121&tx\\_ttnews\[backPid\]=6&cHash=313e3aa59e](http://www.ims.fraunhofer.de/86.html?&L=1&tx_ttnews[tt_news]=121&tx_ttnews[backPid]=6&cHash=313e3aa59e)

The screenshot shows a web browser window displaying the Fraunhofer IMS website. The page title is "MiSPiA: Fast 3D Imaging Arrays for pre-crash safety system in cars". The main content area features the MiSPiA logo and a text block starting with "LAUNCH OF 'MiSPiA' FP7 PROJECT". The text describes the project's goals, including the development of high frame-rate, short-range (10-50m) 3D ranging systems for automotive safety and multispectral long-range (200-1,000m) 3D ranging systems for security surveillance. A "Download: Press release" link is visible at the bottom of the text block.

### 2.2.3 HWU

[http://www.news.hw.ac.uk/news/5443Heriot\\_Watt\\_to\\_work\\_in\\_an\\_ambitious\\_European\\_wide\\_research\\_on\\_photonics](http://www.news.hw.ac.uk/news/5443Heriot_Watt_to_work_in_an_ambitious_European_wide_research_on_photonics)

The screenshot shows a web browser window displaying the Heriot-Watt University Edinburgh news page. The page title is "Heriot-Watt to work in an ambitious European-wide research on photonics". The main content area features the university logo and a text block starting with "Heriot-Watt to work in an ambitious European-wide research on photonics". The text describes the university's role in a collaborative research project on photonics, funded by the European Commission. It mentions the development of advanced microelectronic SPAD (single photon avalanche diodes) array chips and the use of silicon photonics and microelectronics integration for advanced ultra-sensitive time-resolved and spectrally-resolved imaging.



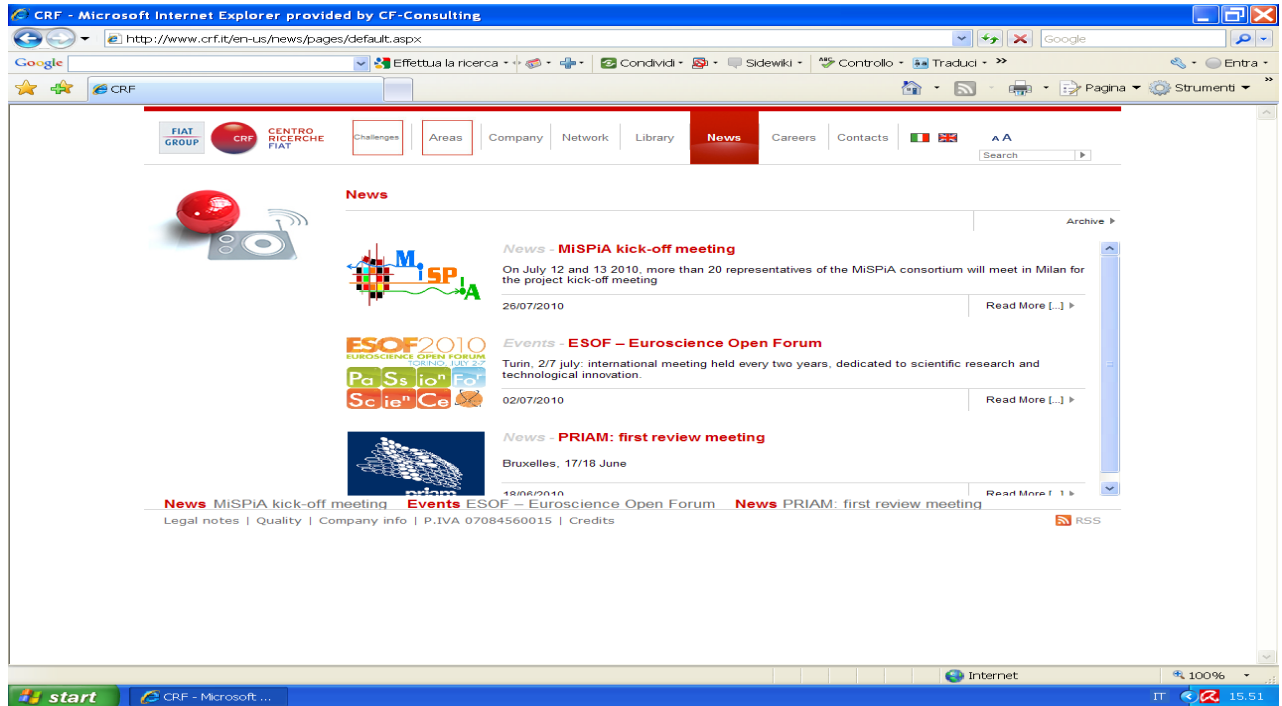


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## 2.2.4 CRF

<http://www.crf.it/en-us/news/pages/default.aspx>



## 2.2.5 MPD

<http://www.micro-photon-devices.com>



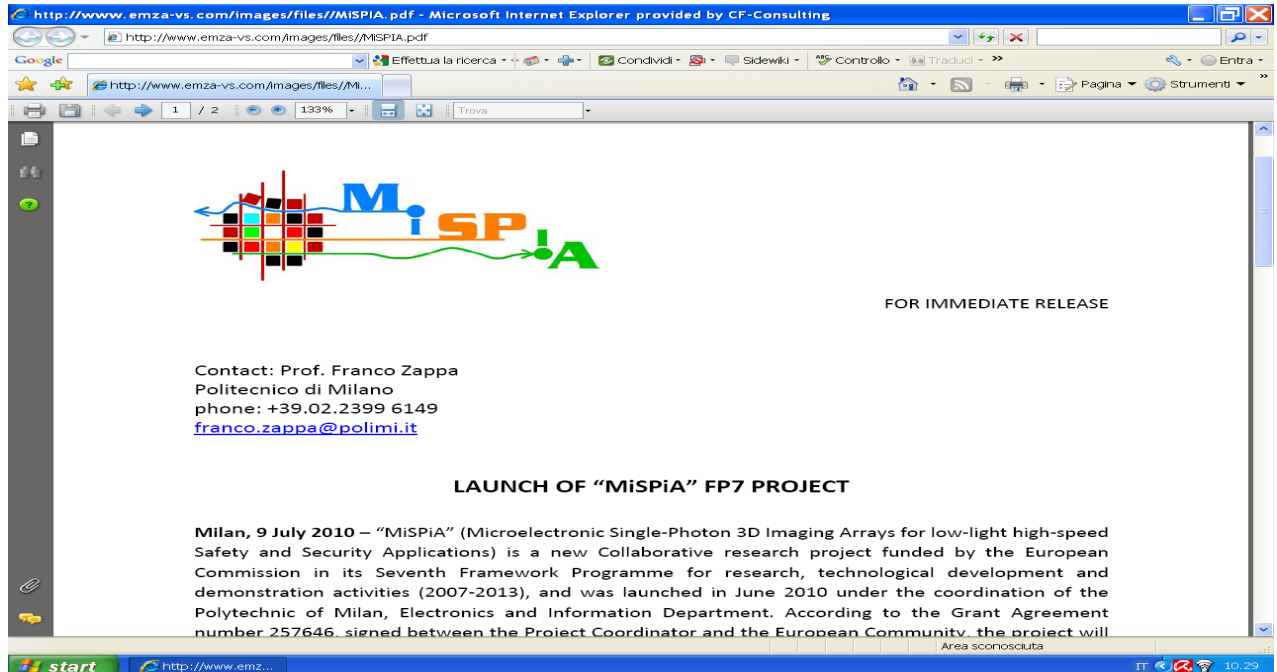


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### 2.2.6 EMZA

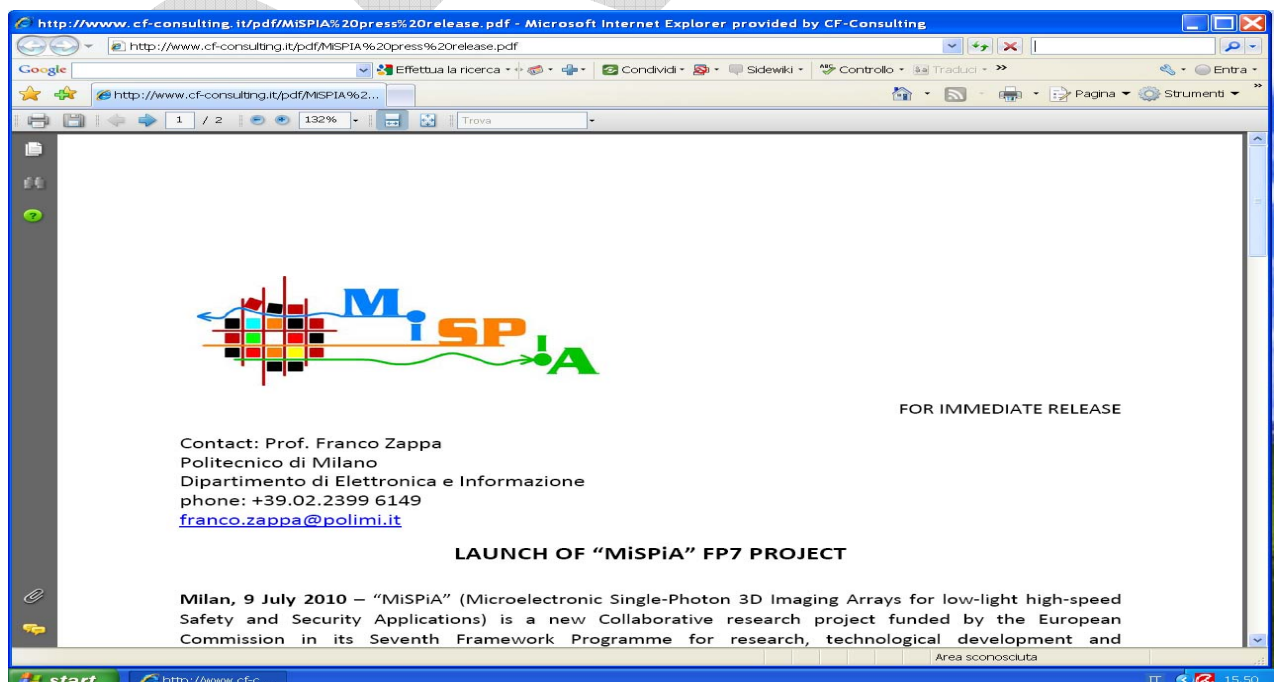
<http://www.emza-vs.com/images/files/MiSPiA.pdf>



### 2.2.7 CFc

➤ CFc

<http://www.cf-consulting.it/pdf/MiSPiA%20press%20release.pdf>





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## ➤ CORDIS NEWS

[http://cordis.europa.eu/fetch?CALLER=IT\\_NEWS&ACTION=D&SESSION=&RCN=32327](http://cordis.europa.eu/fetch?CALLER=IT_NEWS&ACTION=D&SESSION=&RCN=32327)

The screenshot shows a web browser window displaying a CORDIS Wire article. The article title is "LAUNCH OF 'MISPIA' FP7 PROJECT". The publication date is "2010-07-12". The author is "Franco Zappa" from the "Politecnico di Milano". The article text describes the "MiSPiA" project, a collaborative research project funded by the European Commission in its Seventh Framework Programme. It details the project's goals, including the development of 3D ranging systems for automotive safety and security applications. The article also mentions a meeting in Milan on July 12 and 13, 2010, where consortium members discussed project requirements and constraints.

## 2.2.8 OTHER MEDIA ON WHICH THE MiSPiA PRESS RELEASE WAS PUBLISHED

### ➤ Photonics.com

<http://www.photonics.com/Article.aspx?AID=43324>

The screenshot shows a web browser window displaying an article on the Photonics.com website. The article title is "Single-Photon Project Launched". The article text describes the "MiSPiA" project, a collaborative research project funded by the European Commission in its Seventh Framework Programme. It details the project's goals, including the development of 3D ranging systems for automotive safety and security applications. The article also mentions a meeting in Milan on July 12 and 13, 2010, where consortium members discussed project requirements and constraints.



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## ➤ CORDIS Wire

<http://cordis.europa.eu/wire/index.cfm?fuseaction=article.detail&rcn=23389&rev=0&PageMode=print>

The screenshot shows a Microsoft Internet Explorer browser window displaying the CORDIS Notiziario website. The page title is "Immagini nel buio: ecco il nuovo progetto MISPIA". The article is dated 2010-07-13. The text describes the MISPIA project, which aims to produce images in low-light conditions using single-photon 3D imaging arrays. It mentions that the project is funded by the European Union and involves researchers from various countries. The article also discusses the challenges of low-light imaging and the potential applications of the technology in safety and security. A small image of a camera is visible on the right side of the article.

## ➤ Market Press

[http://www.marketpress.info/notiziario\\_det.php?art=146221](http://www.marketpress.info/notiziario_det.php?art=146221)

The screenshot shows a Microsoft Internet Explorer browser window displaying the Market Press website. The page title is "IMMAGINI NEL BUIO: ECCO IL NUOVO PROGETTO MISPIA". The article is dated 15 July 2010. The text describes the MISPIA project, which aims to produce images in low-light conditions using single-photon 3D imaging arrays. It mentions that the project is funded by the European Union and involves researchers from various countries. The article also discusses the challenges of low-light imaging and the potential applications of the technology in safety and security. A large banner for "Cerca tra le migliori offerte Lastsecond" is visible at the top of the page. The article text is partially obscured by a large watermark.



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## ➤ BioInfoBank

<http://lib.bioinfo.pl/projects/view/15364>

The screenshot shows a web browser window displaying the BioInfoBank project page for "Microelectronic Single-Photon 3D Imaging Arrays for low-light high-speed Safety and Security Applications (MISPIA)". The page includes a navigation menu with options like "Projects", "Proposals", "Accepted", "Running", "Completed", and "Projects Participants". The main content area provides details about the project, including the hosting organization (Politecnico di Milano), funding (3,400,000 €), duration (2010-06-01 to 2013-05-31), and research area (Photonics). A summary paragraph states: "MISPIA will develop beyond state-of-the-art photonics technology for array imagers of smart-pixels able to detect single photons. Intelligent in-pixel pre-processing will simultaneously provide ultra high sensitivity (single-photon level), very high frame-rate (up to 200,000fps) and advanced multi-spectral (300-900nm) three-dimensional (3D) distance ranging and two-dimensional (2D) imaging of fast moving objects." Below this, it lists applications: "MISPIA detectors will be used in two key applications: long-range (200-1,000m) 2D and 3D active identification in low light level surveillance operations; and very fast (over 200fps) short-range (10-50m) 3D monitoring in automotive pre-crash safety systems. Instead of (slow and noisy) CCDs and CMOS active pixels (with poor sensitivity and noisy electronics), MISPIA will exploit the ultimate performances of truly-single photon detectors: the Single-Photon Avalanche Diodes (SPAD). MISPIA imagers will be based on four different SPAD smart-pixels: photon-counting pixels for 2D imaging, LIDAR pixels for 3D direct time-of-flight (dTOF), two different phase-sensitive pixels for 3D indirect time-of-flight (iTOF) depth acquisitions. Full-size imager chips will be manufactured, characterized and eventually integrated into two 3D ranging cameras deployed into the two end-users applications for validation. MISPIA technologies will be both highly-advanced and cost-effective: a high-voltage 0.35µm CMOS processing for front-side illuminated imagers; and a new flipped-chip Silicon-on-Insulator (SOI) CMOS technology for back-side illuminated imagers." The page also features a sidebar with "Science news" and "Internet" sections.

## ➤ NanoWerk

<http://www.nanowerk.com/news/newsid=17114.php>

The screenshot shows a web browser window displaying the NanoWerk news page for the "Launch of FP7 MiSPiA photonics project". The page features a header with the NanoWerk logo and navigation links. The main content area includes a news article titled "Launch of FP7 MiSPiA photonics project" dated July 12, 2010. The article text states: "(NanoWerk News) 'MiSPiA' (Microelectronic Single-Photon 3D Imaging Arrays for low-light high-speed Safety and Security Applications) is a new Collaborative research project funded by the European Commission in its Seventh Framework Programme for research, technological development and demonstration activities (2007-2013), and was launched in June 2010 under the coordination of the Politecnico di Milano, Dipartimento di Elettronica e Informazione. According to the Grant Agreement number 257646, signed between the Project Coordinator and the European Community, the project will be funded for € 2,632,854 for performing activities for 36 months in the field of photonics. MiSPiA aims at two clearly identified 3D applications: high frame-rate, short-range (10-50m) 3D ranging systems for automotive prompt intervention for front- and back- pre-crash safety systems; and multi-spectral long-range (200-1,000m) 3D ranging systems for security surveillance. In the automotive field, moving or standing objects/obstacles to detect are vehicles, bicycle and pedestrian, small objects (trees, poles, etc.). Possible preventive or protective actions will be pre-crash warning (e.g. an acoustic warning signal), collision mitigation, pre-tensioning of safety belts, pre-setting of air bags. Instead Rear Pre-Crash is finalised to the rear impact detection and the automatic release of protective actions. Relevant objects/obstacles are any vehicles approaching with danger of crashing from behind. On July 12 and 13 2010, more than 20 representatives of the MiSPiA consortium will meet in Milan for the project kick-off meeting, in order to start the project activities. They will have the occasion to present their expertise and know-how to the other members of the consortium, but also to discuss in depth requirements, specifications and constraints of the devices to be developed within the MiSPiA project. Many social needs require the acquisition of images at low light levels (possibly with no artificial illumination), at video or even higher frame rates (possibly thousands of frames per second, fps), and also with distance-resolution (possibly millimeter precision). Nowadays the imager market offers a broad portfolio of either commercial- or scientific-grade cameras, ranging from consumer CMOS Active Pixel Sensor cameras up to high-end CCD imagers. None of them simultaneously offer high speed and ultra high sensitivity: CCDs reach sensitivity at close to single-photon level, but necessarily require cooling and long integration times (i.e. very low frame rates); APS imagers provide video-rates but with relatively limited detection efficiency, thus requiring bright illumination scenes. The MiSPiA concept is to provide simultaneously both high frame-rates and single-photon sensitivity, along with monolithic integration of..." The page also features a sidebar with "Article Tools" and "Research/General News" sections.



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## ➤ Enterprise Europe Scotland

<http://www.enterprise-europe-scotland.com/sct/news/index.asp?newsid=920>

The screenshot shows a Microsoft Internet Explorer browser window displaying the website <http://www.enterprise-europe-scotland.com/sct/news/index.asp?newsid=920>. The page features a header with the 'network enterprise europe scotland' logo and a navigation menu including Home, Services, Events, News, Useful links, Case studies, Contact Us, and My profile. The main content area is titled 'Latest News' and contains an article dated 14 July 2010. The article title is 'Pictures in the dark: new project MISPIA gets underway'. The text describes a new EU-funded project on low-light imaging launched in Milan, Italy, aimed at developing advanced imaging devices for safety and security applications. A sidebar on the right includes a 'Sign Up!' section for e-alerts and an 'RSS Feeds' section. The browser's taskbar at the bottom shows the 'start' button and the current page title 'Pictures in the d...'. The system tray indicates the time is 12:55.

## ➤ Iserd

<http://www.iserd.org.il/default.asp?id=774>

The screenshot shows a Microsoft Internet Explorer browser window displaying the website <http://www.iserd.org.il/default.asp?id=774>. The page features a header with the Iserd logo and navigation links in Hebrew and English. The main content area is titled 'News' and contains a list of news items. The first item is 'OSIRIS project to guide ICT research infrastructures', published on 20/07/2010, organized by Iserd. The second item is 'Pictures in the dark: new project MISPIA gets underway', also published on 20/07/2010, organized by EC. The third item is 'SELDOTT Project', published on 20/07/2010, organized by EC. The browser's taskbar at the bottom shows the 'start' button and the current page title 'Iserd - FP7 -> N...'. The system tray indicates the time is 14:22.



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## ➤ Before it's news

[http://beforeitsnews.com/story/100/846/Microelectronic\\_SinglePhoton\\_3D\\_Imaging\\_Arrays\\_For\\_LowLight\\_HighSpeed\\_Safety\\_And\\_Security\\_Applications.html](http://beforeitsnews.com/story/100/846/Microelectronic_SinglePhoton_3D_Imaging_Arrays_For_LowLight_HighSpeed_Safety_And_Security_Applications.html)

The screenshot shows a web browser displaying an article on the 'Before It's News' website. The article title is 'Microelectronic Single-Photon 3D Imaging Arrays For Low-Light High-Speed Safety And Security Applications'. It is attributed to Alton Parrish (Editor) and dated August 2, 2010. The article text begins with 'A new EU-funded project on low-light imaging has just been launched in Milan, Italy. The MISPIA (Microelectronic single-photon 3D imaging arrays for low-light high-speed safety and security applications) project, funded with EUR 2.6 million under the Information and Communication Technologies (ICT) Theme of the EU's Seventh Framework Programme (FP7), pools the expertise of scientists and engineers in 20 countries to develop advanced imaging devices with...'. The website interface includes a search bar, navigation tabs for 'HOME', 'SCIENCE AND TECHNOLOGY', and 'Nearby Stories', and a 'Related Stories' section.

## ➤ FIRST

[http://first.aster.it/news/show\\_news.php?ID=22336&PRN=1](http://first.aster.it/news/show_news.php?ID=22336&PRN=1)

The screenshot shows a web browser displaying an article on the 'FIRST' website. The article title is 'Immagini nel buio: ecco il nuovo progetto MISPIA'. It is dated July 13, 2010. The article text begins with 'A Milano è appena stato lanciato un nuovo progetto finanziato dall'Unione europea dedicato alla produzione di immagini in condizioni di scarsa luminosità. Il progetto MISPIA (Microelectronic single-photon 3D imaging arrays for low-light high-speed safety and security applications), che ha ricevuto un finanziamento di 2,6 milioni di euro in riferimento alla tematica dedicata alle tecnologie dell'informazione e della comunicazione (TIC) del Settimo programma dell'UE, riunisce le competenze di scienziati e ingegneri in 20 paesi per mettere a punto dispositivi di imaging all'avanguardia dotati di diverse applicazioni. I dispositivi dovrebbero servire anche per la prevenzione degli incidenti stradali...'. The article includes a small image of the MISPIA logo and discusses the technical details of the project, including the use of CMOS technology and SPAD sensors.

### **3. CONCLUSIONS**

The publication of the first press release has been a way to introduce the project and to give it a visibility at all interested communities.

Besides, press release dealing with project achievements will target journalists and major publications that will highlight the fundamental role of EU in funding advanced researches and in pushing them to the market.

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