First Demonstration

Deliverable D6.1.1

FascinatE identifier: FascinatE-D611-TNO-FirstDemonstration-v03.docx
Deliverable number: D6.1.1
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Work package / task: WP6 / T6.1
Document status: Final
Confidentiality: Public

Version	Date	Reason of change
1	2011-10-24	document created (e.g. structure proposed, initial input…)
2	2011-10-31	Document ready for review
3	2011-11-10	Final document after internal review

Acknowledgement: The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 248138.

Table of Contents

1 Executive Summary

Within Fascinate WP6, a series of well-organised convincing demonstrations is prepared and held that raise awareness of the project both in the popular and technical media, and amongst the industry itself, as well as providing focal points for the technical work of the project.

This document reports on the first public demonstration of FascinatE technology, at the International Broadcast Convention (IBC) in September 2011. It describes the preparations for the FascinatE booth, the demonstrations that were exhibited, the papers that were presented and other visual material that was used to explain FascinatE to the IBC visitors. Also included is a series of photos, to provide readers with a visual tour of the FascinatE booth and the IBC exhibition.

From the project, we were delighted to get the opportunity to demonstrate our project to visitors at the IBC 2011 in September. Over the duration of the convention some 28 colleagues from 10 consortium partners were present and on hand to explain all aspects of the project when needed. On display were a number of demonstrations exhibiting different aspects of the project and many of the 50,000 visitors to the IBC were taken through the story of FascinatE.

2 Introduction

2.1 Purpose of this Document

Within Fascinate WP6, a series of well-organised convincing demonstrations is prepared and held that raise awareness of the project both in the popular and technical media, and amongst the industry itself, as well as providing focal points for the technical work of the project. A series of successful demonstrations is key in getting the technology and standards developed by the project widely adopted.

This document reports on the first public demonstration, at the International Broadcast Convention (IBC) in September 2011.

2.2 Scope of this Document

This document is mainly related to Task 6.1: First demonstration - demonstration of first project results at IBC2011, Amsterdam. In the FascinatE project proposal, this task is described as follows:

T6.1: First demonstration: The first public demonstration will be at IBC, Amsterdam, September 2011. It will take the form of a demonstration in a booth, presenting the overall system concept and showing individual demos of various parts. The demo will use a combination of pre-captured material and live inputs from a few cameras. Material will be captured in advance at an event such as a concert or an athletics competition (working with BBC Sport to choose a suitable event and pick a location to mount the cameras that should allow interesting content to be captured). The demonstration will include real-time sound rendering and basic video rendering controlled by simple gesture recognition.

2.3 Status of this Document

This is the final version of D6.1.1.

3 IBC 2011

We were delighted to get the opportunity to demonstrate our project to visitors at the IBC 2011 in September. Over the duration of the convention some 28 colleagues from 10 consortium partners were present and on hand to explain all aspects of the project when needed. On display were a number of demonstrations exhibiting different aspects of the project and many of the 50,000 visitors to the IBC were taken through the story of FascinatE.

3.1 Preparations

Careful preparations of our IBC booth took place in the months before September 2011. We were allocated booth 8.G44 in the Future Zone of the IBC. This location was nicely placed on route to the NHK Super Hi-Vision Demo Theatre, which allowed us to easily attract the interest of passing visitors.

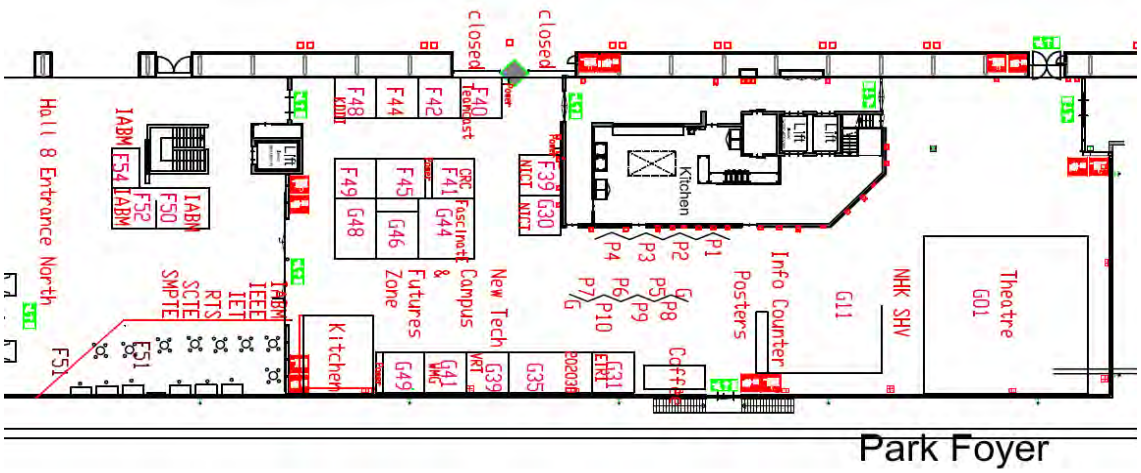

Figure 3-1: Extract from floorplan of Future Zone

For the first public demonstriation, our main aim was to highlight the separate innovative aspects of Fascinate that the partners had been working on in the first project period. Therefore, it was decide that the FascinatE booth should be divided into four areas, allowing us to to demonstrate these various innovative aspects of the project. Each area corresponded to the outcomes of one of the technical work packages of the project, which are listed below for reference:

- WP2: Scene Capture, Production Networks & Layered Production
- WP3: Automated Scripting
- WP4: Audiovisual Services, Proxies and Distribution Networks
- WP5: Terminals, AV Rendering and User Interaction

Figure 3-2 shows the resulting floorplan and booth layout.

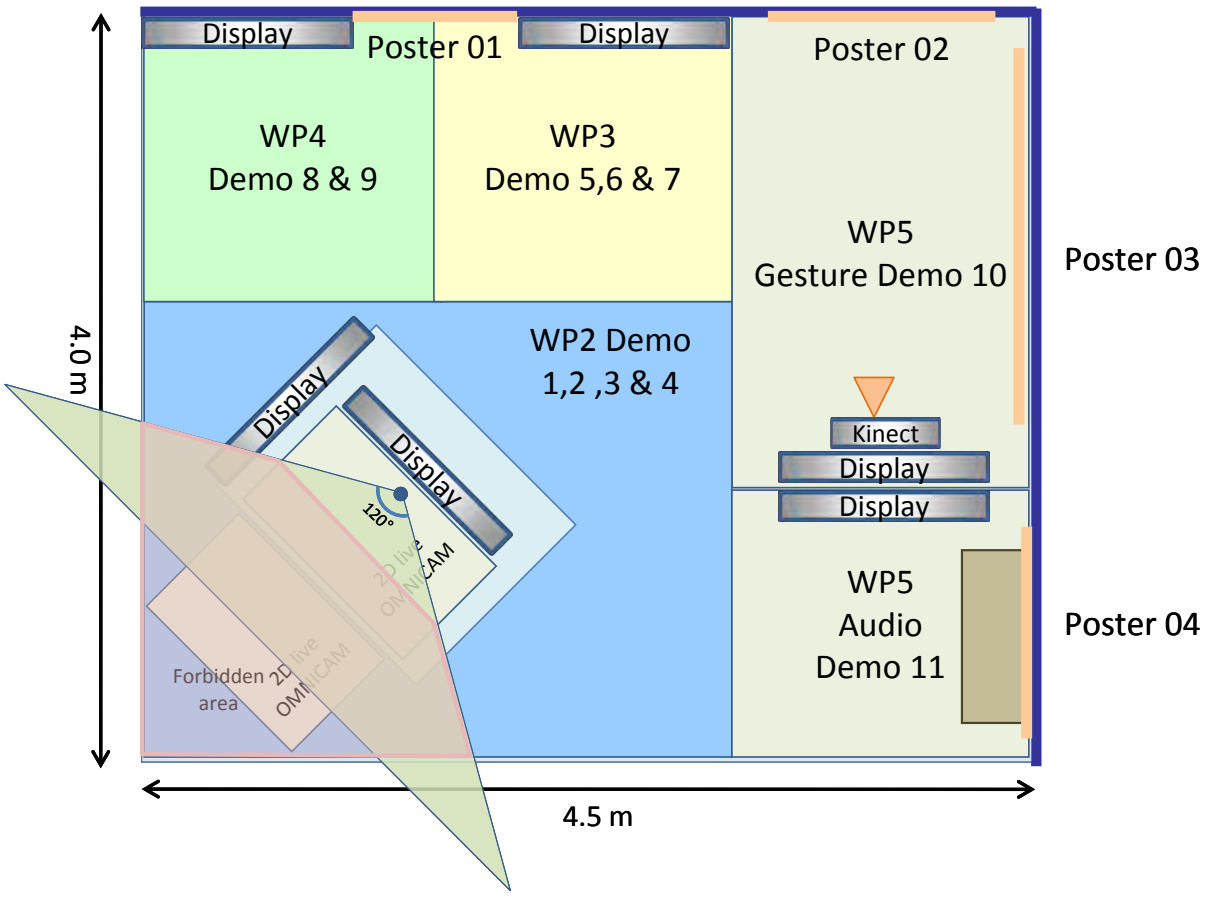

Figure 3-2: Floorplan of the FascinatE booth

3.2 Exhibition

Our steady stream of visitors were treated to a showcase of what FascinatE is really about, with 7 demonstrations and 4 presentations on offer explaining the major features of the project. All of the demonstrations and presentations made use of the football game content that was recorded during the first FascinatE test shoot. Our booth in the Future Zone in Hall 8 featured demonstrations of:

- Live real-time OMNICAM stitching; the OMNICAM setup included both a standard and a 3D camera, showing real-time panorama stitching and blending on a separate display.
- Gesture interaction, in combination with the FascinatE video renderer; this setup allowed visitors to interact with the FascinatE Rendering Node, using gestures.
- Network and delivery of FascinatE content; this setup hosted two demonstrations, which showed network functionality such as in-network rendering and tiled streaming, for efficient delivery of FascinatE content to multiple devices.
- Real-time person tracking; this setup showed the results of a feature tracking algorithm to track persons in the football game.
- 3D audio reproduction; this setup allowed visitors to experience 3D audio, including soundfield rotation.
- A physical model of a separate Alexa camera head was available; the production model could be seen at the ARRI booth.

Furthermore, presentations where shown on several screens, highlighting topics such as:

- Zooming between content from broadcast cameras and the panoramic camera;
- Results of the Faro 3D laser scanner used to register microphone and camera positions;
- Research on production scripting and the FascinatE Scripting Engine;

- Design of an Editor UI for post-production of Layered Scene content.

The demos and presentations were complemented by several posters, see Chapter 4.Table 3-1 shows the complete list of demonstrations that were shown at the FascinatE booth.

#	WP	Partners	Description
1	WP2	HHI	OMNICAM setup with both standard and 3D camera, showing real-time panorama stitching and blending on a separate display
2	WP2	BBC	Video / slides of zooming between broadcast cameras and panorama
3	WP2	ARRI	Video of 3D laser scan
4	WP2	ARRI	Physical model of a separate Alexa camera head
5	WP3	JRS	Feature point tracking on OMNICAM data
6	WP3	JRS	Scripting engine
7	WP3	TII	Editor UI
8	WP4	ALU	Network-based proxy rendering to multiple devices
9	WP4	TNO	HAS-based tiled streaming
10	WP5	DTO, UPC	FRN with ROI zoom and gesture control
11	WP5	DTO, UOS	Real-Time Ambisonics Decoder

Table 3-1: List of FascinatE demonstrations at the IBC2011 booth.

A more detailed description of the demo's can be found in the special IBC edition of the FascinatE newsletter, available on the FascinatE website:

http://www.fascinate-project.eu/wp-content/uploads/2011/05/IBC_Newsletter.pdf

3.3 Conference

In addition to the booth we also presented three papers in the conference sessions, entitled "Cutting Edge Technology". These three papers have been combined into a single document that is available on the FascinatE website:

http://www.fascinate-project.eu/wp-content/uploads/2011/11/IBC%202011%20Papers.pdf

Below are the summaries of each paper.

Paper 1:

COMBINING PANORAMIC IMAGE AND 3D AUDIO CAPTURE WITH CONVENTIONAL COVERAGE FOR IMMERSIVE AND INTERACTIVE CONTENT PRODUCTION

Authors:

G.A. Thomas (BBC R&D, UK)
O. Schreer (Fraunhofer HHI, Germany)
B. Shirley (University of Salford, UK)
J. Spille (Technicolor, Germany)

Abstract:

The media industry is currently being pulled in the often-opposing directions of increased realism (high resolution, stereoscopic, large screen) and personalisation (selection and control of content, availability on many devices). A capture, production and delivery system capable of supporting both these trends is being developed by a consortium of European organisations in the EU-funded FascinatE project. This paper reports on the latest developments and presents results obtained from a test shoot at a UK Premier League football match. These include the use of imagery from broadcast cameras to add detail to key areas of the panoramic scene, and the automated generation of spatial audio to match the selected view. The paper explains how a 3D laser scan of the scene can help register the cameras and microphones into a common reference frame.

This paper was accepted for inclusion in an IET journal-style publication that was distributed during the conference, as one of 7 selected papers from the whole of the IBC conference.

Paper 2:

ADVANCED AUDIOVISUAL RENDERING, GESTURE-BASED INTERACTION AND DISTRIBUTED DELIVERY FOR IMMERSIVE AND INTERACTIVE MEDIA SERVICES

Authors:

O.A. Niamut (TNO, NL)
A. Kochale (Deutsche Thomson OHG, DE)
J. Ruiz Hidalgo (Universitat Politècnica de Catalunya, ES)
J-F. Macq (Alcatel-Lucent, BE)
G. Kienast (Joanneum Research, AT)

Abstract:

The media industry is currently being pulled in the often-opposing directions of increased realism (high resolution, stereoscopic, large screen) and personalisation (selection and control of content, availability on many devices). A capture, production, delivery and rendering system capable of supporting both these trends is being developed by a consortium of European organisations including partners from the broadcast, film, telecoms and academic sectors, in the EU-funded FascinatE project. This paper reports on the latest project developments in the delivery network and end-user device domains, including advanced audiovisual rendering, computer analysis and scripting, content-aware distributed delivery and gesture-based interaction. The paper includes an overview of existing immersive media services and concludes with initial service concept descriptions and their market potential.

Paper 3:

FORMAT-AGNOSTIC APPROACH FOR 3D AUDIO

Authors:

H. Kropp, J. Spille, J.M. Batke, S. Abeling, F. Keiler (Technicolor, Research & Innovation, Germany)
R. Oldfield and B. Shirley (Acoustics Research Centre, UK)

Abstract:

In the market exists a large variety of media devices, reaching from mobile handsets equipped with headphones up to an ultra-high resolution display connected with a large loudspeaker setup. This makes it difficult for the broadcast industry to provide all of these devices with appropriate data at once. In the EU-funded FascinatE project a system is being developed that considers the individual requirements of a particular end-user device and allows a user to interactively navigate in an audiovisual scene. This paper focus on the latest audio related developments in capturing and replaying audio objects and the entire sound field with respect to the selected view on any loudspeaker setup. First results of a UK Premier League football match show practical aspects of the spatial audio recording and its playback on a 3D loudspeaker setup that can be used for small event rooms.

3.4 Press and Coverage

The FascinatE project was featured in IBC Daily, on Monday, September 12, as shown in the figure below:

58 theibcdaily 12.09.2011

Getting interactive with sports

FascinatE

By Adrian Pennington

A prototype TV service that allows viewers to customise live coverage of sports and music events by selecting different camera angles is being demonstrated in Hall 8. FascinatE (Format-Agnostic SCript-based INterAcTive Experience) is a four-year (2010-2013) €9.5m project backed by a consortium of 11 European organisations and focused on developing a system for an ultra-high resolution television service.

At its core is the Omnicam, developed at German research lab Fraunhofer HII, which uses six HD cameras on a circular rig and software that stitches the images together to form a 180° panorama. With a remote control, a user can navigate their way around the 6k x 2k resolution video.

"It is not possible to capture everything with existing cameras, no matter how many populate an event," explained Research Scientist Omar Niamut.

"Immersive systems such as FascinatE capture everything and let the viewer direct their gaze where they want," he continued.

The challenge for the video teams on the project will be integrating different camera feeds and rendering them into one output stream. Panoramic shots will be captured on the Omnicam, but other cameras for zooming will have different definitions.

A second area of interest is content analysis and scripting systems to control the shot framing options presented to the viewer. Austria's Joanneum Research will show how its image analysis algorithms automatically crop the panoramic video to fit large screens for projections in public, TVs and mobile devices. The software can also be used to create virtual camera angles.

A third area of focus, addressed by Alcatel Lucent and Dutch researchers TNO, explores how intelligent networks with media processing components might adapt the content to suit different devices from mobiles to an immersive panoramic display.

The final area of innovation is on the end-user side. Here Technicolor has devised an interactive rendering technique to zoom into parts of the image. Researchers at the University of Barcelona have added gesture-based control using a Microsoft Kinect so that users can interact with the high resolution field of view.

8.G44

Figure 3-3: Copy of the IBC Daily article. Copyright IBC2011.

4 Posters

Four posters were show at the booth, to provide an overview of the relation between the different project work packages and to highlight the various innovative aspects of the project.

Figure 4-1: The FascinatE project overview poster.

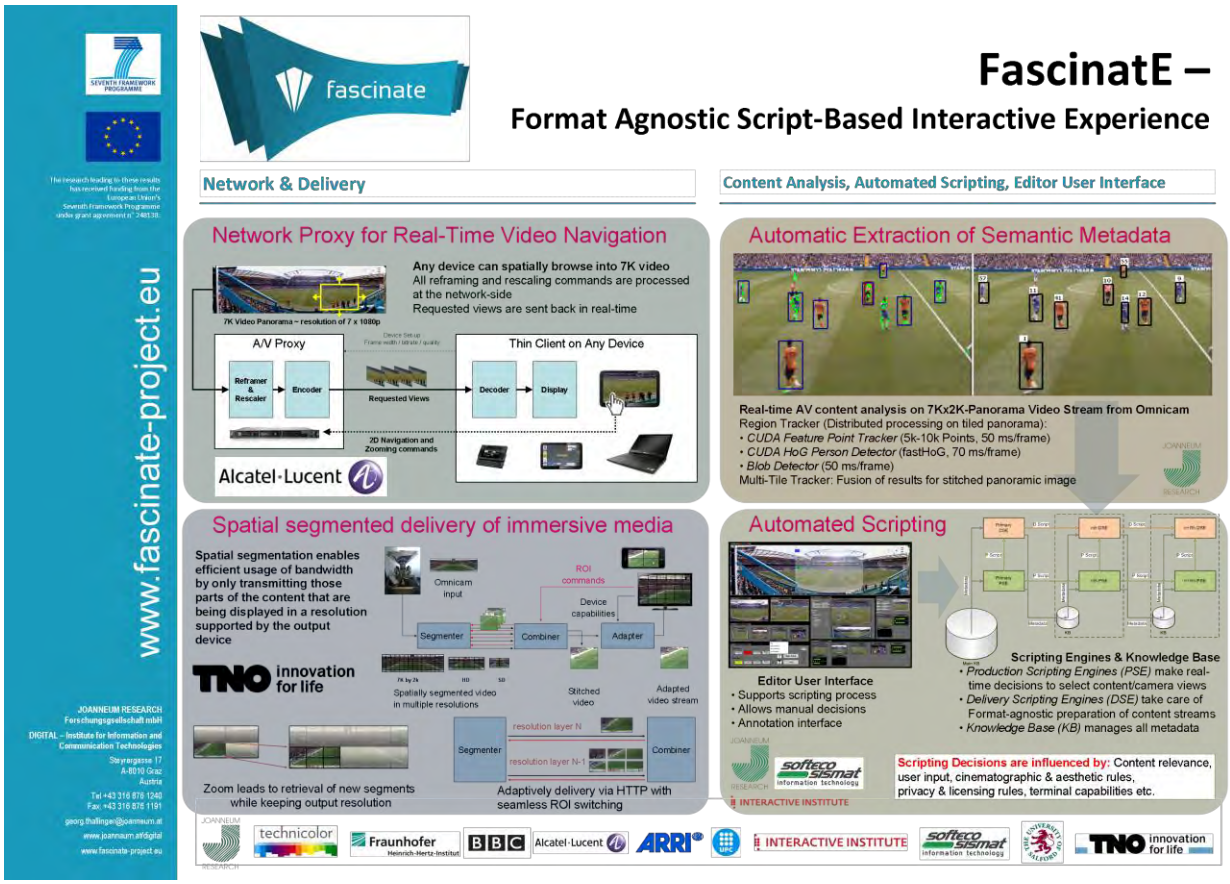

Figure 4-2: Poster for highlighting the WP3 and WP4 innovation areas.

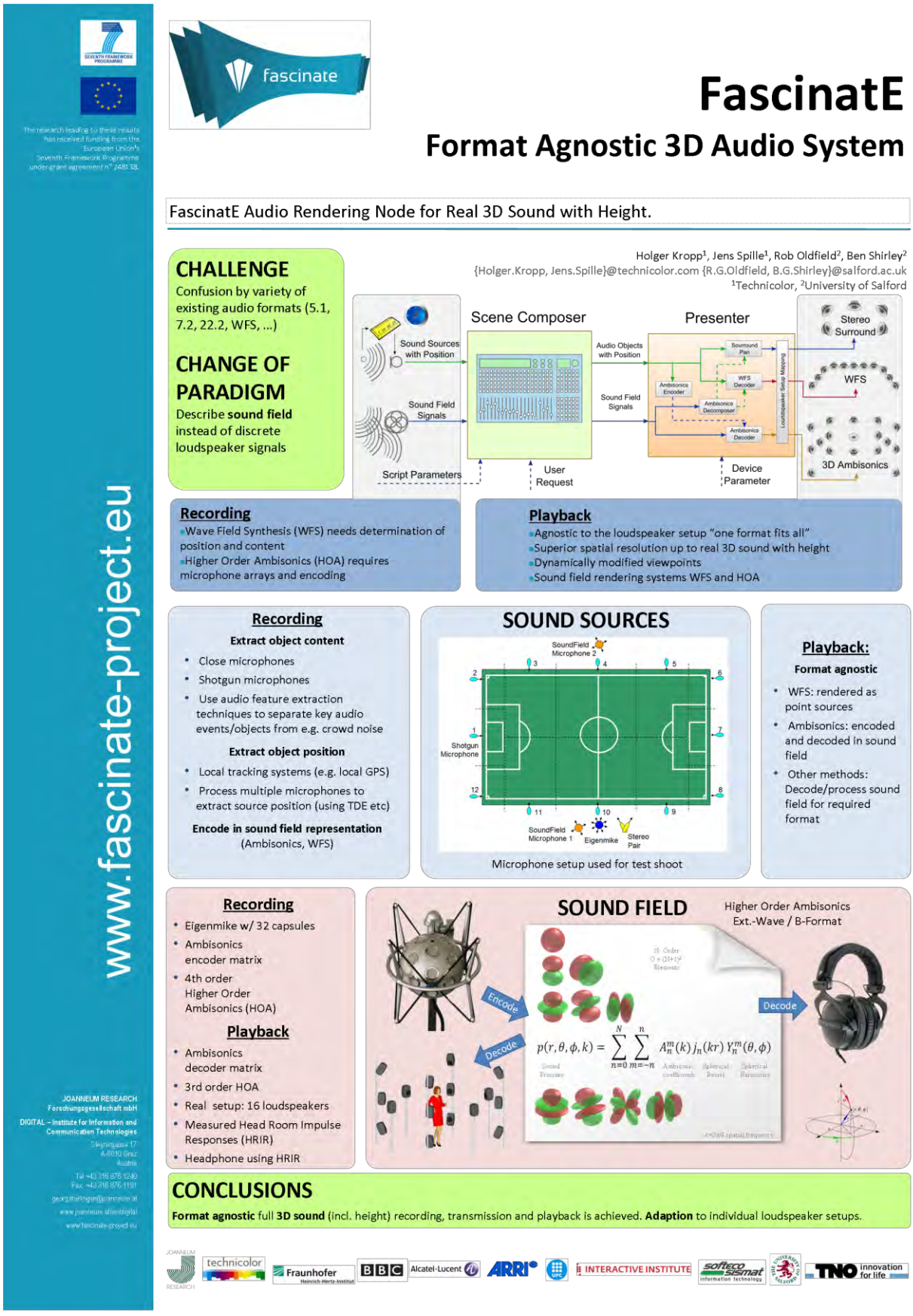

Figure 4-3: Poster for highlighting the FascinatE 3D audio system.

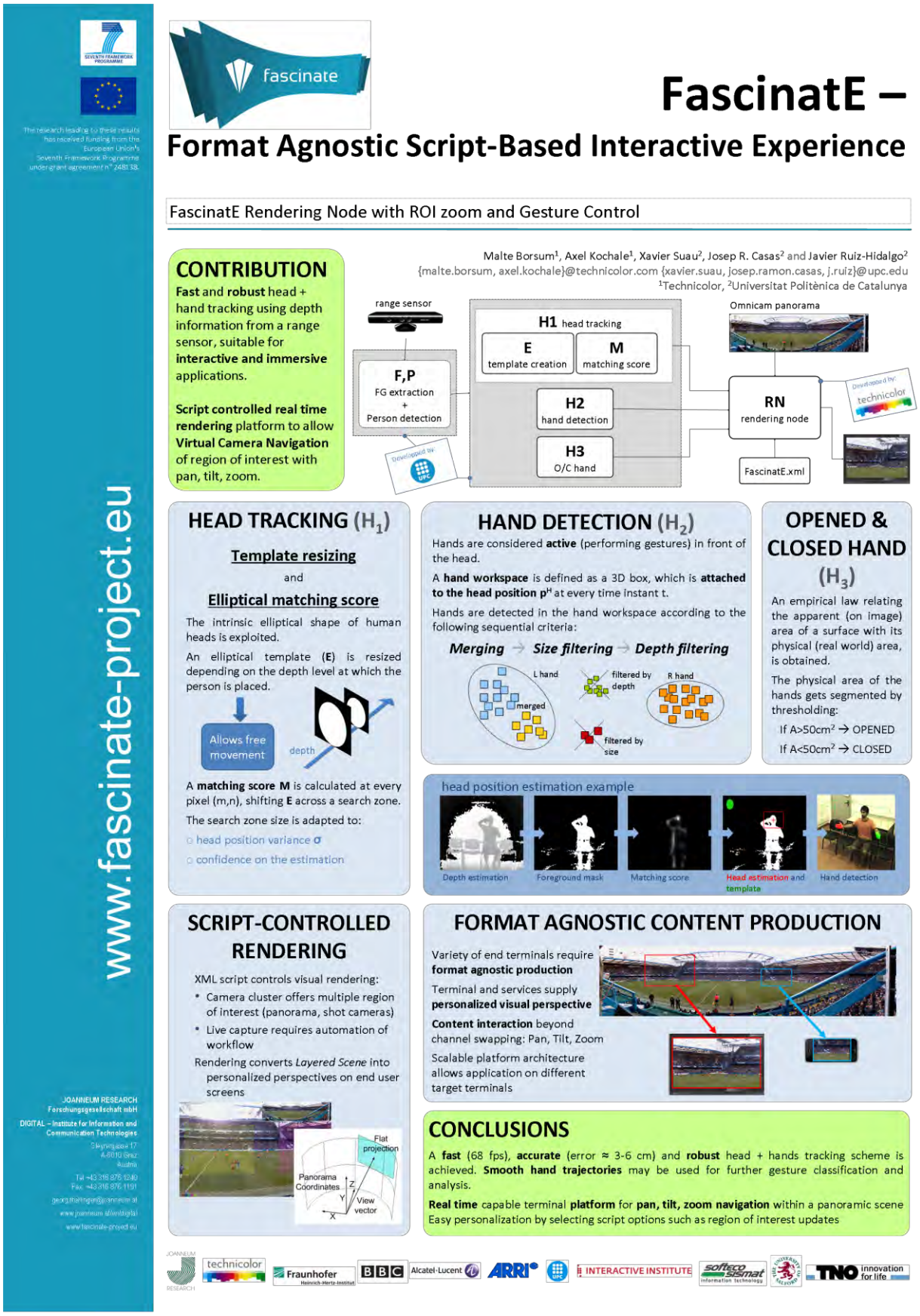

Figure 4-4: Poster for highlighting the WP5 work on flexible A/V rendering and gesture-controlled interaction.

5 A Visual Tour…

Figure 5-1: Building up the booth.

Figure 5-2: A frontal view of the FascinatE booth.

Figure 5-3: The booth attracts a lot of visitors…

Figure 5-4: … who are quite interested in the various demonstrations.

Figure 5-5: The Omnicam catches the eye…

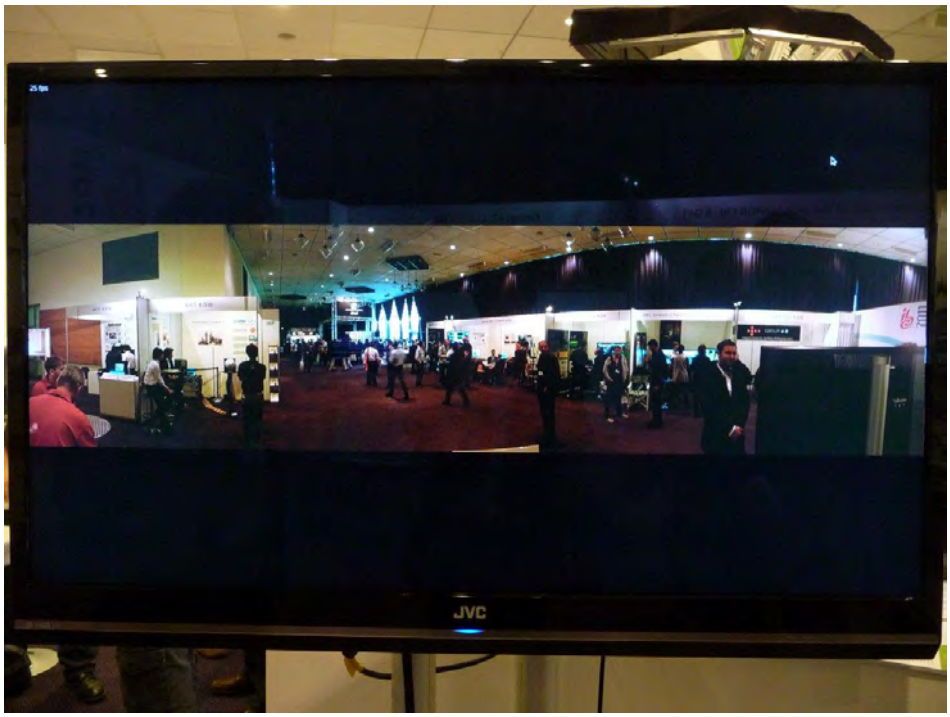

Figure 5-6: …and a lot more!

Figure 5-7: Interacting with the FascinatE Rendering Node.

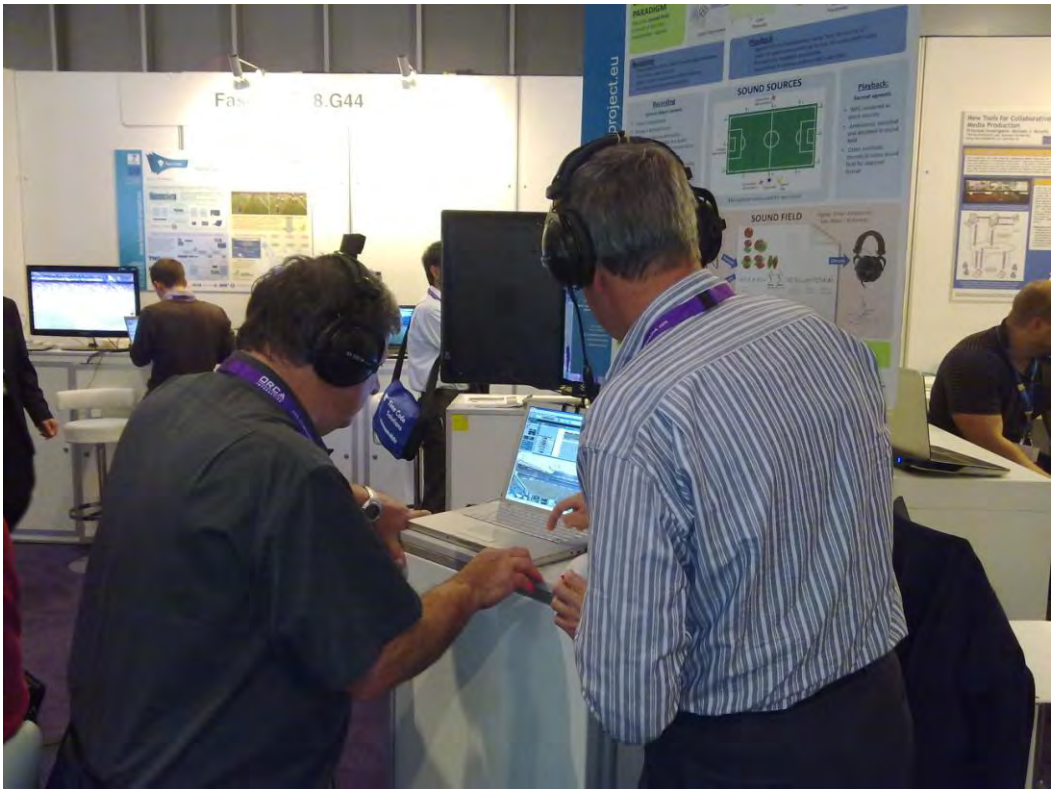

Figure 5-8: Listening to 3D audio rendering.

Figure 5-9: Explaining the concept of tiled streaming.

Figure 5-10: Showing the results of person tracking.

Figure 5-11: The new ALEXA-M camera from ARRI.

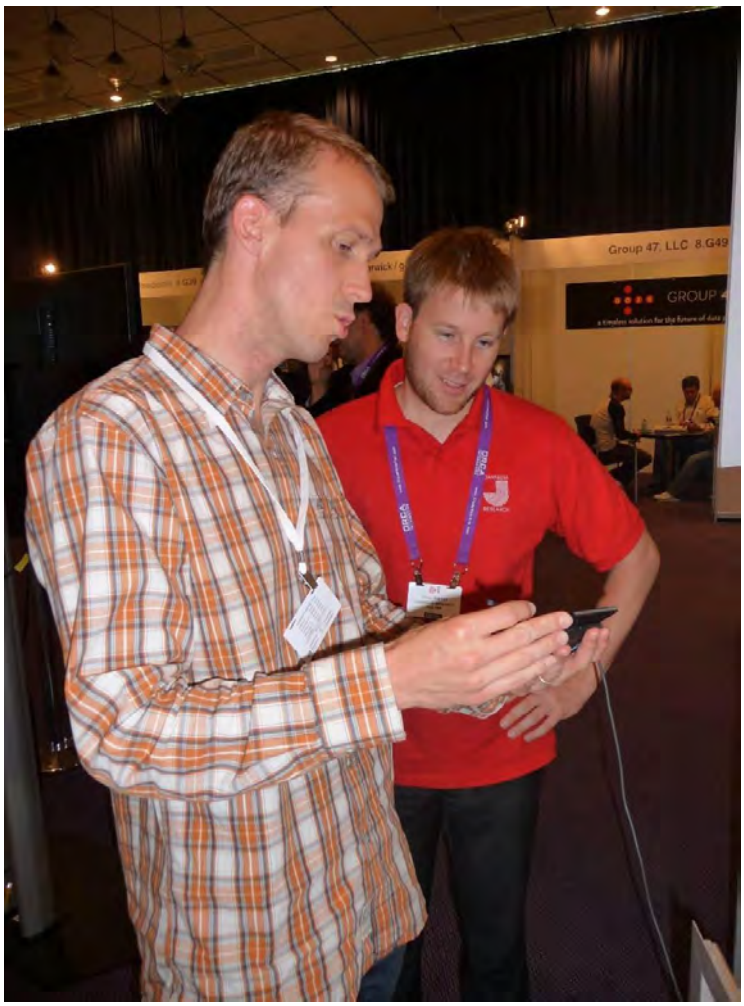

Figure 5-12: A demonstration of in-network rendering for display on a portable device.

Figure 5-13: The special IBC edition of the FascinatE newsletter.

Figure 5-14: Graham presenting results at the IBC conference.

Figure 5-15: Part of the FascinatE team at the IBC booth.

Figure 5-16: Time for champagne….

Figure 5-17: Breaking down the demonstration and booth.

6 Reflections and Outlook

The first public demonstration of FascinatE innovation and technology was a success. We have managed to show individual demonstrations of all parts of the FascinatE system, including real-time elements. Also, we have show some first integration of components, such as basic video rendering controlled by simple gesture recognition.

The FascinatE booth was highly attractive and located at a clearly visible and accessible location. During the exhibition, many project partners were present and were able to demonstrate all aspects of FascinatE to the audience. We received many compliments and congratulatory remarks from visitors who felt we had achieved a lot in the 1.5 years that the project has been going so far. We attracted visitors from many diverse areas, such as broadcasters, camera and production companies, technology vendors and operators. We received invitations for upcoming events in 2012. Also, the EU project officer responsible for FascinatE visited our booth. So we left having packed up our equipment with a feeling that we have really put the FascinatE project on the map.

The first public demonstration has given us good insights into the relevance of the project developments and on how to attract and interest the broader public. However, for the first public demonstration we have not addressed and implemented a mechanism for visitor feedback at the event. Such feedback could be used to better streamline the technological development process. For the upcoming public demonstrations, we suggest to consider such a mechanism as part of the planning process. An example would be to distribute a questionnaire at the booth for visitors to submit reactions. This could be combine with a prize-winning event, as an additional incentive.

We plan to demonstrate the project advancements during future events. On the FascinaE website, a list of upcoming events is maintained:

http://www.fascinate-project.eu/?page_id=399

7 Glossary

Terms used within the FascinatE project, sorted alphabetically.

FascinatE	Format-Agnostic Script-Based Interactive Experience
IBC	International Broadcast Convention

Partner Acronyms

ALU	Alcatel-Lucent Bell NV, BE
ARI	Arnold & Richter Cine Technik GMBH & Co Betriebs KG, DE
BBC	British Broadcasting Corporation
DTO	Technicolor, DE
HHI	Heinrich Hertz Institut, Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V., DE
JRS	JOANNEUM RESEARCH Forschungsgesellschaft mbH, AT
SES	Softeco Sismat S.P.A., IT
TII	The Interactive Institute, SE
TNO	Nederlandse Organisatie voor Toegapast Natuurwetenschappelijk Onderzoek – TNO, NL
UOS	The University of Salford, UK
UPC	Universitat Politecnica de Catalunya, ES