

Master Thesis / Research Project - Intelligent Service Robotics in Clinical Environments

Integrating service robots into the clinical workflow offer immense potential to reduce nursing workload especially on repetitive and tedious tasks.

At the same time patient experience and orientation in clinical settings can be improved through additional AI assistance systems.

This project focuses on deploying and evaluating a TEMI v3 service robot to assist patients with navigation and filling predefined questionnaires in a simulated hospital environment.

Key Tasks & Research Objectives

Navigation Evaluation: Test TEMI's integrated autonomous navigation and obstacle avoidance for finding its way through corridors and waiting areas.

LLM Avatar & Speech Interface: Deploy an interactive avatar interface on the TEMI Android platform connected to local LLM, Speech-to-Text (STT), and Text-to-Speech (TTS) pipelines.

Structured Intake Conversational Flow: Implement conversational routines for patient orientation and pre-screening (e.g. guidance through the hospital, "have you eaten today?").

System Evaluation: Conduct usability testing and evaluation with volunteers/patient representatives focusing on user trust, response latency, and interaction quality.

Desired Qualifications:

Background in Computer Science, Medical Engineering, Computational Engineering, or related fields

Experience with Python and local LLM/Speech frameworks (e.g., Ollama, vLLM, Whisper)

Nice to have: Basic knowledge of Android development (Kotlin/Java) or Unity is a plus but not mandatory

Interest in Human-Robot Interaction (HRI) and user study evaluation.

Interested? Please send your application (CV, taken subjects, and relevant project experience) to: AIRO.ST@uk-erlangen.de

The robot should be available from end of september, the thesis / project could start after that.