



## ClassMATE: Transforming the classroom into an Aml environment

### Overview

ClassMATE constitutes an integrated **architecture** for **pervasive computing environments**, used to transform the conventional classroom into a context-aware Aml environment. ClassMATE facilitates fundamental issues such as heterogeneous interoperability of Aml services, synchronous and asynchronous communication, resilience, security, context aware orchestration and ease of use in the intelligent classroom of the future.

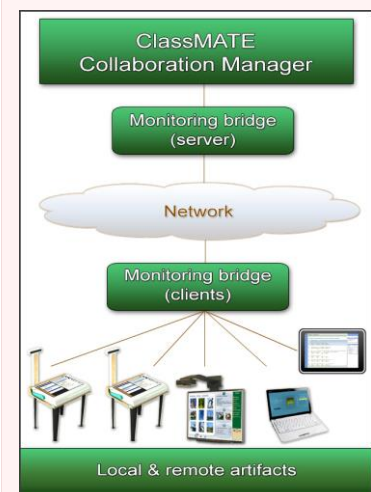
In particular, ClassMATE facilitates student's learning activities by simplifying everyday tasks and personalizing content to every individual learner. On the other hand, ClassMATE assists the teaching process by automating common teachers' activities (e.g., material distribution, homework collection, progress monitoring), thus permitting the teacher to better focus on the educational process.

In the context of the classroom, it is responsible for:

- transparent **content access** and **management** by any ClassMATE application and service to a centralized content repository
- **content classification**
- remote and local heterogeneous **device manipulation** (e.g., laptops, smart student's desks, smart teacher's desks, smart-boards, portable devices, etc.)
- **behavior monitoring** and **evaluation** of the classroom users (students and teachers)
- **orchestration** of collaborative activities
- **authorization management** of the intelligent classroom stakeholders (users and applications)



*ClassMATE pervasive computing and collaborative application infrastructure*



*ClassMATE orchestrates and controls the collaborative activities in the classroom*

### Target Domains

ClassMATE targets educational environments consisting of multiple devices and software agents in order to: (i) orchestrate their operation, (ii) simplify data exchange and (iii) support individualized and aggregated activity monitoring. Such environments may include not only formal educational environments (e.g., classrooms) but also informal setups as well (e.g., museums).

### Description

ClassMATE's core components are designed as distributed services that communicate through a common middleware.

- The **Context Manager** monitors the ambient environment and makes context-aware decisions that control the operation and collaboration of services and applications.
- The **Data Space** (i) implements a centralized content repository, providing transparent content access and management, and (ii) encapsulates a content classification mechanism and a sophisticated filtering mechanism for personalized content delivery.
- The **Device Manager** provides a generic mechanism for heterogeneous devices manipulation, both remote and local, by any ClassMATE-enabled application.
- The **User Profile** implements the classroom's users (students and teachers) behavior monitoring and evaluation.
- The **Security service** is responsible for the authorization management of the classroom's stakeholders (users and applications).



*ClassMATE augments the physical book content with additional semantically-related data and personalizes content delivery to meet the specific requirements of each individual learner*

## Additional Information

Additional information is available through the ClassMATE web page.

[www.ics.forth.gr/ami/project/classmate/](http://www.ics.forth.gr/ami/project/classmate/)



ClassMATE web page

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