VENTURI

FP7 Project 288238

2nd Technical Meeting
Minutes

eDIAM Sistemas
Valencia (Spain)
30th and 31sh May 2012

This document contains the minutes that correspond to the Second Technical Meeting of the VENTURI Project, which was held in Valencia, Spain, at eDIAM Sistemas, on 30th and 31st of May 2012. All the partners involved in the project attended the meeting.

Table of Contents

Attendees

Fondazione Bruno Kessler (FBK)

Paul Chippendale
Michele Zanin

Fraunhofer Heinrich-Hertz-Institute (Fraunhofer)

Benjamin Prestele
Daniel Buhrig

ST-Microelectronics (ST-Italy)

David Siorpaes
Viviana Dalto
Valeria Tomaselli
Paolo Pasteris

metaio

Selim BenHimane

ST-Ericsson (STE)

Olivier Pothier

e-Diam Sistemas (e-Diam)

Javier Campos

Sony Mobile (Sony)

Klas Hermodsson

Institut National de Recherche en Informatique et en Automatique (INRIA)

Jacques Lemordant
Yohan Lasorsa

AGENDA

First day – Wednesday, May 30th 2012

TIME	ACTIVITY
9:15	***Meeting starts***
9:15 – 9:20	▸ Welcome and practical arrangements for the meeting **(Javier Campos, eDIAM)**
9:20 – 9:40	**WP1 Project Management: Overview (Paul Chippendale, FBK)** ▸ List deliverables submitted ▸ List pending deliverables ▸ List open tasks ▸ Permission/right to use standard libraries in commercial products ▸ Date of next meeting in Munich (3rd-4th October or 4th-5th October) ▸ Date of 1st review meeting (before end of November) ▸ Date of next General phone conf. call (3rd – 6th July)
9:40 – 13:40	**Platform Integration (David Siorpaes, ST-Italy)** ▸ Environment (e.g.: standard OS APIs, Metaio SDK, OpenCV,...) ▸ Programming language (C++, Java, ...) ▸ How are partner's software framework/ architectures compatible with each other? ▸ Availability, extensibility, maturity, reference OS, target platform, dependencies (libs, etc.). Identify common building blocks that form the minimal integration layer. ▸ Define a common API structure to pass data. Algorithm functional descriptions (top level) indicating in/out signals.
13:40 – 15:20	***Lunch***
15:20 – 16:05	**Discussion about Y1 Prototype** **(Lead by Javier Campos, eDIAM and David Siorpaes, ST-Italy)** Update (problems?, early results?, prototype sharing, delays?, dates, models? ...)
16:05 – 17:40	**Opening discussion about Y2 and Y3 Prototypes** **(Lead by Jacques Lemordant, INRIA)** Languages supported. English, Spanish, French, Italian, German? Deployment of VeDi 2.0 and VeDi 3.0 test cases. Trento, Berlin, Paris.....?
21:00	***Social dinner***

Second day – Thursday, May 31st 2012

TIME	ACTIVITY
9:10	***Meeting starts***
9:10 – 10:10	**WP2 overview** **(Lead by Olivier Pothier, STE)** • Update for each open task (problems?, results?, delays?...) • Pending Deliverables
10:10 – 11:00	**WP3 overview** **(Lead by Jacques Lemordant, INRIA and Klas Hermodsson, Sony)** • Update for each open task (problems?, results?, delays?...) • Pending Deliverables
11:00 – 11:15	***Coffee break***
11:15 – 12:10	**WP4 overview** **(Lead by Michele Zanin, FBK)** • Update for each open task (problems?, results?, delays?...) • Pending Deliverables • Ground truth data-sets, who will create/maintain/design acquisition tools?
12:10 – 13:00	**WP5 overview** **(Lead by Benjamin Prestele, Fraunhofer)** • Update for each open task (problems?, results?, delays?...) • Pending Deliverables
13:00 – 14:00	**WP6 overview** **(Lead by David Siorpaes, ST-Italy)** • Update for each open task (problems?, results?, delays?...) • Pending Deliverables
14:00 – 15:15	***Lunch***
15:15 – 15:40	**WP7 overview** **(Lead by Selim BenHimane, metaio)** • Videos, photos for website • Publications? • Conferences? ISMAR, • Industry open days? InsideAR, • Training events/workshops?
15:40 – 15:50	**Final Discussion**
15:50	***Meeting ends***

Meeting Contents

First day

Welcome. Practical arrangements. Agenda.

9:15 – 9:20

Javier Campos (eDIAM) welcomes the partners on behalf of eDIAM Sistemas and presents the practical arrangements.

Paul Chippendale (FBK, VENTURI project coordinator) presents the agenda of the day.

WP1: Project Management (Paul Chippendale, FBK)

9:20 – 9:40

Paul Chippendale briefly presents the project's status, giving a high-level overview of WPs, focusing on active tasks and deliverables that must be finalized during the following months.

The next EU Cluster Meeting will be around October, 16th – 18th, 2012, collocated to the NEM summit in Istanbul, Turkey.

Olivier Pothier (STE) updates us about the STE and ST situation. In July he will move to ST, but probably there will be an agreement such that he will continue working on VENTURI also in the future. Anyway, Bernard Puel will keep working on VENTURI.

Regular Technical Meetings. Next Meeting.

The next technical meeting will be held in Munich, Germany, for two full days on 3rd and 4th October, 2012, hosted by metaio (just after the insideAR event organized by metaio). This was agreed by all parties present.

Platform Integration (David Siorpaes, ST-Italy)

9:40 – 13:40

David Siorpaes and ***Vivana D'Alto*** (ST-Italy) introduce deliverable D4.3 "*WP4 outcome definitions and API specifications for inter-task / inter-WP communications*" and start the discussion about VENTURI platform integration. Y2 and Y3 demos will integrate results from WP4 and WP5, so there is a need for defining a common architecture and APIs. WP4 / WP5 algorithms could be embedded at different levels, from firmware up to application level. We should also consider algorithms that will run offline, and define their communication APIs.

Paul Chippendale notes that, for the first year review, it is important that every partner has a clearly defined contribution in the Y1 demo.

Olivier Pothier asks if we think there are common algorithms that should possibly be implemented and heavily optimized at a very-low-level. Such kinds of implementation / optimization will probably not happen during VENTURI's timeframe, but it would be useful to know them in order to drive future developments on STE's side. *Olivier* also underlines that everything we design, develop, and integrate for the VeDi platform should be future-proof from the point of view of Android versions. We must avoid wasting a lot of time working on details that will be made obsolete by the next Android version. A possible way to address this problem would be to be aware, as much as possible, of Google's plans for this OS.

Paul Chippendale poses a question about license issues determined by the use of open source standard libraries in VENTURI. *Paul*, ***Viviana D'Alto*** and ***Selim BenHimane*** (metaio) agree that, since VENTURI demos are "research", there should be no license problems. However, if some of the partners want to create a real product out of VENTURI results, license issues

must be tackled very carefully. *Viviana* notes that it is not only about licenses, but also about patents (e.g. SIFT). *Selim* reports about metaio's experiences: some libraries can be used inside final product, but a specific case-by-case study must be done.

David Siorpaes introduces a series of presentations from each partner, about their algorithms, input/output data, current development environment, dependencies on libraries and an evaluation of Android portability.

Paolo Pasteris (ST-Italy) presents ST-Italy's SfM algorithm, its input/output data and dependencies and starts a discussion about creating a GT dataset to test SfM algorithms. About dependencies, ***Oliver Pothier*** inform us that the Lapack library has been successfully compiled for Android (internally at STE).

Valeria Tomaselli (ST-Italy) presents ST-Italy's scene classification algorithm, its functional pipeline, input/output data, and dependencies. ***Jacques Lemordant*** (INRIA) suggests that it could be useful to detect an "elevator" scene too. Paul Chippendale suggests that *soft* class scores could be used to "enhance" a place by leaving a 'virtual residue', for future users. ***Michele Zanin*** (FBK): results of scene classification can be fused with results from other algorithms in the context of task T4.5.

Selim BenHimane presents metaio's status about platform integration. ***Paolo Pasteris*** asks if metaio could share the dataset acquired with a laser scanner near metaio offices. *Selim* answers that it is possible. As a general consideration, we agree that integration among the different modules should be done at Java level. *Paul*: is it possible to acquire an outdoor sequence using metaio's mechanical arm (i.e. with motion GT)? *Selim*: it should be possible.

Benjamin Prestele (Fraunhofer) presents HHI's status about platform integration.

Jacques Lemordant presents INRIA's status about platform integration. Detailed presentation of INRIA's OpenStreetMap browser IXE. INRIA will share step detection module (in c++) with VENTURI partners. ***Selim BenHimane*** asks if it could be useful for the PDR module to receive some input from other modules (e.g. pose estimation from vision). *Jacques* confirms that this could be useful.

Paul Chippendale asks if the pressure sensor will be available on the next VENTURI platform. ***Olivier Pothier*** says that such a sensor is already present on the current platform, and a driver is being developed at STE (almost ready).

Olivier Pothier asks metaio to share knowledge about how to integrate c++ and Java for Android, in particular using SWIG. ***Selim BenHimane*** will tell *Norbert* (from metaio) about this request.

Michele Zanin (FBK) present FBK's status about platform integration.

David Siorpaes and ***Viviana D'Alto*** conclude the session with the consideration that we need to define inputs/outputs for each module as soon as possible. Then, we will define the communication flow.

Discussion about Y1 Prototype (Javier Campos, eDIAM and David Siorpaes, ST-Italy)

15:20 – 16:05

Javier Campos introduces the Y1 Demonstrator and related deliverable D6.3. There are two proposed configurations: Firefighter mission and Fast food delivery. All partners agree on choosing only one configuration: **fast food delivery**.

Jacques Lemordant confirms that the audio part will not be part of the Y1 demonstrator.

Selim BenHimane underlines that the model used by Javier for testing should be the same that metaio will provide at insideAR (held on the 1st and 2nd of October in Munich, just before the next VENTURI technical meeting). *Selim* and ***Javier*** also describe the 180degrees camera rotation problem on VeDi that is limiting the tracking performances, especially for gravity based processing. ***Michele Zanin*** confirms that *Claudio Andreatta* (FBK) replicated the problem and inserted a detailed description into SteerForge issue tracker. ***Olivier Pothier*** acknowledges the problem: STE will investigate it.

Paul Chippendale proposes to introduce the possibility of a viewer-only modality for the AR gaming field. In this way, members of the audience could follow what is happening in the game arena, with a personalized augmented view. In the context of Y1 review meeting, PO and reviewers could receive a device (or use their own Android devices) in view-only mode. From ***Klas Hermodsson*** (Sony): in the context of a fair booth (i.e. insideAR), as eagle-eye camera and a big screen could show the public how the game is progressing in real time. All partners agree that this is an interesting idea and the additional challenges posed by it should be investigated.

Michele Zanin asks a question about how the VeDi devices (and, possibly, viewer-only devices) will communicate with each other: wifi? Bluetooth? This choice impacts heavily the possibility of having external viewers. ***David Siorpaes*** says that there will be a discussion about communications on the mailing list. The current hypothesis is that there will be no server and maybe all messages will be broadcasted.

Javier Campos, with the help of metaio, is exploring how the 3D tracking works in practice. He will share guidelines and preliminary results on SteerForge with VENTURI partners.

Opening discussion about Y2 and Y3 Prototypes (Jacques Lemordant, INRIA)

16:05 – 17:40

Jacques Lemordant starts the discussion about Y2 Use Cases, concentrating on the visually impaired people scenario. He presents IXE (developed by INRIA and released as open source, first version will be available on September 2012) and a selection of WP3-related experiments with various groups of visually impaired people (in the immediate future and during the next 12 months). Paul Chippendale says that it would be good to use VENTURI results in the context of other on-going projects (about visually impaired people) where INRIA is already involved.

Paul Chippendale and ***David Siorpaes*** propose and analyse the supermarket scenario. *David*: it is a very well illuminated scene and relevant to show VENTURI results. *Paul*: the demonstrator should run in a real supermarket, not just a model. We need special permission to enter the shop when it is closed: we need to collaborate with a real supermarket. ***Jacques Lemordant*** has connections with Castorama chain, so this could be one of the options. ***Klas Hermodsson*** will investigate the possibility of collaborating with Sony shops (all of them share a very similar structure). *Paul*: maybe, instead of a supermarket, a shopping mall could be more interesting / relevant. *Klas* proposes two modalities: navigation from one place to another (maybe using just PDR and geo-sensors), inside-shop mode (with vision to detect products and their placement).

Paolo Pasteris, ***David Siorpaes***, and ***Viviana D'Alto*** propose a reality check: which technologies will reasonably be ready in time to be integrated in Y2 demonstrator? We should create a storyboard and describe the user experience as soon as possible. Then we should link each part of it with the technologies required and check if they are available at the right time. Everyone agrees and ST-Italy (supervision of Viviana D'Alto) will lead the effort of defining the storyboard, with deadline the end of July 2012. ***Paul Chippendale*** adds that user expectations from WP3 should have a strong impact on UC definition.

Selim BenHimane would like to set the goal of having a first prototype of VeDi 2.0 at the middle of the second year in order to receive feedback (from users or, at least, from partners). The Y2 demonstrator should be built upon Y1 experiences, at least from the purely technical point of view. After all, shelves in a sense can be seen as an environment not too different from the game one.

Paul Chippendale would like to promote the social role of previous visitors in UCY2.

Michele Zanin initiates a lengthy discussion about logistics. If we need a real supermarket for Y1 review, where will it be? How about the costs to equip and prepare the location? Someone proposes to build a fake room. Someone proposes to always work in the same

supermarket and stream what is happening to the reviewers. Paul insists that it should be live in a real supermarket. From this point of view, many question are left unanswered and will be discussed again during the next meeting.

Other scenarios for visually impaired people emerge: gym, hotel rooms, etc.

Discussion about the Y3 demonstrator is postponed to the next meeting.

Second Day

WP2 Architecture definition and development (Olivier Pothier, STE)

9:10 – 10:10

Olivier Pothier presents a review of WP2 tasks and deliverables.

Olivier Pothier: detailed presentation and discussion about the video pipeline and image / sensor timestamping.

Olivier Pothier initiates a discussion about requirement SF9 (Synchronization of AR Video Pipe and Rendering Pipe). Debate about its priority.

Selim BenHimane presents an update about deliverable D2.3.1 (*First implementation of junaio-based AR framework for STE U8500-based platform*). metaio will finalize deliverable D2.3.1 and submit it to Paul. D2.3.1 will then be published onto the VENTURI website. Three modules will be released. Current constraint: creation of 3d model and tracking must be performed with the same device and in the same session.

Paul Chippendale asks a question about watermarking. Is it possible to visualize the VENTURI logo on the demonstrator? ***Selim BenHimane*** answers that VENTURI logo can be added, but metaio's one cannot be removed.

WP3 User interface and interaction design (Jacques Lemordant, INRIA and Klas Hermodsson, Sony)

10:10 – 11:00

Klas Hermodsson presents recent activities of Sony in the context of WP3, with a particular focus on deliverable D3.1 (Report on user expectations and cross-modal interaction). Description of Wizard of Oz tool and Vuzix setup. Klas also provides references and links to projects and papers that are relevant for VENTURI (e.g. Danger copter). ***Paul Chippendale*** would like Sony to share among partners the tools for measuring user expectations and reactions. He also points out that at the next f2f meeting, Sony could perform a user expectation study on us (as guinea pigs). *Paul* also propose to use FBK's SmartTrack technology (automatic and robust tracking of multiple users' positions, orientations and postures) to obtain quantitative measures of people using VeDi for UCY1.

Jacques Lemordant describes INRIA's contribution to WP3, focusing mainly on the user expectation of visually impaired people. He also introduces a possible choice of relevant devices (air-tube earphones, ANT+ sensors, Essilor see-through glasses) and tools (IXE OSM browser from INRIA).

WP4 Context Sensing and Interpretation (Michele Zanin, FBK)

11:15 – 12:10

Michele Zanin presents a general overview of WP4, focusing on pending deliverables. A first preliminary version of deliverable D4.1 (Synchronized dataset containing a dump of all on-board sensors of a real device, while being used in a real environment) is online on the VENTURI website. The collection of datasets will grow and, in the next few weeks, *Michele* will organize a phone conference to discuss responsibilities, which kind of data to add and when. Deliverable D4.2 (Reports on expected platform requirements of WP4 algorithms) is

due at the end of June and FBK will collect and harmonize contributions from all WP4 partners. *Michele* concludes the session presenting some recent results related to partner's work on WP4.

WP5 Adaptive Content Harvesting, Creation and Delivery (Benjamin Prestele, Fraunhofer)

12:10 – 13:00

Benjamin Prestele presents the current status of WP5: timeline, tasks, deliverables, milestones. The discussion soon concentrates on technical details of the 3D reconstruction of Vollmer houses, involving mainly *Benjamin*, ***Daniel Buhrig*** (Fraunhofer), and ***Selim BenHimane***. HHI will send a few 3D versions of the models (with different numbers of polygons and different features) to metaio and eDIAM to test.

Yohan Lasorsa (INRIA) gives an update about the status of T5.1.2 (Interactive Audio Authoring).

Final discussion about photo-to-model registration, involving mainly ***Paul Chippendale***, *Selim*, *Benjamin*, and *Daniel*.

WP6 Technology Integration, Evaluation and Test-cases (David Siorpaes, ST-Italy)

13:00 – 14:00

David Siorpaes summarizes the status of WP6: deliverables, tasks, Y1 demonstrator. Deliverable D6.3 (Use case(s) implemented on VENTURI integrated platform V1) is being edited by *David* and ***Javier Campos*** as a living document.

David Siorpaes notes that there is no compass calibration software on the current VeDi platform. ***Olivier Pothier*** says that maybe it could be embedded in some sensor fusion stack, but this matter needs investigation.

David Siorpaes asks everyone to fill in the wiki page for requesting specific benchmarks (T6.3 "Performance Metrics" document on SteerForge).

David Siorpaes resumes the previous day's discussion about integration and notes that each module should provide an Android API for other applications. He asks everyone to provide, for each algorithm, an Android integration feasibility study and, possibly but not mandatory, contribute a header file that clarifies which interface is exported by each module (only in case no integration issues are foreseen for a given algorithm). Deadline for submitting feasibility studies (and header files) is end of July. In case of problems or presence of blocking points about integration into Android (i.e. missing libraries), we must tell David asap.

Discussion about UCY2 continues from the previous day and a deadline about storyboard definition is confirmed: end of July, ***Viviana D'Alto*** will initiate it.

WP7 Dissemination and Exploitation (Selim BenHimane, metaio)

15:15 – 15:40

Selim BenHimane briefly presents WP7 status.

The "Publication" page on VENTURI webpage is empty: Michele Zanin will fix it. Michele asks if we want to distribute the pdf versions of the papers and how to deal with copyright issues. No particular strategy is defined.

Selim BenHimane says that there will be a stand dedicated to VENTURI at insideAR in Munich. Paul Chippendale will investigate if it is possible to invite 1st year reviewers and/or PO to the event.

The project flyer is still missing: metaio will create one, starting from the contents of NEM paper.

We still need a press release template.

Discussion about D7.4.1 (Contribution to standards), involving mainly Selim, Viviana D'Alto and Olivier Pothier: in the first deliverable at M12, we should describe our involvement in standards committees. In future deliverables, deal more with actual contributions.

Conclusions and next meeting

15:50

Paul Chippendale closes the second technical meeting at 15:50.

The next technical meeting will be held in Munich, Germany, on 3rd and 4th October, 2012, hosted by metaio.

The following meetings will be in Grenoble, France, INRIA (Jan 2013) and Sweden, Sony (May 2013).

Action Points

All points emerged during this meeting that require some action are listed below and will be discussed in the upcoming phone conference.

	Description	Context	Responsible	Deadline
1	Share laser scanner dataset	Integration	metaio	
2	Share step detection module	Integration	INRIA	
3	Share knowledge about SWIG	Integration	Norbert Stöffler (metaio)	
4	180degrees problem	Y1	Olivier Pothier (STE)	
5	Investigate view-only mode for Y1 demonstrator	Y1	Javier Campos (eDIAM)	
6	Design communication for Y1	Y1	David Siorpaes (ST-Italy)	
7	Share guidelines about 3D-tracking	Y1	Javier Campos (eDIAM)	
8	Sony Shops	Y2	Klas Hermodsson (Sony)	
9	Finalize D2.3.1	WP2	Selim BenHimane (metaio)	May, 2012
10	Is it possible to visualize the VENTURI logo on the demonstrator	WP2	Selim BenHimane (metaio)	June, 2012
11	Organize phone conf. about D4.1	WP4	Michele Zanin (FBK)	
12	Finalize D4.2	WP4	Michele Zanin (FBK)	June, 2012
13	Provide 3d models of Vollmer buildings	WP5	Benjamin Prestele (Fraunhofer)	
14	Compass calibration on VeDi	WP6	Olivier Pothier (STE)	
15	Android integration feasibility study (for each module)	WP6	David Siorpaes (ST-Italy)	July, 2012
16	Storyboard definition for UCY2	Integration, WP6	Viviana D'Alto (ST-Italy)	July, 2012
17	Website: publication page	WP7	Michele Zanin (FBK)	
18	PO and reviewers at insideAR	WP7	Paul Chippendale (FBK)	
19	Project flyer	WP7	Selim BenHimane (metaio)	
20	Press release template	WP7	Paul Chippendale (FBK)	