

# Privacy-ABCs and anonymous course evaluations at Universities – an eParticipation vehicle in education



Evaluations of instructors and courses by students in higher education institutions are an important tool for universities for adjusting the curricula so as to correspond best to students' needs. Allowing evaluations over the Internet, through an anonymous and user friendly course evaluation system, facilitates greatly the evaluation process compared to the classical process based on paper evaluation forms: a) it allows the students to evaluate courses remotely, from any place they happen to be during the evaluation period b) automatically archives the evaluation results in electronic form allowing their further electronic processing, and c) offers the possibility of using strong cryptographic tools to ensure student anonymity and data confidentiality. However, the major challenge is to ensure that only eligible students participate while not forcing them to provide details which may identify them. This is where Privacy-ABCs enter the picture.

## The goals of the ABC4Trust project

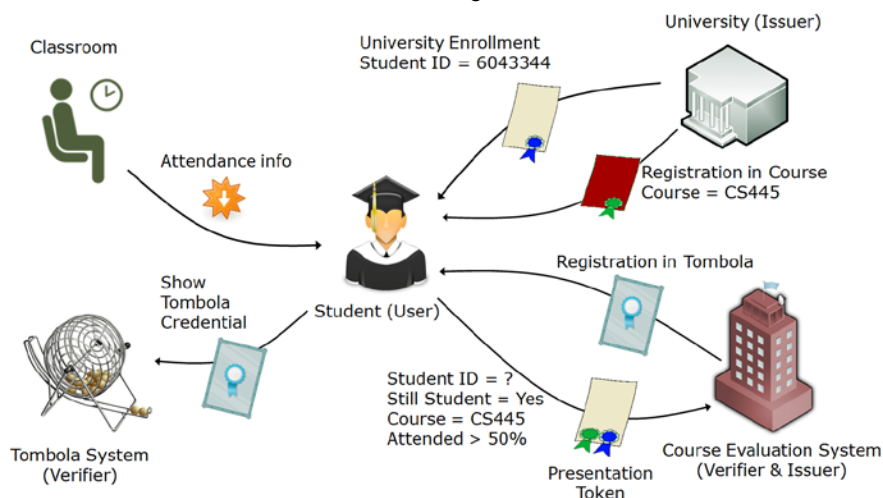
Privacy-ABCs is a technology developed within the ABC4Trust project that enables privacy preserving, partial authentication of users. Privacy-ABCs are issued just like normal electronic credentials (e.g. PKI based) using a secret signature key owned by the credential issuer. However, and this is a key feature of this technology, the users are in position to transform the credentials into a new form, called presentation token, that reveals only the information about them which is really necessary in order to access a service. This new token can be verified with the issuer's public key.

The ABC4Trust project's primary goal was to eliminate the gap between theory and practice in Privacy-ABC technologies in order to pave the way towards their deployment in applications requiring partial user authentication. To this end, a key element of the project in demonstrating the practical use of ABC technologies is the implementation of two ABC based pilot applications: one was run in a school in Sweden and one was run at a University in Greece. In the following we focus on the University pilot.

## The goals of the Patras pilot

The pilot, which was organised by the Computer Technology Institute & Press – "DIOPHANTUS" (CTI) in Patras, had two main goals: (i) to prove the applicability of ABC technology in a real application envi-

ronment and (ii) provide the first implementation of an electronic course evaluation system for universities. This system ensures the participants' privacy while, at the same time, guarantees that only eligible students participate. In the Fall 2012 semester, the first round of the pilot was, successfully, conducted using a first version of the reference architecture of the project while in the Fall 2013 semester the second round was conducted using the new crypto architecture with a richer set of features and functionalities. The second round was, again, successful and was completed in February 2014.



## Realising the pilot

The target course was selected from the curriculum of the Computer Engineering and Informatics Department (CEID), at the University of Patras, Greece.

In the beginning of the semester the students contacted the University Registration system in order to obtain the Privacy-ABCs attesting that they are students of the University and are registered to the course that was evaluated in the end of the semester. These credentials were stored on the students' smart cards. During the semester, the students were collecting attendance units upon entering the lecture room by waving their smart cards near a contactless smart card reader. They could only obtain one unit per day of attendance. In the end of the semester, they contacted the Course Evaluation System and proved, anonymously, their eligibility to evaluate the course i.e. they proved that they are students of the University, that they are registered to the course under evaluation and that they have attended classes sufficient times (above a preset threshold value). Optionally, after they had submitted their evaluations, they could enter a Tombola draw (acting as an incentive to participate in the evaluation) with prizes such as books, tickets to the theater and registrations to conferences.

## Next: Privacy-ABCs for eParticipation

We plan to extend this pilot to an environment for supporting public consultations and discussions. The means for this will be the Greek School Network, which CTI directs, that links all Greek schools' local networks together and to the Internet. Members of this community will be able to prove their eligibility by uncovering only the necessary information. The next step will be to enhance this environment into an eParticipation platform through a gradual introduction of ABC4Trust technology in the interactions between the citizen and the government.

## ABC4Trust at a glance

### Project reference:

257782

### Project duration:

November 2010 – February 2015

### Partners:

12 partners from industry, academia, research centres and data protection authorities

### Costs:

€ 13.59 Million (€ 8.85 Million EU funded)

### Funding:

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### Want more info?

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