MOBIO

MOBIO Technical Meeting
December 10-11, 2009
9:30 – 15:00
Location: Faculty of Information Technology, building L (room L220), Bozetechova 1, Brno-Kralovo Pole, **Czech Republic**

Meeting called by **S. Marcel (Project Coordinator)**

10 Confirmed Attendees for the meeting: *S. Marcel (IDIAP), C. McCool (IDIAP), A. Larcher (UAPV), C. Lévy (UAPV), N.Poh (UNIS), H. Cernocky (BUT), Markus Turtinen (VISI), J. Kittler (UNIS), Phil Tresadern (UMAN) attended remotely.*
2 Apologies for the meeting: *, Jean-Francois Bonastre (UAPV), S. Rey (IDEA)*

Items on the Agenda

Action points from previous minutes

All critical action points from previous minutes have been completed.

Feedback from review

All partners agreed with the plans to address the recommendations from the reviewers. Regarding the recommendation on standardizations, all partners agreed to address it from the evaluation point of view in the deliverable D2.5 on the MOBIO database.

Database

The Phase 2 of the database collection is still going on according to the plans without major delays. The problem with the mobile phone at UMAN seems to be solved.

Scalability

Status of uni-modal scalable systems

Speaker Verification (LIA + BUT)
- Scalable system delivered
- Scalability evaluation completed

Face detection (IDIAP and UOULU)
- IDIAP scalable system delivered
- UOULU scalable system still in development (fixed-point implementation of Viola and Jones FD – Open CV FD cascades)
- IDIAP FD scalability evaluation partially completed, the timing tests on the 20 videos does not provide any useful information with the current timing procedure (command line with valgrind). Indeed, it includes the image/video loading time (see revision below).
- UOULU FD scalability evaluation to do

Facial feature localization (UMAN)
- UMAN scalable system delivered
- UMAN FL scalability evaluation completed on XM2VTS, eye localization accuracy should be evaluated on BANCA images and timing should be done on the 20 videos (no localization accuracy measure required)

Face verification (UNIS)
- UNIS scalable system delivered
- UNIS FV scalability evaluation completed but timing procedure still not appropriate

Revision on scalability evaluation

It was decided to revise the benchmarking procedure (only for the timing of the 20 videos), mainly because of face processing that uses a lot of time for image/video loading with respect to the actual processing. A different strategy was suggested to time internally within the program (using the C timing routine) the processing time excluding image/video loading.

As a consequence, the timing will be evaluated again (only the timing on the 20 videos not the full database) by all the partners listed above (including audio partners).

Bi-modal scalable system

It was discussed what should be addressed regarding the scalability of the bi-modal system. It was agreed that UNIS will:
1. measure the degradation performance of the baseline bi-modal (score fusion) system using the full chain of scalable uni-modal systems.
2. investigate additional aspects related to scalability to strengthen the final deliverable. A possibility is to study possible techniques to chose the video frames to be used for subsequent face verification to save computing. This could be addressed by looking at quality measures, the output of the detector or statistics about previous scores of the face verifier.

In any case, the absolute deadline for all scalable results is June 2010 to allocate enough time for writing the deliverable D5.2 due in September 2010.

Impact on accuracy of the full chain

To achieve results required for D5.2 we foresee the following intermediate plan:
- Feb 12 2010: accuracy + timing of independent modules completed (all involved partners)
- Feb 12 2010: SV full processing chain with measured accuracy
- Feb 19 2010: FD results on BANCA video in mobio format produced by IDIAP
- March 5 2010: FL results on BANCA video in mobio format using FD output produced by UMAN
- March 12 2010: FV results on BANCA video in mobio format using FD/FL output produced by UNIS
- March 19 2010: baseline bi-modal score fusion (log regression model) results on produced SV/FV scores

ICPR 2010 evaluation

The current EULA for the ICPR 2010 evaluation is acceptable but is still limited for companies. The EULA should be revised to accommodate better companies up to a certain extend. Chris will send a revised version of the EULA and partners will have to check with their institutions.

A unique scoring tool is needed to process the scores from the participants to the competition. BUT and UOULU will release a scoring tool by Jan 20 2010.

A temporary publication (Idiap Communication) has been released to be used as a reference in the EULA. A conference or journal publication is needed in 2010 to disseminate the database and to acknowledge the contributors. Journals such as PAMI (Special Issue early 2010) and Pattern Recognition Letters, or Conferences such as ECCV or BTAS have been discussed. It has been decided to target Pattern Recognition Letters. As a consequence, the current publication (indicated in the EULA and on the MOBIO website) will be extended. Any partner willing to participate to the writing of the document should send their feedback before Jan 22 2010 to Chris and Seb. Later after ICPR we also plan to submit a paper with obtained results to another journal such as IEEE Transactions on Information Forensics and Security (Impact factor 2.230).

Integration to Mobile

The Nokia N900 device with the MAMEO architecture has been chosen by Visidon (see slides). The N900 is a Linux-based device with an ARM 600 MHz processor, more than 200 Mb RAM for each application and 2 Floating-point units.

Visidon has developed an A/V framework based on Gstreamer. This framework is available on the SVN as part of the D6.4 deliverable. The presented framework seems to accommodate the partners, however, currently the framework requires to be linked to a GUI library to be executed. This is not fully appropriate for academic partners for developing and testing on linux. Visidon will revise by Dec 18 2009 the A/V Gstreamer framework so it can be optionally compiled without GUI nor linked with GUI libraries to facilitate the development and testing by the partners.

An issue has been raised regarding this framework in the case that buffers of data should be shared between modules such as FD and FV. This issue will be discussed later at the next meeting, as it is not for the moment a blocking factor.

All partners involved in the integration (see below) should test and provide their feedback on the Gstreamer framework before Dec 24 2009.

Initial Integrated modules (required for D6.4 at m26 – February 2010)

Speaker Verification (BUT)
- it is foreseen to develop a scalable UBM/GMM (floating point implementation with LUT for log computation) for the February deadline.
- a second integration based on a scalable JFA systems will be foreseen (based on efficient matrix operations) after the February deadline.

Face detection (IDIAP and UOULU)
- IDIAP will integrate the scalable MCT FD,
- UOULU with complete the development of the V&J FD and integrate it on the N900 (as to be done for WP5),
The FD from Visidon will be considered as a baseline.

Facial feature localization (UMAN)
The current scalable system is too complex for the moment as it relies on too many libraries. Two parallel strategies will be investigated to reach integration on the mobile:
1. Speeding techniques:
    - the use of FL with a less number of points (at most 7, minimum 2 for the eye center),
    - the use of tracking to save computation,
    - and finally skipping frames.
2. Reducing the number of libraries and compiling them on MAMEO:
    After that Visidon will have revised the A/V framework, UMAN should give a feedback the week after on the feasibility to reduce the number of libraries. The first step is to compile the framework on Linux against the required libraries and to list the libraries needed. Visidon will provide support to UMAN for compiling the minimum required libraries on the N900. By the January 29 2010, UMAN and Visidon should come with a clear answer on the possibility to integrate the FL on the device.
The FL from Visidon will be considered as a baseline.

Face verification (IDIAP)
- it is foreseen to develop a scalable LBP FV system for the February deadline.
- a second integration based on a scalable UBM/GMM systems will be foreseen (based on fixed point DCT and GMM with LUT for log computation) after the February deadline.
Although UNIS is responsible for FV in WP5, IDIAP and UNIS decided on the following agreement. IDIAP will realize the integration of a FV system and UNIS will focus instead on fusion and scalability.

To achieve results required for D6.4 we foresee the following intermediate plan:
- IDIAP: FD scalable by the end of February 2010,
- UMAN: integration plan by the end of February and to be presented at the next meeting in March, with the objective to provide an integrated FL before June 2010,

- IDIAP: FV based on LBP histograms by the end of February 2010, then more elaborated (GMM) developed,

- BUT: SV based on a UBM/GMM integrated by February 2010,
- VISIDON: test the biometric modules in March, feedback + corrections, tuning …
- BUT + IDIAP: provides SV and FV scores on the MOBIO database to UNIS in April,
- VISIDON: prepare the fusion module (with a control panel) in May,
- UNIS: derive fusion weight in May and provide it to VISIDON.

Varia, Next meeting

The next MOBIO meeting will be held in Martigny Switzerland on March 25-26 2010.

Next Action Points

Who	WP	What	When
All	2/7	Send a MOBIO A/V sample from your site.	**ASAP**
VISIDON	6	Revising A/V Gstreamer framework to facilitate the development and testing in command line by the partners.	Dec 18 2009
All	6	Test and provide feedback on the A/V Gstreamer framework.	Dec 24 2009
All	6	All partners involved in the integration should start the process to purchase a Nokia N900.	**ASAP**
IDIAP	2/7	Send revised EULA after internal validation at Idiap.	Dec 23 2009
BUT + UOULU	2/7	Scoring tool for ICPR evaluation available on the SVN for testing.	Jan 20 2010
All	2/7	Feedback on the database publication to Chris and Sebastien.	Jan 22 2010
UMAN + VISIDON	6	UMAN and Visidon should come with a clear answer on the possibility to integrate the FL on the device.	Jan 29 2010
BUT	7	Revise D7.1 (include ICPR evaluation and MOBIO protocol ?)	Feb 2010
BUT	7	Deliver D7.4 the second report on dissemination activities	Feb 2010
IDEA	2/7	Release a call for use cases to the CoI	Feb 2010
VISIDON	2	Continue to explore common use case with Nokia	Feb 2010
All	5	Accuracy + timing of independent modules completed.	Feb 12 2010
BUT	5	SV full processing chain with measured accuracy.	Feb 12 2010
IDIAP	5	FD results on BANCA video in mobio format produced.	Feb 19 2010
IDIAP	6	Scalable FD integrated on the N900.	Feb 26 2010
UOULU	6	Scalable FD integrated on the N900.	Feb 26 2010
UMAN	6	Integration plan completed to be presented at the next meeting in March, with the objective to provide an integrated FL before June 2010.	Feb 26 2010

IDIAP	6	Scalable FV integrated on the N900.	Feb 26 2010
BUT	6	Scalable SV integrated on the N900.	Feb 26 2010
VISIDON	6	Tests on the integrated biometric modules in March.	March 2010
UMAN	5	FL results on BANCA video in mobio format using FD output produced.	March 5 2010
UNIS	5	FV results on BANCA video in mobio format using FD/FL output produced.	March 12 2010
UNIS	5	Baseline bi-modal score fusion (log regression model) results on produced SV/FV scores.	March 19 2010
All	2/7	All partners should check the revised EULA with their own institution for ethic + legal aspects and report feedback before the deadline. Comments received after the deadline will not be considered.	March 25 2010
VISIDON	6	Draw plans for D6.5 to be discussed at the next meeting.	March 25 2010
BUT + IDIAP	6	Provides SV and FV scores on the MOBIO database to UNIS.	April 2010
VISIDON	6	Prepare the fusion module (with a control panel).	May 2010
UNIS	6	Derive fusion weight and provide it to VISIDON.	May 2010