HRIStudio

A Framework for Wizard-of-Oz Experiments in Human-Robot Interaction Studies

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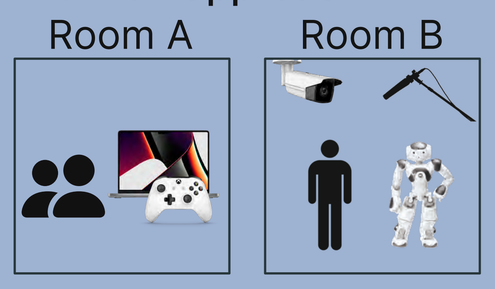
Motivation and Background

The Wizard-of-Oz (WoZ) method is a powerful solution in the field of human-robot interaction (HRI). It allows evaluation and refinement solutions before full implementations, bringing agility to development. However, WoZ is fraught with methodological challenges that can compromise the credibility and reproducibility of experiments. In this project, we propose HRIStudio, a framework to automate, record, and track of documents related to WoZ experiments, making the method more broadly acceptable and rigorous.

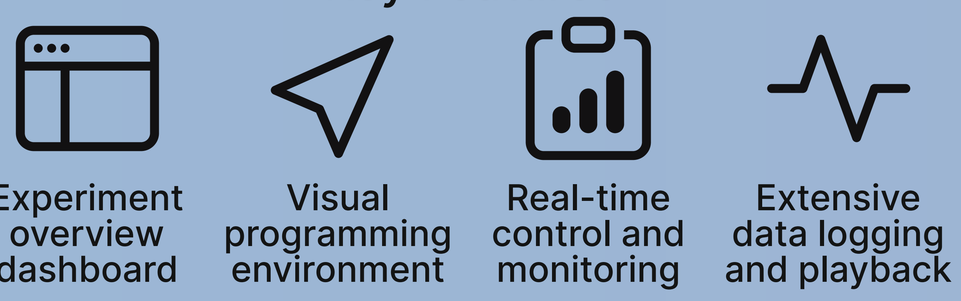
The WoZ approach in HRI



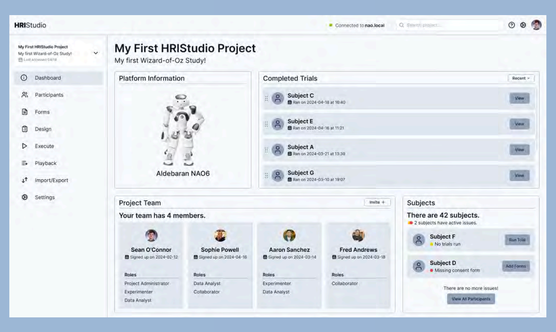
Design and Features

HRIStudio is a web-based platform for intuitive WoZ experiment design and execution, being developed with portability and ease of deployment in mind.

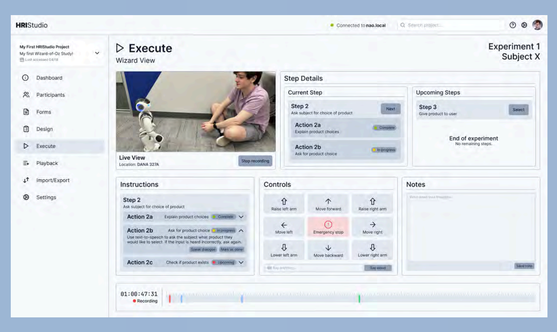
Key Features



The platform offers user-friendly interfaces for experiment design, execution, and playback, easing entry into HRI research.



Dashboard view



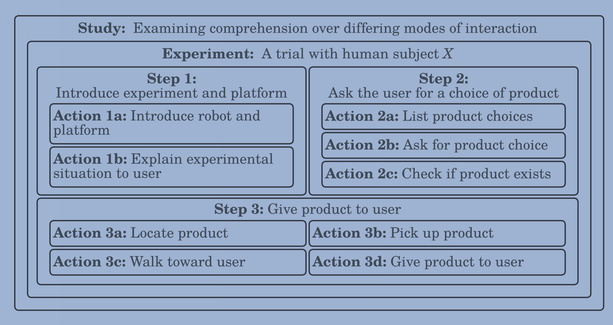
Execute view

Experiment Structure

HRIStudio uses a hierarchical structure to define user studies.

Study → Experiment → Step → Action

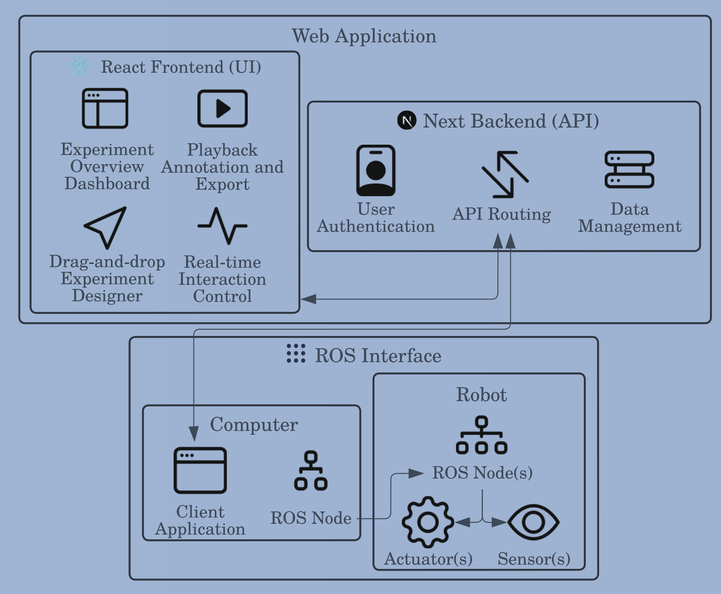
This design enables flexible, event-driven execution, allowing natural interactions across replications with different users.



An example experiment's layout

System Architecture

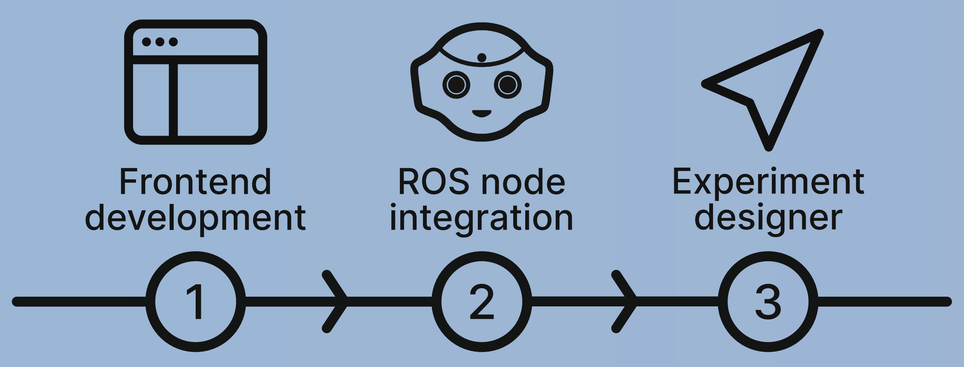
Our system integrates a web frontend with a Next.js backend API and ROS node, enabling integration with various robotic platforms through a modular architecture.



HRIStudio system architecture

Development Roadmap

Our development roadmap focuses on building core functionalities.



Challenges include seamless integration of web and robot control modules, and creating a visual programming environment.

Link to Paper

For a detailed overview of HRIStudio's design, implementation, and application, please refer to our full paper available here.