

# VENTURI

FP7 Project 288238

## 3<sup>rd</sup> Technical Meeting *Minutes*

*metaio*

*Munich (Germany)*

*3<sup>rd</sup> and 4<sup>th</sup> October 2012*



This document contains the minutes that correspond to the Third Technical Meeting of the VENTURI Project, which was held in Munich, Germany, at metaio, on 3<sup>rd</sup> and 4<sup>th</sup> of October 2012. All the partners involved in the project attended the meeting.

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## Attendees

### Fondazione Bruno Kessler (FBK)

Paul Chippendale

Michele Zanin

Giovanni Tummarello (remotely, via phone conference)

### Fraunhofer Heinrich-Hertz-Institute (Fraunhofer)

Benjamin Prestele

Daniel Buhrig

Peter Eisert (only on the second day)

### ST-Microelectronics (ST-Italy)

David Siorpaes (remotely, via phone conference)

Viviana D'Alto (remotely, via phone conference)

Valeria Tomaselli (remotely, via phone conference)

Paolo Pasteris (remotely, via phone conference)

### ST-Microelectronics (ST-France)

Olivier Pothier

### metaio

Selim BenHimane

### ST-Ericsson (STE)

Bernard Puel

### e-Diam Sistemas (e-Diam)

Javier Campos

### Sony Mobile (Sony)

Klas Hermodsson

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

Jacques Lemordant

## AGENDA

First day – Wednesday, Oct 3<sup>rd</sup> 2012

TIME	ACTIVITY
<b>9:00</b>	<b>Meeting starts</b>
9:00 – 9:10	▶ Welcome and practical arrangements for the meeting ( <b>Selim BenHimane, metaio</b> )
9:10 – 10:00	<b>WP1 Project Management: Overview</b> ( <b>Paul Chippendale, FBK</b> ) <ul style="list-style-type: none"><li>▶ List deliverables submitted</li><li>▶ List pending deliverables</li><li>▶ What we need to do for the Review meeting</li><li>▶ Discuss date and location of Review meeting</li><li>▶ Confirm date and location of next F2F meeting</li><li>▶ Date of next General phone conf. call to discuss Review meeting</li></ul>
10:00 – 11:00	<b>VeDi 1.0 demo status</b> ( <b>J. Campos, e-Diam, and D. Siorpaes, ST-Italy</b> ) <ul style="list-style-type: none"><li>▶ Problems?</li><li>▶ Feedback from users at insideAR</li><li>▶ Results and media production for website</li><li>▶ What already works and what will be delayed</li><li>▶ Creating a 1 building demo for NEM and Augmented Planet</li></ul>
11:00 – 11:20	<b>VeDi 1.1 discussion</b> ( <b>Paul Chippendale, FBK</b> ) <ul style="list-style-type: none"><li>▶ How can we enrich what we have: ideas?</li><li>▶ Next steps, planning</li></ul>
11:20 – 13:00	<b>VeDi 2.0 discussion</b> ( <b>Paul Chippendale, FBK</b> ) <ul style="list-style-type: none"><li>▶ Blind shopping assistant</li><li>▶ What about a version for sighted people? Arrows on the floor?</li></ul>
<b>13:00 – 14:00</b>	<b>Lunch</b>
14:00 – 14:30	<b>... continued discussion about VeDi 2.0</b> ( <b>Paul Chippendale, FBK</b> )
14:30 – 14:50	<b>Thoughts about VeDi 3.0</b> ( <b>Paul Chippendale, FBK</b> ) <ul style="list-style-type: none"><li>▶ City? Mountains?</li><li>▶ Tourism, Heritage, Art?</li></ul>
14:50 – 15:30	<b>Update on Integration</b> ( <b>David Siorpaes, ST-Italy</b> )

- 15:30 – 16:15 **WP2 Overview (Olivier Pothier, ST-France)**
- ▶ Update for each open task (problems? Results? Delays?)
  - ▶ Pending deliverables
- 16:15 – 17:30 **WP3 Overview (J. Lemordant, INRIA, and K. Hermodsson, Sony)**
- ▶ Exploiting VeDi1.0 to feed back into VeDi1.1 and VeDi2.0
  - ▶ Update for each open task (problems? Results? Delays?)
  - ▶ Pending deliverables
- 17:30 – 18:30 **WP4 Overview (Michele Zanin, FBK)**
- ▶ Update for each open task (problems? Results? Delays?)
  - ▶ Pending deliverable D4.3
  - ▶ Ground truth datasets, who will create/maintain/design acquisition tools
- 18:30** **End of the day**

## Second day – Thursday, Oct 4<sup>th</sup> 2012

<b>TIME</b>	<b>ACTIVITY</b>
<b>9:00</b>	<b><i>Meeting starts</i></b>
9:00 – 10:00	<b>WP5 overview (Benjamin Prestele, Fraunhofer)</b> <ul style="list-style-type: none"><li>• Update for each open task (problems?, results?, delays?...)</li><li>• Pending Deliverables</li></ul>
10:00 – 10:45	<b>WP6 overview (David Siorpaes, ST-Italy)</b> <ul style="list-style-type: none"><li>• Update for each open task (problems?, results?, delays?...)</li><li>• Pending Deliverables</li></ul>
11:45 – 12:00	<b>WP7 overview (Selim BenHimane, metaio)</b> <ul style="list-style-type: none"><li>• Videos, photos for website</li><li>• Publications?</li><li>• Conferences? ISMAR, NEM</li><li>• Exploitation of VeDi 1.0</li><li>• Industry open days / Events: insideAR, Augmented Planet</li><li>• Training events / workshops?</li><li>• Other issues</li></ul>
<b>12:00 – 13:00</b>	<b><i>Lunch</i></b>
13:00 – 14:00	<b>Meeting with Nigel Dixon from Hillcrest labs (Olivier Pothier, ST-France)</b> <ul style="list-style-type: none"><li>• 10 minutes presentation of VENTURI from our side (Paul Chippendale)</li><li>• 20 minutes presentation + demo from Hillcrest (Nigel Dixon)</li><li>• 15 minutes wrap-up together and next step (Olivier Pothier)</li></ul>
14:00 – 14:15	<b>Round up and closure of the F2F Meeting</b>
<b>14:15</b>	<b><i>End of the meeting</i></b>

## Meeting Contents

### First day

#### Welcome. Practical arrangements. Agenda.

9:20 – 9:25

**Selim BenHimane** (metaio) welcomes the partners on behalf of metaio and presents the practical arrangements.

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

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#### WP1: Project Management (Paul Chippendale, FBK)

9:25 – 9:50

**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. Paul presents some notes about deliverable D1.3.1 (*Periodic activity report Year 1*), setting some deadlines for contribution from partners.

Paul reviews statuses of other deliverables that must be finalized by M12 (end of September 2012): D6.3, D7.2.2, D7.4.1.

#### Review Meeting

The review meeting will be held in Berlin, Germany, on Tuesday, December 18<sup>th</sup> 2012, hosted by Fraunhofer HHI. There will be the PO, 2 reviewers, all WP leaders, and at least one representative for each partner. We will explore the possibility to install the demo on the new VeDi platform.

#### Regular Technical Meetings. Next Meeting.

The next technical meeting will be held in Grenoble, France, for two full days on 12<sup>th</sup> and 13<sup>th</sup> February, 2013, hosted by INRIA. This was agreed by all parties present.

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#### VeDi 1.0 demo status (Javier Campos, e-Diam, and Klas Hermodsson, Sony)

9:50 – 12:00

The partners agree on numbering the various versions of VeDi demonstrator in the following way:

- **VeDi 0.9:** the current version showcased at insideAR.
- **VeDi 1.0:** the demonstrator that will be presented to the PO and EU reviewers during the review meeting in December. In addition to version 0.9, it will feature a multi-player modality and it will implement the gameplay improvements derived from the experience at insideAR (see below).
- **VeDi 1.1:** this version will be available approximately by end of February 2013 (Javier will define a detailed schedule). In addition to version 1.0, it will feature 3D audio (INRIA), textures from HHI, and it will surely be installed on STE9540 board.

#### insideAR feedback for VeDi0.9 and plans for VeDi1.0

**Javier Campos** and **Klas Hermodsson** start the discussion debriefing us about how VeDi0.9 demonstrator was perceived at insideAR. In summary, there was a lot of interest, with VENTURI presenters (Klas, Javier, Norbert, Olivier, Selim, Paul) constantly entertaining visitors during the two days of the conference. Klas notes however that it was difficult to present and at the same time play the game. Mirroring the display on a big screen would have improved visibility for stand visitors, attracting more passers-by. Klas will send to all partners a document that summarizes the insideAR experience, together with a list of

suggestions about how to improve the gaming experience, to be possibly implemented in VeDi1.0.

**Selim BenHimane** underlines that people seemed more interested in understanding the role of each partner in the context of the project than in the demonstrator itself.

**Michele Zanin** notes that the demo worked only from a distance. While playing the game, it felt natural to move the device closer to the model, but at low distance the tracking failed. For sure, the reviewers will want to play the game themselves, and must somehow be forced to stand further away. **Selim BenHimane** suggests to use a lower table and to enforce the optimal distance by exploiting the augmentation detail. **Klas Hermodsson** thinks that it is important to give an immediate feedback to the user if tracking is lost (these considerations will be included into the document).

**Jacques Lemordant** tested the demo on other devices (e.g. a standard Sony phone) and reports that buttons are misplaced on the touchscreen, and are placed in a pixel position relative to the top-left corner of the screen.

### **Plans for VeDi1.1**

At 10:40, Viviana D'Alto, David Siorpaes, Viviana Tomaselli, and Paolo Pasteris from ST-Italy join the meeting via phone conferencing.

**Olivier Pothier** asks what is the rationale behind VeDi1.1: schedule, objectives, what each partner wants to include. There is a possibility to present it at the Mobile World Congress (Barcelona, Spain, end of February 2013). **Benjamin Prestele** suggests that it could also be shown at the second year review meeting, with added contributions from all partners to show that we are continuing to work on close-quarters tracking and AR.

**Jacques Lemordant** starts a discussion about the inclusion of 3D audio into VeDi1.1. Audio 3D can help the user to understand if the car is occluded, is far away, or is close. For INRIA-related reasons, Jacques has the need to showcase 3D audio results by March 2013.

**Olivier Pothier** summarizes the situation from the point of view of STE contributions. STE implemented a full synchronization strategy for acquiring timestamped data (video / audio / sensor) from the current reference board STE9500. Porting it to the next incarnation, i.e. STE9540, would require a significant effort. It is necessary then to evaluate the impact of synchronized timestamping on system performances, in order to decide if the porting effort is worthwhile. The following strategy is agreed:

- **FBK** will create an updated acquisition tool able to exploit the synchronized timestamping on STE9500.
- **FBK** will acquire a sequence (exact content is to be defined together with metaio), dumping synchronized video and sensor data.
- **metaio** will apply (vision + sensor-based) tracking algorithms on the sequence, measuring performances with respect to a Ground Truth (GT) reference. metaio will then apply increasing levels of jitter and measure the impact on performances, thus providing a benefit / cost analysis of porting synchronisation to STE9540.

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## **VeDi 2.0 Discussion (morning session)**

12:00 – 13:15

At 12:00, Giovanni Tummarello (FBK) joins the meeting via phone conferencing.

The discussion starts from the use case document shared by Viviana D'Alto. It is displayed on the screen and it is read out loud and discussed.

**Viviana D'Alto** and other participants from ST-Italy propose to define VeDi2.0 as a direct evolution of VeDi1.1, integrating them together in the following way: the toy mentioned in the VeDi2.0 document could be VeDi1.1, thus providing a storyboard that includes both demonstrators. There is some perplexity from partners: this proposal is more about storytelling than real technological value. **Benjamin Prestele** proposes to postpone the



decision of integrating VeDi1.1 and VeDi2.0 in the same scenario until the final part of the meeting

**Klas Hermodsson** wonders if we should have different physical devices (i.e. STE boards) for different use cases. **David Siorpaes** says that we could use the same device covering all demos (it should be technically straightforward).

**Selim BenHimane** proposes a different approach for defining use cases. Firstly, identify the building block (who wants to do what, and what every partner would like to show), then build the scenario accordingly. He introduces the Lego pieces metaphor: each partner can provide some pieces, then we identify a working scenario that can showcase all of the pieces (and that does not require pieces that are not available).

The discussion continues in the following way, with the main points listed below:

**Selim BenHimane** asks if there is a deadline for submitting a document describing use case year 2 (i.e. VeDi2.0). **Olivier Pothier** says that, ideally, this would be done by the end of October in which we should have a final phrased version of the use case. However, the final decision must be taken before the end of the meeting.

**Jacques Lemordant** notes that, in the context of visually impaired people (VIP), using Android Jelly Bean would be preferable because of its much improved (with respect to previous Android versions) support for assistive technologies.

**Viviana D'Alto** reminds us that VeDi2.0 is supposed to be indoor only, an intermediate step between VeDi1.0 (indoor, controlled environment), and VeDi3.0 (mainly outdoor, unconstrained). **Jacques Lemordant** and **Klas Hermodsson** note that in the case of VIP users, outdoor would make a more complete scenario and, in the case of PDR navigation, without adding complexity. In fact, for PDR, indoor vs. outdoor question is irrelevant: there are other factors that could affect PDR precision and feasibility. **Valeria Tomaselli** says that maybe the scene classification algorithm could help in detecting if the user is indoor or outdoor, but access to low level camera stats is needed (currently, this is not the case). **Olivier Pothier** states that accessibility to camera stats could be prioritized if really needed.

**Viviana Tomaselli** proposes to improve image stability by putting the VeDi device onto the shopping cart instead of somewhere on the user body. **Jacques Lemordant** notes that in this case PDR the pedometer would fail.

A lengthy discussion about definitions and interactions among PDR, Structure from Motion, SLAM, VisualSLAM, pedometer algorithms follows (involving mainly Selim, Jacques, Viviana, and Paolo), but the issue of what the VeDi2 use case will be, has been delayed until later in the meeting.

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## **VeDi 2.0 Discussion (afternoon session)**

14:10 – 15:30

The discussion about VeDi 2.0 continues, following the shared document.

In relation to the VeDi user being guided towards an alternative navigation path, there is a question about who will implement a the re-routing engine based on OSM map. **Jacques Lemordant** says that INRIA already has the needed technology, so they will deal with this topic.

The discussion about SfM, PDR, and VisualSLAM roles that started in the morning continues also in the afternoon, until **Benjamin Prestele** proposes to institute a small dedicated group that should discuss (possibly, in person) this specific topic in another occasion.

The session ends with a tentative effort to assign high-level responsibilities concerning VeDi 2.0: INRIA will handle macro-navigation, ST-Italy will handle navigation in the small environment (i.e. inside the shop), metaio will cover micro-navigation (i.e. finding the product at close quarters). This subdivision will be modified with a more detailed use case description on the extended VeDi2.0 discussion on the second day (see below).

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### **Update on Integration (David Siorpaes, ST-Italy)**

15:30 – 16:05

**Integration.**

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### **WP2 Architecture definition and development (Olivier Pothier, ST-France)**

16:05 – 16:50

**WP2 overview.**

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

16:50 – 17:30

**WP3 overview**

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### **WP4 Context Sensing and Interpretation (Michele Zanin, FBK)**

17:30 – 18:35

**WP4 overview**

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### **First day final discussion (Paul Chippendale, FBK)**

18:35 – 18:50

**Final discussion.**

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## **Second Day**

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

9:05 – 10:20

**WP5 overview**

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

10:40 – 10:55

**WP6 overview**

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### **WP7 Dissemination and Exploitation (Selim BenHimane, metaio)**

10:55 – 11:10

**WP7 overview**

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### **VeDi 2.0 final discussion (Paul Chippendale, FBK)**

11:10 – 12:00

During this final discussion, an updated version of the use-case 2 scenario was distributed by Paul, which had been generated the previous evening. In this document, each of the critical aspects had been assigned to particular partners and issues relating to particular points of concern had been decomposed into simpler, more manageable tasks. Paul went through the points one-by-one and obtained the agreement from each associated partner. The updated use-case 2 document was agreed to be polished in the following days by all partners, overseen by Paul, and then passed on to Viviana to continue the refining process.

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## Meeting with Nigel Dixon from Hillcrest labs (Olivier Pothier, ST-France)

13:00 – 14:15

**Presentations.**

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## Conclusions and next meeting

14:50

**Paul Chippendale** closes the third technical meeting at 14:15.

The first year review meeting will be held in Berlin, Germany, on 18<sup>th</sup> December, 2013, hosted by Fraunhofer HHI.

The next technical meeting will be held in Grenoble, France, on 12<sup>th</sup> and 13<sup>th</sup> February, 2013, hosted by INRIA.

The meeting after the one in INRIA will be in Sweden, hosted by Sony, and will occur sometime in 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.

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