Summary of discussions with the coordinator

Date: October 24, 2025

Participants: Project coordinator (role), Supervising professor (role), Student (project author)

Subject

Adapting the bachelor's thesis concept to increase feasibility and integration with available laboratory resources—narrowing the scope to a "kitchen" environment and using the Pepper robot as an assistant/orchestration manager.

Proposal (in brief)

• Thematic restriction to the kitchen for feasibility.

• Object/ingredient detection using YOLOv8 (on edge server)—Pepper acts as orchestrator/voice feedback.

• Extended goal: automated workflow (e.g., omelet preparation) in which Pepper coordinates IoT devices.

Comments received from discussions

• The object detection component is feasible, and basic implementations exist.

• The actual implementation of object manipulation (robotic arm) is not available in the current laboratory; simulators or robots from other laboratories/collaborations can be used.

• Effective control/execution of actions would require manipulator robots (collaboration with facilities that have such equipment).

• Scientific publication does not strictly depend on testing on a real robot; what matters is the scientific and methodological contribution (model, integration, evaluation).

Decisions and action plan

1. Phasing: start with development on the simulator for the robotics and orchestration part.

2. Object detection: YOLOv8 implementation on edge server; Pepper receives results via API/MQTT.

3. IoT orchestration: Pepper (or an orchestration server) sends commands to smart devices (e.g., stove, mixer)—initial simulation; hardware integration if available.

4. Scientific validation: focus on methodology (algorithms, ML + IoT integration, evaluation), with the aim of eventual publication; the simulator is acceptable for scientific results if the experiment is well designed.

5. Collaborations: possibility of testing on real robots through internal/external collaborations, if necessary at a later stage.

Success criteria (acceptance)

• Functional object detection in a restricted environment (kitchen).

• Complete orchestration of the flow (simulated or minimal real path) with voice feedback.

• Complete logging of actions and errors; reproducible demonstration.

• Clear documentation of the method and results for publication/presentation.

Final notes

The project is reduced to a feasible, modular, and reproducible size—it can be extended to physical manipulation if additional resources are available. The simulator provides a fast way to prototype and generate scientific results if the methodology and evaluation are rigorous.