Constantine 2- Abdelhamid Mehri University
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Execution Plan for Practical Sessions (12 weeks)

Pedagogy Staff			
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1. Project Objectives (in Practical Sessions)

In the practical sessions of the AIoT course, projects will be carried out that integrate two key concepts: IoT and AI, within the domain of city governance. The main objective of these projects is to design a digital twin of urban infrastructure (e.g., transportation network, bridges, public buildings) integrated into an interactive Geoportal. This digital twin will be fed by real-time IoT sensors, enabling the visualization, management, and predictive analysis of the selected infrastructure. The tasks include:

1. 3D modeling of physical infrastructures.
2. Integration of IoT sensors to monitor the infrastructures in real time.
3. Analysis of data using Artificial Intelligence (AI) to predict failures.
4. Establishment of an interactive Geoportal for visualizing the infrastructures and associated data.

2. Organization of Practical Sessions:

- The practical session will be conducted in groups of 3 to 4 students.
- Each phase will be presented by a single student, designated by their peers in the group.
- The presentation can be made within the group itself or to the entire class.
- The presentation schedule will be established during the session preceding the presentation.

3. Work Plan

The work plan is as follows:

Phase 1: Preliminary Research and State of the Art

- **Duration:** 2 weeks (6-13/10/2024)
- **Objectives:**
    1. Understand the basic concepts of digital twins, Geoportals, and IoT sensors.
    2. Conduct research on the available tools and technologies (ArcGIS, QGIS, OpenLayers, IoT sensors, etc.).
    3. Choose and identify target infrastructures (e.g., a bridge, a park, or a transport network).
    4. Define the project requirements, especially the types of data to collect and the sensors needed.
- **Deliverables:**
    1. Research report on digital twins and Geoportals.
    2. Project requirements diagram (UML or other).
    3. Choice of tools and technologies to be used.