Minutes

Federico Fontana, Wednesday 20 October 2010 - 23:23:30

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

11-13 OCTOBER 2010

INRIA - Campus Beaulieu
Room Sardeigne
Rennes - France

Author: F. Fontana

OCT. 11 - The meeting starts at 10.00am

Participants:

UNIUD: F. Fontana
McGill University: Y. Visell
AAU: S. Serafin, L. Turchet
INRIA: A. Lecuyer, G. Cirio, L. Terziman
UPMC: V. Hayward, A. Berrezag
UNIVR: S. Papetti, M. Civolani

The Coordinator opens the meeting.

10.20am Management issues

- VH is welcomed, whose recent state of health prevented him to provide a timely submission of Deliverable 2.2.

- FF recalls that participant UNIUD now coordinates the project officially. He informs that D2.2 has been delivered two days ago.

- Since only few days have passed from the end date of the second period, all participants have provided only preliminary financial data. Such data have been included in the current draft of the periodic report. In parallel, there is a NEF session already open waiting for the official financial figures and periodic report to be uploaded. FF recommends every participant to monitor its own administrations, so as to acquire such data as soon as possible.

- No specific administration issues are raised by the consortium.

10.40am Preparation of the review meeting

- FF shows the slides he has produced for the review introduction to NIW. They are essentially an elaboration of previous material, updated where needed. Comments, improvements, and fresh images are collected from all participants.

- A couple of slides on the use of resources are prepared by FF, based on current inputs on person/months coming from the

beneficiaries. VH adds novel data referring to UPMC persons effort.

- Few slides are generated for the technical overview. In particular, every participant adds its own ongoing openings to other projects and research institutions.

1.00pm Lunch

2.00pm Preparation of the review meeting

- LT, MC, and LuT go to the demonstration room to set up the prototypes that will be respectively presented by AAU, UNIVR, and INRIA.

- All participants share, then group and assemble together materials that will be provided during the technical overview. Consistency with the review agenda is checked. Minor modifications are introduced in the same agenda.

- All slides are finally reviewed and put together. Handouts and paper materials are prepared accordingly.

6.00pm All demos working, the meeting is closed.

OCT. 12 - The meeting starts at 10.00am

Participants:

UNIUD: F. Fontana
McGill University: Y. Visell
AAU: S. Serafin, L. Turchet
INRIA: A. Lecuyer, M. Marchal, G. Cirio, L. Terziman
UPMC: V. Hayward, A. Berrezag
UNIVR: S. Papetti, M. Civolani
EC: P. Hearn
Reviewers: S. Glasauer

All day is devoted to the review meeting, whose final agenda is reported here below for convenience.

10.20am: Welcome and tour de table
10.30am: 2nd year project overview - F. Fontana (UNIUD)
10.50am: Management and financial overview - F. Fontana (UNIUD)
11.10am: Technical overview - F. Fontana (UNIUD)
11.20am: Hardware interfaces - V. Hayward (UPMC), M. Civolani (UNIVR), Y. Visell (McGill)
11.50am: Simulation and interactions - A. Lecuyer (INRIA), Y. Visell (McGill), S.Serafin (AAU)
12.20pm: Experiments and evaluation - A. Lecuyer (INRIA), S. Papetti (UNIVR), S.Serafin (AAU), Y. Visell (McGill)
1.00pm: Demos and Lunch
2.20pm: Plans for year 3
2.40pm: General discussion
3.10pm: Private meeting of review panel
3.50pm: Feedback and close

- PH recalls that two out of three reviewers are physically absent, also due to the strike affecting public transport in France. Review reports prepared by the absent reviewers will be considered during the meeting.

- The agenda is followed, except for an earlier start and a later conclusion. The private meeting is compressed in time by force majeure, due to uncertainty of train and flight connections to Paris and Brussels caused by the same strike.

- Clarifications on the delivered material are often requested by the review panel during the individual presentations.

- At feedback time, the Project officer notes the special effort that has been made for rapidly pointing out sufficiently insightful feedback, given the absence of two reviewers. The feedback form the panel is summarized in the following points:
* the second period has generally seen a very good progress;
* the corpus of products, especially the paper production, testifies sufficient breakthrough; the new haptic technologies and the number of perceptual validations is impressive;
* it is recommended to keep going with good publications, as well as stay oriented toward the best scientific products;
* the review material is not sufficiently supported by available references; a booklet of all published products would make the work easier to the reviewers;
* year three should continue to see research negotiation and exchanges among participants;
* any wrap-up of project products, such as for instance an integrated prototype, is welcome as far as it will not limit the consortium horizons;
* more conclusive ideas for the third year would be expected by the consortium. For this reason, PH suggests to promptly inform the Commission and review panel with such ideas.

More peculiar observations on the specific research results have come from the panel as well: the consortium should try to see how things work in real world before simulating it (for example the visual motion of walking on a bump with velocity is not realistic, so it is probably not surprising that the auditory feedback was dominant in that case); sometimes the simulation of one modality is not realistic enough, in a way that it is easily dominated by another one; the shoes produce realistic vibrations, conversely sound is affected by too many high frequencies; vibrotactile actuators may be perhaps positioned better inside the shoes.

The meeting closes at 4.00pm

OCT. 13 - The internal meeting starts at 10.00am

Participants:

UNIUD: F. Fontana
McGill University: Y. Visell
AAU: S. Serafin
INRIA: A. Lecuyer, M. Marchal
UNIVR: S. Papetti

10.00am Actions based on reviewers' feedback

- Supplementary material needed by McGill University, AAU, and INRIA, is solicited. The web site content must be fixed accordingly.

11.00am Management issues

- Tentative date and location of meetings: 15-16 February at UNIUD; somewhere/sometime in June/July; last (review) meeting in October at AAU.

- Deliverable in WP7 about the Book.
* The book will be an overview of results from NIW Project
* The tentative outline of material made in July is kept
* Submission of Walking in Virtual Worlds (Springer Book) in 2012; Any materials should appear there
* Budget available: Approximately 4000 Euros
* FF will probe at Logos Verlag. SS will contact Springer's open publishing branch
* YV will create a temporal schedule for submission of chapter outlines by chapter authors / coordinators

11.30am Scientific plan for final year

- The Consortium notes that many ideas and already ongoing activities have been not highlighted during the review meeting even if they easily could. Each participant is then asked to list such activities now, along with its short-term plans.

- INRIA is working on:
* novel input components such as new sensing devices for walking detection
* novel simulation paradigms, such as a multimodal display model for various states of ground (deformable, liquid, solid)
* evolved feedback based on visual camera motions
* integration efforts, resulting in (INRIA + UNIVR) "Shoes Your Style" interaction prototype, and (INRIA + McGILL) experiments on wet floors.

- McGill will be mainly carrying on activities on interaction techniques and floor-based touch user interfaces.

- UPMC later on provides an insightful list, through an evening VH's email:
* postural effects due to chirp-like signals. Preliminary data showed problems that have been probably understood. New experiments is under way.
* it was found that certain vibrotactile signals to the feet could elicit "vection". The effect is however weak, robust and may involve strong cognitive factors (as well as learning). On the other hand, UPMC found that when combined with sub-threshold visual stimulation, the haptic foot stimulation could reliably raise the threshold and trigger the effect where each stimulus in isolation wouldn't. An experimental study will be aimed at replicating these studies but with combined stimulation.
* in audition is is known that phase information in a signal contributes weakly to the perceptual outcome, except in some specific conditions. The aim of an UPMC study is to compare vibrotaction to audition in this respect, where it is predicted that vibrotaction relies on phase information (that is waveform as opposed to spectrum) to a greater extent that audition. This idea poses difficult conceptual problems, like in all studies motivated by the comparison between different sensory modalities (the banana-apple problem) which UPMC proposes to address through signal energy considerations. This study has important implications in terms of interface design as well as in the neurophysiology of touch.
* the "sense of presence" is an important issue in virtual reality systems. The simulation of foot-ground/floor interaction during locomotion or station is expected to contribute greatly to the sense of presence in virtual reality systems. This observation applies equally to large screens (stationary viewing), cave-like environments (locomotion permitted), as well as HMD-based environments, including auditory stimulation with spatialization. There are established methods to measure "presence" (e.g Slater). It is therefore planned to measure, with AAU, the contribution of foot haptic stimulation to the sense of presence in some of these experimental settings.
* UPMC will continue investigating the theoretical underpinnings of electromagnetic actuation miniaturization techniques using a multi-physics approach. The fluidic actuator prototyping will also be pursued. These two technologies are expected to make fundamental contribution to the art and technology of haptic interfaces.

* UPMC has started to study the physics of propagation of mechanical deformation in living tissues which is at the basis of vibrotactile sensing. It is anticipated that the related findings will further our understanding of the fundamental mechanisms underlying haptic perception general. Implications concern both the technology and the biology of touch (to be made with several collaborators outside NIW).
* In addition, UPMC will complete the construction and testing of the distributed haptic components.

- UNIVR is carrying on bio-mechanical experiments, also based on trans-magnetic stimulation; this participant would also develop more realistic models for the synthesis of feedback

- Current and foreseen collaborations in the third year are listed by the consortium:
* INRIA-UNIVR-AAU: Collaboration on multimodal walking-in-place techniques
* INRIA-AAU: Interactive bumps and holes
* AAU-UPMC: Balance board experiments
* McGill-INRIA: Tile corridor and haptic walking experiments
* McGill-INRIA: Physics / simulation methods fracture
* UNIVR-McGill: Sounding object models for walking

Recollection of the demos.

The meeting closes at noon.