

## Minutes

Federico Fontana, Wednesday 11 March 2009 - 12:49:34

--- MINUTES FROM THE \*NIW\* MEETING ---

2-4 MARCH 2009

LABORATORIO DI ACUSTICA MUSICALE E ARCHITETTONICA OF THE FONDAZIONE SCUOLA DI SAN GIORGIO

Isola di San Giorgio - Venezia

[http://www.scuoladisangiorgio.it/lab\\_it.php](http://www.scuoladisangiorgio.it/lab_it.php)

Author: F. Fontana

Mar. 2 - The meeting starts at 11:00am

Participants:

- UNIVR: F. Fontana, S. Papetti, P. Polotti, D. Rocchesso, M. Civolani, G. Borin
- McGill University: Y. Visell, J. Anlauff, B. Giordano
- AAU: S. Serafin, R. Nordahl, L. Turchet
- INRIA: A. Lecuyer, M. Marchal
- UPMC: V. Hayward, G. Dietz

The Coordinator opens the meeting. He recognizes the considerably high participation of delegates.

There are no management issues to be communicated. The Coordinator reminds pt. 2 of Art. 7.2 of GA to Y. Visell concerning the financial reporting of McGill University to the EC.

Meeting of the General Assembly: nothing to deliberate. V. Hayward tells UPMC during the meeting will present designs that are intended to be covered by patent. All participants agree in that this is a private meeting, and recognize it is important for the project success not to disclose the specification of these designs for the moment. The best trade-off between project and industrial exploitation of the UPMC designs will be understood and negotiated in due project course, by guaranteeing the rights of the Consortium to use them to achieve the goals of the project with no damage for the rights of UPMC.

11.30 B. Giordano joins the meeting as an expert who is going to be involved in the project, concerning in particular the research on psychophysical aspects of floor perception. He gives an overview of his experiments, entitled "Nonvisual identification of walking grounds": Experiment, Materials, Conditions, Results. He claims the need to repeat the experiments in the virtual setup/simulated materials.

12.00 Lunch

13.30 F. Fontana presents the web site

13.40 Dissemination issues:

- F. Fontana and S. Serafin inform about the contact in due course with the Scientific Committee of the HAID Conference. NIW is likely to organize the 2011 edition of this conference, as well as to steer to another event if that Committee will not assign the 2011 edition to AAU
- Concerning the organization of a panel at IEEE VR, a check between project participants will be made at end of August considering the opportunity to make a workshop or tutorial session at the 2010 edition of that conference.
- F. Fontana and S. Serafin communicate that they have been selected to tutor a student group participating to the SMC summer school in Porto. The student group will work along three days on the theme "Natural Interactive Walking in Porto"

14.00 A. Lecuyer provides a comprehensive slide presentation of the achievements made by INRIA on the use of virtual camera motion to simulate walking on different floors. He then introduces forthcoming activities in: Infinite walking in VR; Visual perception of inclination in virtual materials; Pseudo-haptic effects in walking

15.15 Break

15.40 Y. Visell documents McGill University achievements in the multimodal display of floors: snowscape and frozen pond.

16.15 V. Hayward and G. Dietz introduce design specifications for vertical rubber pegs based magnetic and hydro-piezo technologies. As such designs are particularly innovative, further months are needed to turn them into physical working prototypes.

17.00 M. Ciolani and S. Papetti present an early prototype for sonic shoes. Although the real-time synthesis as well as the diffusion system needs improvement in sound quality, nevertheless the interactivity of the system and the acoustic field are already convincing. M. Marchal confirms this judgment while informally testing the shoes.

The meeting closes at 18.00.

Mar. 3 - The meeting starts at 10:00am

Participants:

- UNIVR: F. Fontana, S. Papetti, P. Polotti, D. Rocchesso, M. Ciolani, G. Borin, P. Cesari
- McGill University: Y. Visell, J. Anlauff
- AAU: L. Turchet
- INRIA: A. Lecuyer, M. Marchal
- UPMC: V. Hayward, G. Dietz
- INVITED: K. Franinovic (University of the Arts in Zurich), S. Delle Monache (IUAV - University of Venice)

The Coordinator proposes a full day of hands-on activity, informal evaluation of prototypes, discussion.

- Y. Visell makes transfer of knowledge of McGill active tiles while setting up the system.
- P. Cesari tests the UNIVR sonic shoes
- V. Hayward suggests means to improve the acoustic quality of the diffusion system of the shoes especially in the low frequency. A fruitful discussion springs out in which constraints of quality, wearability, and feasibility of several types of acoustic systems are dealt with.
- J. Anlauff sets up, then shows his square mesh of FSRs and possible applications of spatial detection of forces.

12.00 Lunch

13.00 Short visit of San Giorgio

14.30 P. Cesari introduces her research on movement analysis to the Consortium. Kinematic and dynamic experiments are shown: determination of invariants, goal equivalent manifolds, and studies with basketball players. Applications to the study of movement in interactions with walking interfaces are outlined: use of sensing socks, and sonic biofeedback. The Consortium acknowledges the importance of having P. Cesari as part of the research team.

15.15 Open discussion and activities start again.

- A. Lecuyer proposes to P. Cesari to think of augmenting/distorting real-time self-observations of walkers as a mean to study changes in their perception

16.00 Coffee break

17.00 Y. Visell get the active tiles running. Almost everybody tests the tiles and plays with parameters. Walking over snow flakes appears convincing. Further impressions are collected by users while the tiles are in this configuration. Also, vibration patterns are experienced and positively judged by the participants to the meeting, who attempt different configurations of the system under this mode.

The meeting closes at 18.00.

Mar. 4 - The meeting starts at 10:00am

Participants:

- UNIVR: F. Fontana, S. Papetti, P. Polotti, D. Rocchesso, M. Civolani, P. Cesari
- McGill University: Y. Visell, J. Anlauff, B. Giordano
- AAU: S. Serafin, L. Turchet
- INRIA: A. Lecuyer, M. Marchal
- UPMC: V. Hayward, G. Dietz
- INVITED: K. Franinovic, S. Delle Monache

Y. Visell shows prototypes of postcards that will be used in the project. Initial public prints of such postcards should be ready for FET'09 Prague.

The Coordinator acknowledges that during the previous day of the meeting several components have been presented by all partners, at different development levels. The existing ground that NIW has contributed to fertilize in these six months of activity is strongly promising for fruitful collaborations between the partners, as envisioned by the project proposal, which can start immediately.

A timely starting point to initiate a discussion in this sense is the NIW participation to FET'09 in Prague. The F. Fontana reads and forwards to the project mailing list the email sent by Walter Van De Velde to all FET-Open coordinators. A discussion starts on how to maximize the impact of the NIW participation to the event based on the latest news coming from the EC. It is decided that F. Fontana, P. Polotti, and M. Civolani (UNIVR) will bring to Prague the prototypes that have been presented during the meeting and there judged to be as most interesting. In parallel, S. Serafin will parachute her PhD student Smilen Dimitrov, who has current responsibility of the physical design of active shoes and sensing floors in AAU and will bring a poster in Prague. More contributions may possibly come from other partners, depending on decisions they will take before the deadline. In the same afternoon NIW will ask the CLOSED Coordinator, whose project has been selected by FET'09 as well, to ask the event organizers for being located on adjacent stands. This logistics will further empower the presentation of both projects.

Next, some collaborations between partners are proposed which will start in the next weeks, whose dynamics will be checked in the next project meeting:

- 1) (INRIA UNIVR) The two participants will undertake a six-month shared task: UNIVR will immediately forward to INRIA guidelines for using its Sound Design Tools (SDT) library. Even if its models are not tailored for walking sounds, nevertheless the software architecture is well established and open for third party use. In the meantime, UNIVR will improve both such models and the design of active shoes. In parallel to this activity, INRIA will orient its virtual walking camera simulations to account for different floor properties, possibly by also making use of head-mounted displays. At the end of May/beginning of June a students or young researchers exchange between will take place, in which transfer of knowledge as well as merge of designs and technology will be initiated, in an aim to start dealing with the huge problems that integration of visual and auditory hw/sw components poses in the project. Results from this cross-activity will be collected after six months from now.
- 2) (UPMC UNIVR) The two participants envision that the feedback generated by the sound models can be straightforwardly re-used to feed the haptic actuators after some light processing. In spite of this, questions concerning the synchronization of the auditory and haptic channels exist, which require to detail the software architectures and/or communication protocols that will be used. UPMC will start to inherit from UNIVR guidelines for the use of the SDT library, then will interact with the same participant in the establishing of constraints for the correct functioning of the audio-haptic sw platform.
- 3) (Mc Gill University UNIVR) B. Giordano in May-June will start to conduct psychophysical experiments on perception of floors conveying virtual sonic attributes of material. UNIVR promises it will forward to Mc Gill University proper real-time synthesis models as soon as the STD library will be added with more specific walking sw for sound generation.
- 4) (AAU INRIA) A PhD student now working at AAU in the visual display of floor events will draw knowledge from, and interface with INRIA to get accustomed with sw and tools that will be chosen for NIW.
- 5) (Mc Gill University INRIA) INRIA will be using active tiles to start defining multimodal experiments based on visual display and active floors
- 6) (AAU UNIVR) These participants will jointly work on basic research on new sound synthesis models for the synthesis of distributed impacts and scraping sounds. Both such sounds are considered to have major importance in auditory walking interfaces.

Finally, plans for the next meeting are outlined. INRIA candidates for hosting the meeting either on July 8-10 or July 29-31. A final decision will be taken in the next weeks.

The meeting closes at 12.00.

12.00 Lunch. Welcome to CLOSED delegates.

From 13.30-18.00 a joint NIW-CLOSED meeting takes place: mutual presentations, exchange of knowledge and possibilities for future collaborations. Joint participation to FET'09 in Prague.