

# Unplugged AI Tools:

## Activities to Teach AI Concepts in School

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MOBOTS Lab - Prof. Francesco Mondada

Project Type: Semester project for bachelor or master students

Section: IC or STI

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Availability: Negotiable number of students participating in the project

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### Context

Artificial Intelligence (AI) is becoming an integral part of daily life and the global economy, making it critical for young learners to gain a foundational understanding of AI concepts. "Unplugged" activities, or those that do not require computers, offer a solution by providing hands-on, conceptual learning opportunities that are accessible to all students, regardless of their access to technology. This project will create activities designed for primary and middle school students, helping them understand AI through interactive and physical activities.

This project aims to develop unplugged activities to introduce foundational AI concepts to primary and middle school students. These activities will be designed to make AI concepts accessible and engaging without the need for computers or technical equipment, making AI education more inclusive. The project will involve designing, testing, and refining educational activities that align with school curriculums and educational standards. By fostering early interest and understanding of AI, the project hopes to prepare the next generation of students for the digital world.

### Project Description:

#### **Phase 1: Research and Design**

- **Literature Review:** Conduct a literature review of existing unplugged activities for teaching computing and AI concepts, focusing on both the pedagogical approach and the alignment with learning objectives for primary and middle school students.
- **Activity Design:** Design unplugged activities that target different aspects of AI education, ensuring that each activity is age-appropriate and engaging for students in primary and middle school. Activities will focus on creative and collaborative learning, using physical objects (e.g., cards, boards, etc.) or student interaction to simulate AI processes.

#### **Phase 2: Prototype Development**

- **Activity Prototyping:** Create prototypes of each activity, including instructions, materials, and student engagement strategies.
- **Teacher Guides:** Develop detailed lesson plans and instructional guides to accompany each activity, explaining how to conduct the activity and link it to key AI concepts.

#### **Phase 3: Pilot Testing and Feedback (optional)**

- **School Collaborations:** Partner with primary and middle schools in Switzerland to pilot the activities in real classrooms. Collect qualitative and quantitative feedback from teachers and students regarding the effectiveness, engagement level, and educational value of the activities.
- **Iterative Refinement:** Refine the activities and guides based on feedback, optimizing them for clarity, engagement, and educational impact.