

# MOBIO

## Mobile Biometry

<http://www.mobioproject.org/>

Funded under the 7th FP (Seventh Framework Programme)  
Theme ICT-2007.1.4 [Secure, dependable and trusted  
Infrastructure]

## WP 1: Management

### Quarterly Report 3, 2010

**Period:** July - September 2010      **Submission date:** 02/10/2010  
**WP Manager:** Sebastien Marcel      **Revision:** 1

**Author(s):** V. Devanthery (IDIAP)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
|---|--|-----|
| Dissemination Level   |  |     |
| PU  | Public   | No  |
| RE  | Restricted to a group specified by the consortium (includes Commission Services) | Yes |
| CO  | Confidential, only for members of the consortium (includes Commission Services)  | No  |

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# 1 Activities Overview of your WP

During this fourth reporting period, the MOBIO management team:

- was in charge of the MOBIO Payment Process of the second period (Year 2),
- updated the website to publish the MOBIO public deliverables,
- prepared the technical meeting in Oulu (July 9-10, 2010),
- prepared the organization of the MOBIO booth at the event Biometrics 2010 in London (October 19-21, 2010),
- prepared the organization of the final review meeting in London (October 22, 2010).

## 2 Description of 3 month activity

- MOBIO Payment Process, period 2: After submitting the annual report mid-February, we spent time on collecting different information requested by the European Commission regarding financial documents and other official files.

The payment processing finished in June 23 and we received an email saying that the payment will follow within the week. As I did not receive any money in mid-July, I asked the European Commission and I received this information: *"[...] Following our financial system the bank execution date was 28/06/2010. Reference: 22-FEB-2010/F05/FP7 214324 ICT - MOBIO/=IC2 =/01/01/2009 - 31/12/2009. Bank account CH280026426462597464P. BUT... I saw then on another level that the account was blocked by DG Budget? [...]"*

After a few exchanges of emails, we finally received the payment in the end of August and we were able to pay our partners few days after that.

- the MOBIO website is regularly updated with the new public deliverables and other news to communicate,
- organisation of the Technical Meeting: This meeting took place at the offices of our partner the University of Oulu in July 9-10, 2010,
- prepared the organization of the MOBIO booth at the event Biometrics 2010 in London (October 19-21, 2010). MOBIO was present at Biometrics2010 in different ways: first with a booth showing the project results and demonstrators, secondly with three talks at the Conference, and finally with a dinner gathering project and CoI members. The event was held in the Queen Elizabeth II Conference Centre, Broad Sanctuary, Westminster, London SW1P 3EE, UK (<http://www.biometrics.elsevier.com>).

We invited our Project Officer and the reviewers to attend to these conferences and to the exhibition. At the end of this event, they will stay in London for the MOBIO Final Review Meeting which is organised the following day.

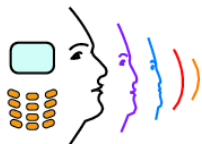
- organisation of the MOBIO Final Review Meeting: This meeting took place at the Crowne Plaza Hotel, 45-51 Buckingham Gate in London on Friday October 22, 2010.

### **3 Publications**

Not applicable

## **4 Miscellaneous**

Not applicable



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## WP 2: Use cases, Specifications and Databases

### Quarterly Report 3, 2010

**Period:** July - September 2010      **Submission date:** 02/10/2010  
**WP Manager:** Christopher Mc Cool    **Revision:** 1

**Author(s):** C. McCool (IDIAP), S. Marcel (IDIAP)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
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| Dissemination Level   |  |     |
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## 1 Activities Overview of your WP

For the third quarter of 2010 the goals of this work package were to: verify the MO-BIO database, submit D2.5, finalise the protocols for Phase I and Phase II, and finalise the methods for distributing the database. After completing the collection of the MO-BIO database the data had be verified prior to distribution, in addition to this protocols and the methods for distributing (including the End User Licence Agreement) had to be completed.

## 2 Description of 3 month activity

There were two priorities for the third quarter of 2010: completion and distribution of the MOBIO database and submission of the document describing the database (D2.5).

The completion of the MOBIO database included verifying the database and finalising an initial protocol for use with the database. The verification of the database had to be done to ensure the validity of experiments performed on the database, this verification also included finalising a protocol for use with the database. In addition to this an appropriate End User Licence Agreement (EULA) was written and agreed upon, this document is essential for the distribution of the database. Finally, a website was designed and made available to describe the process of obtaining the database.

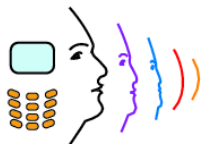
Completing and submitting the document describing the database, D2.5, was essential. This document provides an overview of the MOBIO database and the potential ways that it can be used. This document was finished and submitted on time, in addition to this the partners are also actively extending this document to a journal paper format to inform the research community about this database.

### **3 Publications**

None

## **4 Miscellaneous**

None



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### WP 3: Uni-Modal Segmentation and Authentication

### Quarterly Report 3, 2010

**Period:** July - September 2010 **Submission date:** 02/10/2010

**WP Manager:** T. Cootes **Revision:** 1

**Author(s):** Prof. T. Cootes (UMAN)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
|---|--|-----|
| Dissemination Level   |  |     |
| PU  | Public   | No  |
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# **1 Activities Overview of your WP**

WP3 was concluded in M22; there has been no further activity in this WP.

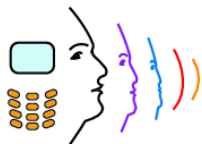
## **2 Description of 3 month activity**

WP3 was concluded in M22; there has been no further activity in this WP.



### **3 Publications**

None



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## WP 4: Joint Bi-Modal Authentication and Model Adaptation

### Quarterly Report 3, 2010

**Period:** July - September 2010    **Submission date:** 02/10/2010  
**WP Manager:** N. Poh                      **Revision:** 1

**Author(s):** Dr N. Poh (UNIS)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
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| Dissemination Level   |  |     |
| PU  | Public   | No  |
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# 1 Activities Overview of WP4

Biometric authentication using mobile devices is becoming a convenient and important means to secure access to remote services such as telebanking and electronic transactions. Such an application poses a very challenging pattern recognition problem: the training samples are often sparse and they cannot represent the biometrics of a person. The query features are easily affected by the acquisition environment, the user's accessories, occlusions and aging.

The objectives of this WP are to tackle the above problems in two fronts:

- **Joint bimodal authentication:** to develop a novel fusion mechanism to combine the face and speech biometrics
- **model adaptation:** to investigate model adaptation techniques, or semi-supervised learning, i.e., learning from the vast unlabeled query/test data

The roles of each partners are as follow:

- **UNIS:** to coordinate the activities in WP4 and to design mechanisms for adaptive face and speech systems as well as experiments for their evaluation
- **IDIAP:** to study baseline fusion (D4.1 and D4.2) and joint bimodal fusion via feature level fusion (D4.3 and D4.4) as well as working with UNIS on and adaptive systems (D4.5 – D4.8)
- **UAPV:** to deliver an adaptive speech system for D4.5 as well as D4.7.
- **UMAN:** to provide a support for facial annotation needed for the adaptive systems (D4.7 – D4.8)
- **BUT:** to provide phoneme conditioning for speaker verification system (with no obligation)
- **UOULU:** none

## **2 Description of Three-month activity**

All deliverables in WP4 were submitted in the last quarter. There is therefore nothing to report in this quarter.

### 3 Publications

Past contributions relevant to this work package include the following:

- Survey on the state-of-the-art biometric [1]
- Selecting a subset of biometrics system for fusion [4]
- Addressing the missing modality problem at the fusion level [9].
- Quality-based multimodal biometric fusion with cross-device matching [3]
- Four challenges and research directions for multimodal adaptive biometric systems have been identified [10]. This paper won the Best Paper awards in the past Int'l Conference on Biometrics (ICB2009).
- Score- and model-level adaptation for biometric systems (ICPR2010) [5].
- A procedure to integrate the quality information into an existing biometric system by compressing the quality measures via a linear projection (Locality Preserving Projection), presented in CVPR2010 [2].
- *Adaptive* strategies:
  - Cohort-based score normalization:
    - \* An improved version of a client-specific score normalization (F-norm) exploiting a set of cohort models, called “adaptive Fnorm” [7].
    - \* A score normalization procedure realized using logistic regression which combines T-normalized scores and quality measures [6].
  - Client-based score normalization: A group-based score normalization where a client is assigned to one of the four possible groups [8].
- Another way of adapting the system to the user is by means of human-computer interaction. In [11], we propose to feed the quality information about the quality of an acquired face image back to the user.

### References

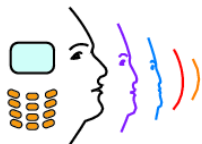
- [1] J. Kittler and N. Poh. Multibiometrics for identity authentication: Issues, benefits and challenges. In *IEEE Conference on Biometrics: Theory, Applications and Systems*, pages 1–6, Washington, D.C., 2009.
- [2] K. Kryszczuk and N. Poh. Handling high dimensionality in biometric classification with multiple quality measures using locality preserving projection. In *IEEE Computer Society Workshop on Biometrics, CVPR2010*, 2010. accepted.

- [3] N. Poh, T. Bourlai, and J. Kittler. Quality-based score normalisation with device qualitative information for multimodal biometric fusion. *IEEE Trans. on Systems, Man, and Cybernetics (part B)*, 2010. accepted for publication.
- [4] N. Poh and J. Kittler. On Using Error Bounds to Optimize Cost-sensitive Multimodal Biometric Authentication. In *Proc. 19th Int'l Conf. Pattern Recognition (ICPR)*, pages 1–4, 2008.
- [5] N. Poh, J. Kittler, S. Marcel, D. Matrouf, and J-F. Bonastre. Model and score adaptation for biometric systems: Coping with device interoperability and changing acquisition conditions. In *Int'l Conf. on Pattern Recognition*, 2010. accepted.
- [6] N. Poh, A. Merati, and J. Kittler. Making better biometric decisions with quality and cohort information: A case study in fingerprint verification. In *Proc. 17th European Signal Processing Conf. (Eusipco)*, pages 70–74, Glasgow, 2009.
- [7] N. Poh, A. Merati, and J. Kittler. Adaptive client-impostor centric score normalization: A case study in fingerprint verification. In *Biometrics: Theory, Applications, and Systems, 2009. BTAS '09. IEEE 3rd International Conference on*, pages 1 –7, Washington, D.C., sept. 2009.
- [8] N. Poh, A. Rattani, M. Tistarelli, and J. Kittler. Group-specific score normalization for biometric systems. In *IEEE Computer Society Workshop on Biometrics, CVPR2010*, 2010. accepted.
- [9] N. Poh, D. Windridge, V. Mottl, A. Tatarchuk, and A. Eliseyev. Addressing missing values in kernel-based multimodal biometric fusion using neutral point substitution. *IEEE Trans. on Information Forensics and Security*, 2010. accepted.
- [10] N. Poh, R. Wong, J. Kittler, and F. Roli. Challenges and research directions for adaptive biometric recognition systems. In *LNCS 5558, Proc. of the 3rd Int'l Conf. on Biometrics*, pages 753–764, Sardinia, 2009.
- [11] R. Wong, N. Poh, J. Kittler, and D. Frohlich. Towards inclusive design in mobile biometry. In *Int'l Conf. on Human System Interaction (HSI)*, pages 267–274, 2010.

## **4 Miscellaneous**

None.





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## WP 5: Scalability

### Quarterly Report 3, 2010

**Period:** July - September 2010 **Submission date:** 02/10/2010

**WP Manager:** J-F. Bonastre **Revision:** 1

**Author(s):** Christophe Lévy & Anthony Larcher (UAPV)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
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| Dissemination Level   |  |     |
| PU  | Public   | No  |
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# 1 Activities Overview of your WP

The use of biometric authentication systems on mobile device requires high level of performance with limited resources. Limited processor performance, energy consumption and memory capacity are important examples of such limitations.

Development of biometric system scalability allows to deal with such constraints. The scalability study will investigate a number of important parameters taking into account the cellphone specifications or the amount of transferred data.

One task is related to this third quarter of 2010:

- start of D5.2: report concerning the work done in D5.1

## **2 Description of 3 month activity**

During this period, every partner involved in the Work Package 5 participated to the writing of the D5.2 report.

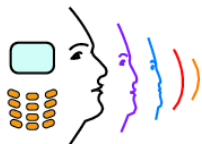
This report is composed of a full description of each system provided during the previous phase of this Work Package and related to the baseline systems.

### **3 Publications**

none

## 4 Miscellaneous

none



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## WP 6: Demonstration

### Quarterly Report 3, 2010

**Period:** July - September 2010      **Submission date:** 02/10/2010  
**WP Manager:** Markus Turtinen      **Revision:** 1

**Author(s):** Dr Markus Turtinen (VISI)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
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# 1 Activities Overview of your WP

For the third quarter of 2010 the goals of this work package were to finalize D6.4 and start integrating the selected use-case demonstrations. The main tasks were the following

- Testing, finalizing and submitting D6.4
- Desing and start implementing use-case demonstrations (mobile + client/server)
- Integrate fusion modules on mobile

## 2 Description of 3 month activity

In Q3, VISI continued the mobile integration. The whole audio and video chains were integrated to the mobile, as well as fusion and final decision making procedure. The system is running real-time on Nokia N900 mobile phone. Face chain consist of face detection, face localization and face verification. Audio chain performs voice detection and speaker verification. The processing is made fully on the mobile terminal using the framework defined in D6.2.

Besides the mobile integration, VISI made server side integration of biometric modules in order to implement client/server use-cases. The idea here is to send the raw data (image frames + audio buffer) over secure connection to the server for further processing. VISI implemented the framework for client/server architecture and experimented data transferring with different networks (WLAN, 3G, GPRS). Current implemetation consists of mobile side client application that (1) captures data (camera+mic), (2) packs this to the defined format, and (3) sends them to the server. Server (4) unpacks the data, (5) performs biometric, and (6) provides response to the client.

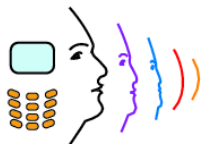
The major part of Q3 work was to implement use-case scenarios. For embedded use-case, VISI implemented the mobile application to allow easy access to web-mail or other web-based services. The demo uses face and speaker verification to bypass user-name/password queries and allows one-touch access to favourite services making the mobile use of these services more convenient. In the client/server use-case, the mobile terminal is used to access confidential information on the secure server. All the biometrics are performed on the server side and mobile is used for data acquisition.

### **3 Publications**

None.

## **4 Miscellaneous**

None.



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## WP 7: Dissemination and Exploitation

### Quarterly Report 3, 2010

**Period:** July - September 2010 **Submission date:** 02/10/2010

**WP Manager:** H. Cernocky **Revision:** 1

**Author(s):** Dr H. Cernocky (BUT)

| Project funded by the European Commission<br>in the 7th Framework Programme (2008-2010) |  |     |
|---|--|-----|
| Dissemination Level   |  |     |
| PU  | Public   | No  |
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## 1 Activities Overview of your WP

During this third quarter of 2010, WP7 dissemination activities concerned mainly scientific publications, dissemination to general public, evaluations, Web pages, Community of Interest (CoI), trade fairs and projects related to MOBIO.

An important activity in WP7 was the presentation of the MOBIO evaluation at the ICPR conference in Istanbul.

## 2 Description of 3 month activity

### 2.1 MOBIO ICPR Evaluation – publications

In the previous quarters, MOBIO project organized ICPR MOBIO competition<sup>1</sup>. In Q3, the results of the competition were presented at the International Conference on Pattern Recognition (ICPR) in Istanbul.

### 2.2 Summary of publications

In Q3, the publication web page<sup>2</sup> was updated and statistics were made for the final MOBIO review meeting:

- As for Conference proceedings, 30 papers were published in 2010 (so far), compare to 25 in 2009 and 13 in 2008. The venues were major speech (Interspeech, ICASSP), and video (ICB, BMVC) conferences.
- Concerning **Journal papers**, 9 were published:
  - 3x IEEE Trans. on Information Forensics and Security (IF 2,338)
  - IEEE Transactions on Audio, Speech and Language Processing (IF 1,782)
  - IEEE Transactions on Pattern Analysis and Machine Intelligence (IF 4,378)
  - EURASIP Journal on Advances in Signal Processing (IF 0,885)
  - Pattern Recognition (IF 2,554)
  - IEEE Trans. on Systems, Man, and Cybernetics (part B) (IF 3.007)

Several under are under review and accepted.

#### 2.2.1 Awards

MOBIO supported papers were awarded at several occasions:

- **Best ICPR 2010 paper:** Poh, N., Kittler, J., Marcel, Sbastien, Matrouf, D. and Bonastre, J-F., Model and score adaptation for biometric systems: Coping with device interoperability and changing acquisition conditions
- **Best student paper prize at BTAS 2010:** Bud Goswami, Chi Ho Chan, Josef Kittler and Bill Christmas: Local Ordinal Contrast Pattern Histograms for Spatiotemporal Lip-based Speaker Authentication

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<sup>1</sup><http://www.mobioproject.org/icpr-2010>

<sup>2</sup><http://publications.mobioproject.org/>



- **Student award finalist at Interspeech 2010:** Kockmann, M., Burget, L., Glembek, O., Ferrer, Luciana and Cernocky, J., Prosodic Speaker Verification using Subspace Multinomial Models with Intersession Compensation
- **Best Paper Award at 3rd International Conference on Human System Interaction (HSI) (Human Centered Design track):** R. Wong, N. Poh, J. Kittler and D. Frohlich: Towards Inclusive Design in Mobile Biometry PhD thesis award
- **The University of Oulu best doctoral thesis award:** University of Oulu ranked Timo Ahonen's doctoral thesis "Face and texture image analysis with quantized filter response statistics" as the best doctoral thesis made in the University in 2009.

## 2.3 Common journal papers

Three common papers are being prepared:

1. MOBIO database, Prepared for IEEE Transactions on Pattern Analysis and Machine Intelligence, Lead: Chris McCool [IDIAP]
2. Scalability in FV and SV, Journal to be decided, Lead: JF Bonastre [UAPV]
3. MOBIO general paper, IEEE Pervasive Computing Magazine, Lead: Phil Tresadern [UMAN]

## 2.4 EURESEARCH success story and coordinator award

Euresearch — the Swiss guide to European research and support for European business and innovation — highlights in its recent Success Stories Newsletter the EU FP7 project MOBIO.

Dr Sbastien Marcel has been invited to the Coordinator Award on September 29 2010 in Bern organized by Euresearch and had the opportunity to present the EU FP7 project MOBIO (Mobile Biometry) during a Press Conference with the participation of Dr Martine Brunschwig Graf member of the Swiss Geneva Council of the Geneva Canton, Dr Mauro Dell'Ambrogio State Secretary for Education and Research in Switzerland, and Prof Roland Siegwart Vice President Research and Corporate Relations at ETH Zurich.

See photos <sup>3</sup>, especially <sup>4</sup>

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<sup>3</sup><http://multimedia.photopress.ch/Lightbox.do?oid=4796&page=1>, <http://multimedia.photopress.ch/Lightbox.do?oid=4796&page=2>

<sup>4</sup><http://multimedia.photopress.ch/Content.do?oid=71498>, <http://multimedia.photopress.ch/Content.do?oid=71499>

## 2.5 Dissemination to general public

### 2.5.1 UMAN face tracker video

was created by Phil Tresadern <sup>5</sup>, and an accompanying story was submitted to Slashdot for their consideration: <sup>6</sup>.

Luckily for us, they ran the story which has subsequently been featured on websites across the world, including engadget.com (one of the major technology blogs)<sup>7</sup> and dantri.com.vn (one of Vietnam's largest online national newspapers)<sup>8</sup>.

The video resulted in over 47000 views (October 2010).

UMAN has been approached by four companies with a view to using the technology for commercial products.

### 2.5.2 Follow-ups of BUT NIST SRE press-conference

As follow-ups of BUT press conference organized at the occasion of the success in NIST Speaker Recognition Evaluation:

- BUT was approached by Czech TV, a documentary was turned and was broadcast 9 July, in "Milenium" series - covering science and technology. Honza Cernocky commented the documentary together with forensic expert Marie Svobodova.<sup>9</sup>
- 4-page article was published in weekend extension of "Hospodarske noviny" (major Czech business newspaper)<sup>10</sup>

## 2.6 Invited lectures

- Dr. Abdenour Hadid presented the results of the contest on MOBIO Face and Speaker Verification Evaluation at ICPR2010 conference in Istanbul on August 22nd, 2010.
- Dr. Abdenour Hadid made a short research visit to The Multimedia Image processing Group of Prof. Dugelay at Eurecom Institute (France).
- Dr. Abdenour Hadid lectured a tutorial on "image and video descriptors" on July 7th at the International Conference on Image Processing Theory, Tools and Applications IPTA2010 conference (Paris, France).
- Timo Ahonen, who is currently working at Nokia Research Center at Palo Alto (California), visited UOULU and had a presentation on "Mobile Computational Photography with Frankencamera" on September 7th

<sup>5</sup><http://www.youtube.com/watch?v=5TD09ok4sWI>

<sup>6</sup><http://mobile.slashdot.org/story/10/08/21/2256206/Real-Time-Detailed-Face-Tracking-On-a-Nokia-N900>

<sup>7</sup><http://www.engadget.com/2010/08/23/nokia-n900-does-real-time-face-tracking-for-verification-video/>

<sup>8</sup><http://dantri.com.vn/c119/s119-418106/video-nhan-dien-khuon-mat-tren-nokia-n900.htm>

<sup>9</sup><http://www.ceskatelevize.cz/porady/10159875412-milenium/210411058030709/video/>

<sup>10</sup><http://speech.fit.vutbr.cz/en/media/unikatni-software-pozna-hledany-hlas-mezi-statisici-telefonnich>

- Prof. Josef Kittler (UNIS) visited BUT and gave a lecture “Multiple kernel learning and feature space de-noising with application to information retrieval from image and video databases” in the framework of BUT’s “SERVITE” seminar<sup>11</sup>

## 2.7 BOSARIS workshop

BOSARIS (Brno Speaker Recognition Summer Workshop 2010) was a 5-week research workshop. Organized around the core of the group that gathered in 2008 at Johns Hopkins summer workshop group “Robust Speaker Recognition over Varying Channels”, the participants addressed the issues of inter-session and environmental robustness, and the speed of SRE systems. Although the results of the workshop are likely to be most interesting to the defense and security community, BOSARIS was not a classified research workshop and results will be made available to the public domain. The workshop was lead by Niko Brummer (Agnitio, South Africa), Patrick Kenny (CRIM, Canada) and Lukas Burget (BUT).

Based on the work at BOSARIS, several papers were submitted to ICASSP 2011 that will take place in Prague in May 2011<sup>12</sup>, of which Honza Cernocky is co-chair.

## 2.8 Industrial dissemination

### 2.8.1 Community of Interest (CoI)

The CoI welcomes 5 new members, all having some potential use cases or technology reselling ideas.

CPqD is an independent institution, focused on information and communication technologies (ICTs) innovation to contribute to the competitiveness of Brazil and the inclusion of the digital society. CPqD develops broad program of research and development, the largest in Latin America in its area of operation. BIOMODAL is a CPqD/Funttel/Finep project about secure multimodal biometric and iconographic authentication in mobile devices

ICEPAT has been dealing with MOBILE BUSINESS for over ten years and have filed numerous patents on the most important markets of the world.

IDI Eikon develops solution to control/identify workers at the countryside (through 3G mobile technology) who work collecting fruits and vegetables as there are many immigrants (Africans, Arabs) which are quite difficult to identify/differentiate in order to avoid transfer of documents to prevent difficulties in the occupational safety at work.

WISeKey is a leading information security and identity management company, and provides specialized security technologies for data protection, and effective identification and authentication of people and objects, over physical infrastructures, networks and the internet to ensure secure communications and e-transactions, without compromising trust.

<sup>11</sup><http://www.fit.vutbr.cz/research/groups/graph/index.php?page=ser2010&year=2010>

<sup>12</sup><http://www.icassp2011.com/>

MetroWorks is a leading edge open systems developer of applications for publishers and publishing on the Web. MetroWorks is based in Tokyo, Japan, and many of its customers are major multinationals wanting a differentiated presence on the Japanese internet.

MEDISCS, an R&D-performing SME, is an IT security company with expertise in trust architecture (identity-based PKI, SSO, Identity Governance Framework, 3DSecure payment, ), software protection and mobile devices as a secure storage of personal access control credentials.

MEDISCS has successfully introduced innovative technologies for mobile devices and provides solutions in the areas of banking and State modernization (e-government). Their technology allows strong authentication, digital signature and 3DSecure payment software services

### **2.8.2 MOBIO LinkedIn group**

Principal mean of communication with the Community and other interested individuals. Discussion topics and news are posted regularly on this new platform.

### **2.8.3 Use cases videos**

A third video picturing a possible MOBIO use case was released on the web via LinkedIn groups (summing up to a potential of 30000 viewers), social networks and youtube platforms.

### **2.8.4 Biometrics2010 – October 19-21**

MOBIO secured a top exposure opportunity by having a table in front of the conference room on Biometricss first day when no other exhibitor will be present. MOBIO will also have a booth in the regular exhibition area on day 2&3 of the conference. Real-time demonstration of MOBIOs technology on Nokia N900 will be performed.

### 3 Publications

Several papers were proposed to conferences and journals. According to the consortium agreement, the abstracts were sent to the MOBIO mailing list. See MOBIO publication web page<sup>13</sup> for updated information.

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<sup>13</sup><http://publications.mobioproject.org/>

## **4 Miscellaneous**

N/A