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UPM INNOVATIVE RESEARCH
UNIVERSIDAD POLITÉCNICA DE MADRID

nº
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UPM INNOVATECH

Technical University of Madrid innovative research



Experiment
with the
latest 3D TV
technologies

The Dem-3DTV: a view beyond the depth



Its activity is focused on technological challenges which are based on analysis and coding of images, 3D graphics, media distribution using Content Delivery Network, transmission (IPTV, OTT) and 3DTV Quality of User Experience. The research group is collaborating in these fields with companies such as Alcatel-Lucent, Hispasat and Telefónica.

So far, the results and activities of Dem-3DTV have an international impact. The group carried out, for example, subjective quality tests for MPEG standard groups aiming to assess the new 3DVC which is focused on the coding of 3D videos. Dem-3DTV was one of the 13 Independent Testing Laboratories selected worldwide to conduct the assessment tests. The collaboration between the international standard bodies (MPEG and ITU) is intense through the participation in the development of standards UIT-T J.81, MPEG-2, MPEG-4 and MPEG-7. In addition, the group has recently participated in the JEDI European research project (Just Explore Dimensions: End to End High Definition 3DTV for Consumer), that conducted the first world Blu-ray 3D™ quality broadcast experience.



The increasing demand of audiovisual contents of high quality and able to enhance the user experience has

provoked that one of the main drivers of audiovisual sector is the generation and distribution of 3D contents by service providers, once the commercialization of 3D televisions are widespread and became popular. It is expected a percentage of market penetration of these devices of 40% approximately in 2015 and an estimated sales of 200 million units in 2018.

The 3D Television Demonstrators (Dem-3DTV), located at the UPM Centre of Support for Technology Innovation, is coordinated by the Image Processing Group (GTI) of the University. It is equipped with a complete infrastructure to support R&D, equipments of technology integration oriented to acquisition, analysis, compression, distribution and display of audiovisual content with depth perception.

Through the integration of these solutions focused on signal treatment, they can provide advanced services related to demonstrating R&D results, experimentation in 3D TV or the integration of development carried out by audiovisual companies.

The Dem-3DTV is also a Production and Experimentation Centre for digital content that seeks to be "a reference Centre in

the generation of stereoscopic 3D content for media companies, standardization bodies, universities and technology centres", said Fernando Jaureguizar, a professor at the UPM.

“The Dem-3DTV is a new space for experimentation and integration of technologies in the 3D audiovisual sector”





actúaupm awards for the most innovative entrepreneurs of the UPM



The Technical University of Madrid (UPM) rewarded the ten best business ideas at the X Business Plan Competition actúaupm. In its last edition, it had the participation of 405 business ideas coming from students, professors and researches of the UPM.

Cloud database with transparency for applications, transparent highly insulated facade systems, solutions for real-time communication on the web, autonomous submarines production that allow us to tour long distances in the ocean and acquiring relevant information, are some of the winner business ideas in the first phase of the X Business Plan Competition actúaupm.

The competition keeps in progress and there is now a training phase in which the

elected teams will learn to express their ideas on a business plan and will be able to have access to some diverse activities. The final awards to the best business plans are ended with 15,000, 10,000 and 5,000 euros.

The UPM Entrepreneurship Program has many sponsors such as Accenture, Creania Labs, eGauss, InvestBan, ROUSAUD COSTAS DURAN SLP and Savior Venture Capital and collaborators as IEN Politécnica Business School and Revista Emprendedores.

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ophthalmologic kit, reducing risks in the retinal detachment treatment

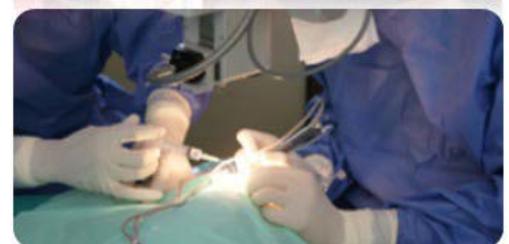


Patented ocular device that optimizes the accuracy of retinal detachment surgical operations, reducing risks and improving patient well-being

A research group of the Center of Biomedical Technology (CTB) at the Technical University of Madrid (UPM) has developed an innovative solution to improve the efficiency of the retinal detachment surgery, both potential medical costs resulting from the treatment and patients welfare, in collaboration with researchers and doctors of University Hospital Ramón y Cajal, Universidad Autónoma de Madrid and the Biomedical Research Networking center in Bioengineering, Biomaterials and Nanomedicine. Applying nanotechnology in the field of biomedicine, this patented device has already been successfully tested in animals with a success rate over 80%, proving the expected benefits in terms of reducing the likelihood of new surgical operations, side effects and post-surgical

recovery time.

- ✓ Competitive advantages:
 - Increase retinal detachment surgery and other eye disorders treatment success rate: medical and surgical equipment cost savings.
 - Increase patient comfort and safety after the operation
 - Device already tested in animals with a success rate over 80%.
 - Ability to place other substances into the device (drugs, proteins ...) in order to shorten the patient recovery time or protect him from infections.
- ✓ Market demands:
 - The rapidly population aging leads to a fast population growth over 65 years, the sector with the highest incidence of eye diseases and disorders.
 - High incidence of retinal detachment (one case per 10.000 population per year): surgical operation is one of the most common ophthalmologic procedures.



- ✓ Market potential:
 - Changing trends in diets, lifestyle, and increased longevity are growing the global market for ophthalmic devices and treatments: it is expected to reach 28.000 M\$ in 2016 [GBI Research].
 - By 2014, ophthalmic surgical equipment industry would be valued at 7.300 M€, a CAGR of 5,9% [BCC Research].

Plant Response, new technologies for crops protection



Plant Response Biotech scientific basis has been developed after years of research on leading technologies at the Centre for Plant Biotechnology and Genomics (CBGP) – UPM. The company is specialized in the discovery and commercialization of technologies and improvements to establish a sustainable crop protection that is able to accomplish the current needs of agricultural market. “Plant vaccination” by pre-immunization with elicitors is a mechanism of natural and robust resistance which has not been exploited yet in the field of crop protection. Environmental and health laws along with the social demand by a safe agriculture can provide a unique opportunity to the development of this technology.

The “plant vaccination” proposed by “Plant Response” is the result of the preventive application of molecules derived from crop plants pathogens increasing their natural resistance after been infected. The identification and characterization of the plant receptors allow them to obtain new varieties with resistance to pathogens that give them a better performance.

The business strategy of “Plant Response” is focused on: a professional and dynamic team, a powerful position for intellectual property of its results and a network of strategic alliances with private and public research groups which are leaders in the area of crop protection. “Plant response” has the exclusive license for four international patents. “Plant Response” has already



developed six new products that will be introduced on to the market during 2013. These products are tested in real conditions of production to guarantee that accomplish with the quality needs both by the producers as by the final consumer.

“The first months after setting up a start-up are awful”



Biicode is a UPM spin-off that has developed a new technology of software development that will allow an efficient code management resulting in time and costs savings in the development of computing solutions.



Diego Rodríguez Losada is one of the promoters. He is a professor and a researcher at the Automatic and Robotic Centre at School – UPM and has shared his experience with us.

Q: How did the idea of creating a company come out?

A: The idea came out from some needs of the team. As a result of our work at programming, we realized that we had relevant inefficiency in the development process and this lack could be enhanced because we had the abilities required to face the challenge.

Q: What profile does the company require?

R: The company profiles are highly technical: such as programmers,



systems, devtools, testings. We are in an early stage of development and we have not started to market the product yet. Fortunately, we count on Manuel Arrufat, the Chief Executive Officer, who will be responsible for business task and to manage the company.

Q: What kind of support and difficulties have you found in the process of creating your company?

A: Certainly, actúaupm and its team are an important support. Family, friends and acquaintances who are always willing to help by providing contact agenda,

seeking for funding or looking for collaborations. In general, the work of the entrepreneur is well accepted and socially appreciated. On the other hand, the difficulties are not insignificant: facing the challenge of working on unknown areas such as marketing and accounting or dealing with bureaucratic aspects. Although, the biggest difficulty is not to give up, to overcome the numerous negativities: rejection of some investors, not winning a certain prize, negative reviews of the technical and business idea.

To find a human team with complementary technical capabilities and to achieve that the team looks at the same direction is also a hard task. It is quite important to establish clear relationships among the partners in early stages, the contributions of each member and the degree of commitment to the project.

"The creation of the Centre of Support for Technology Innovation in 2012 and the development of the UPM Innovatech project, which is gradually implemented, imply a substantial change regarding the way in which the UPM supports innovation, exploitation and commercialization of the technology generated from the research effort and the establishment of university-based companies.

The Newsletter_Innovatech-UPM aims to report regularly the project progress and its achievements.

This publication complements the website which will have all the available information. I would like to encourage readers to visit the website. This first publication has introduced various activities which are within the framework of Innovatech during 2013.

We have something new at the Montegancedo Campus. The new building that will have the technology demonstrators is in the process of occupation. This publication tells us

about a new living lab setting-up in the Centre: TV 3D.

This edition also includes the news of the X Business Plan Competition actúaupm, on the path of consolidation after several years.

We have selected a UPM technology that is protected by patent and that we think it can have an active process of commercialization. It is an ophthalmic kit for the treatment of retinal detachment. The recently signed agreement with the company Plant Response Biotech is an opportunity and an example of technology commercialization with the support of collaborating companies that help by adding value to technologies from the UPM".

Gonzalo León Serrano

Director of the Centre for Support for Technical Innovation

Technical University of Madrid



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