

# Toccata: A Multi-Device System for Activity Scripting and Classroom Orchestration



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## LIRIS, SIGAL

The SIGAL team develops novel approaches, models and tools to improve humans' ability to interact and learn with technology. Our research tackles the following themes: social and collaborative learning, computer-human interaction design and appropriation, adaptable and adaptive systems using game or gamification principles.

<https://liris.cnrs.fr/equipe/sical>

## Expertise / Keywords

- Collaboration
- Orchestration
- Activity Based Computing
- Cross-device activities

## Context

- Rich ecosystem of devices in schools
- Numerous challenges in integrating digital devices
  - Time-consuming set-ups
  - Distributing content is cumbersome
  - Adjusting plans to the activity as it unfolds is difficult
  - Network and device management issues
- Activities are often hard-coded

## Goal/proposition

- A generic approach to support multi-device activities in classrooms
- Support Orchestration (scripting and conducting)
- Following Activity Based Computing principles
- Resilience to infrastructure/network problems
- Deployed in real classrooms

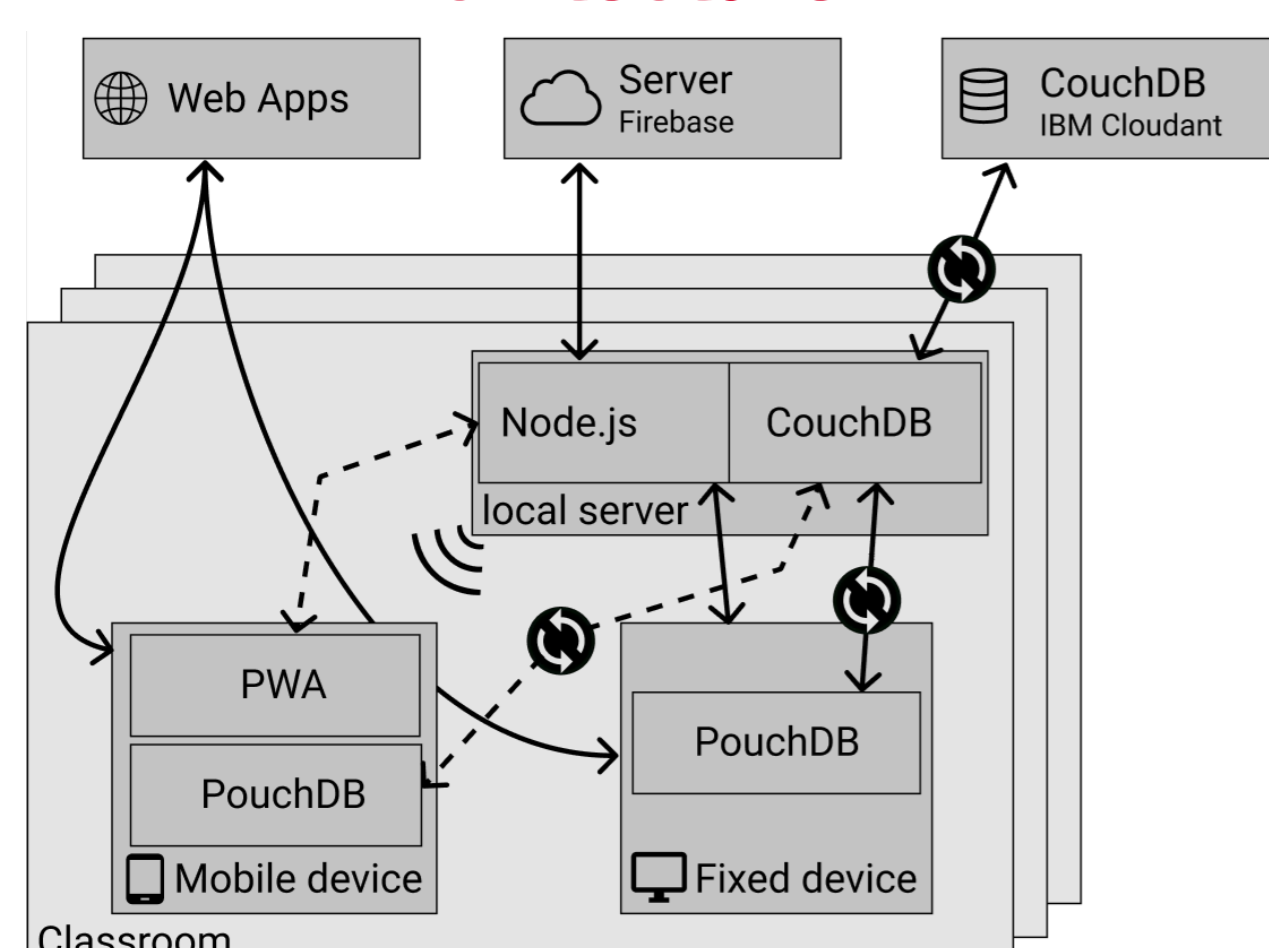
Live  
Demo

## Toccata

The screenshot shows the Toccata interface. At the top, there's a navigation bar with a menu icon, a breadcrumb trail 'Unknown journey > 1. Explorer's choice > (Group 1)', and a user profile icon. Below the navigation bar, there's a progress indicator with steps: '1. Explorer's choice', '2. Let's go!', '3. Travel conditions', '4. Arrival in unknown land', '5. Notebook ending', and 'New step'. The main content area is divided into three sections: 'Activity description' (with a sub-section for 'Christopher Columbus'), 'Applications and resources' (listing 'Form about explorers', 'Christopher Columbus', and 'Jacques Cartier'), and 'Notes (only teacher)'. On the right side, there's a sidebar with 'Participants' and a plus sign to add more. The background of the interface is a Wikipedia article about Christopher Columbus.

- Teachers can define the structure of pedagogical activities
- Teachers can distribute activities, follow and control students' progress, and modify activities
- Teachers can re-use and re-structure activities
- Toccata runs on any device and regardless network quality
- Build on Activity Based Computing and Orchestration principles

## Architecture



## Deployments

- Two sessions in a university
- Two sessions in a vocational school
- One multi-session lesson in a secondary school

## Project's urls

### Demonstrator :

<https://cscl.toccata.education>

### Documentation :

<https://docs.toccata.education>

### Code :

<https://gitlab.com/lachand/Toccata>

Live

Demo