

CAADRIA WORKSHOP

Exploring Augmented Reality (AR)-enabled Human-Robotic Collaboration system for Collaborative Assembly Tasks

WORKSHOP FACILITATORS



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WORKSHOP RESOURCES



Github (Workshop Resource)
https://github.com/LoyWeiWin/AR-HRC_CAADRIA2024_Workshop



Discord (For Communication)
<https://discord.gg/n4jzrdYJky>

LEARNING OBJECTIVES

- Participants will learn the **basic concepts of human-robot collaboration (HRC)**
- Participants will **learn about the intricacies surrounding collaborative assembly routines** (either with human collaborators or robotic arms).
- Participants will **learn to author and prototype robotic workflows and simulations**
- Participants will be able to **think independently about novel robotic workflow concepts**
- Participants will be able to **experimentally validate their concepts in a full-scale prototype.**



Image: Asking the cooperative robotic arm, UR10 to hold my wooden block. Source: Author, 2023.

RESEARCH MOTIVATION

“How collaborative robots can be integrated into a flexible design-fabrication scenario via AR interface to provide a helping hand to creative architectural designer(s)?”



Image: Asking the cooperative robotic arm, UR10 to hold my wooden block. Source: Author, 2023.

RESEARCH CONTEXT

Why Collaborative Robot? Why Augmented Reality?

The primary goal of this module is to investigate the capabilities of augmented reality (AR) in facilitating human-robot collaboration (HRC) within fabrication-centric design methodologies, specifically emphasizing collaborative assembly tasks.

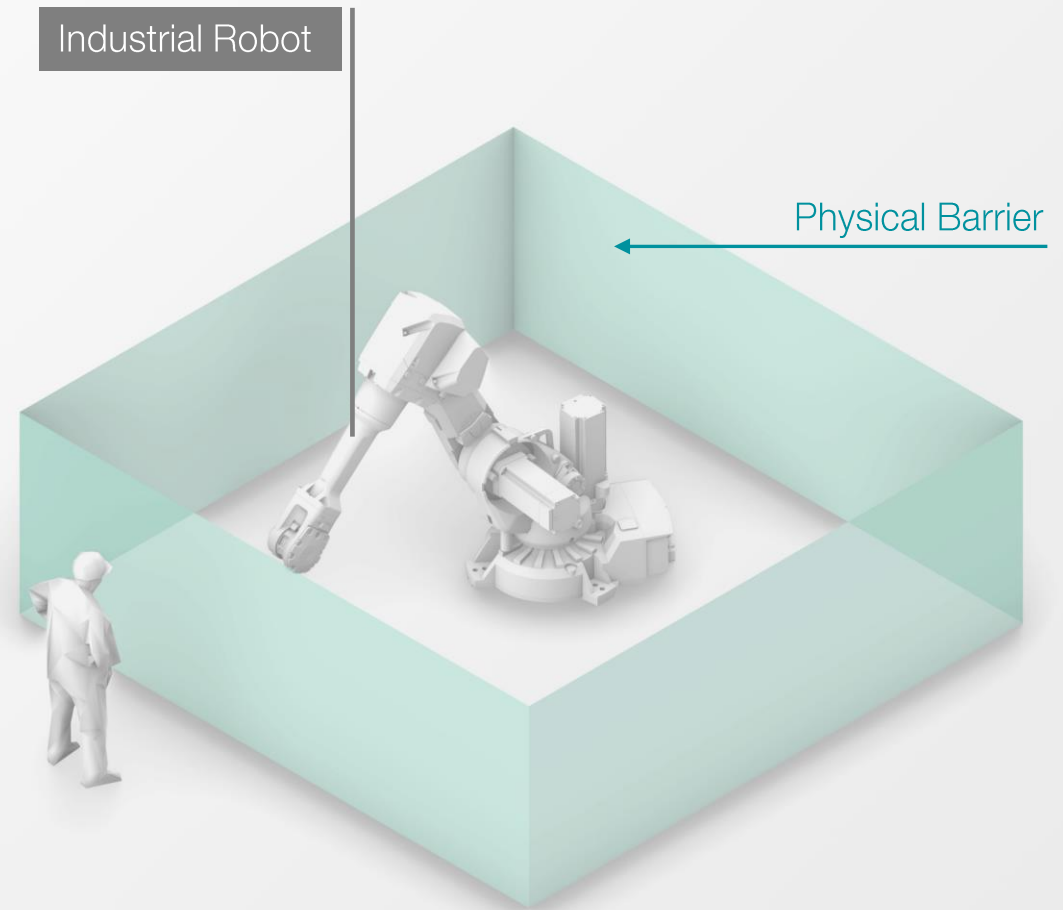


Image: The setout of industrial robotics often prohibit working closely with human operators.

Source: Author, 2023.

CAADRIA WORKSHOP SCHEUDLE

Augmented Reality (AR) – enabled Human-Robot Collaboration (HRC)

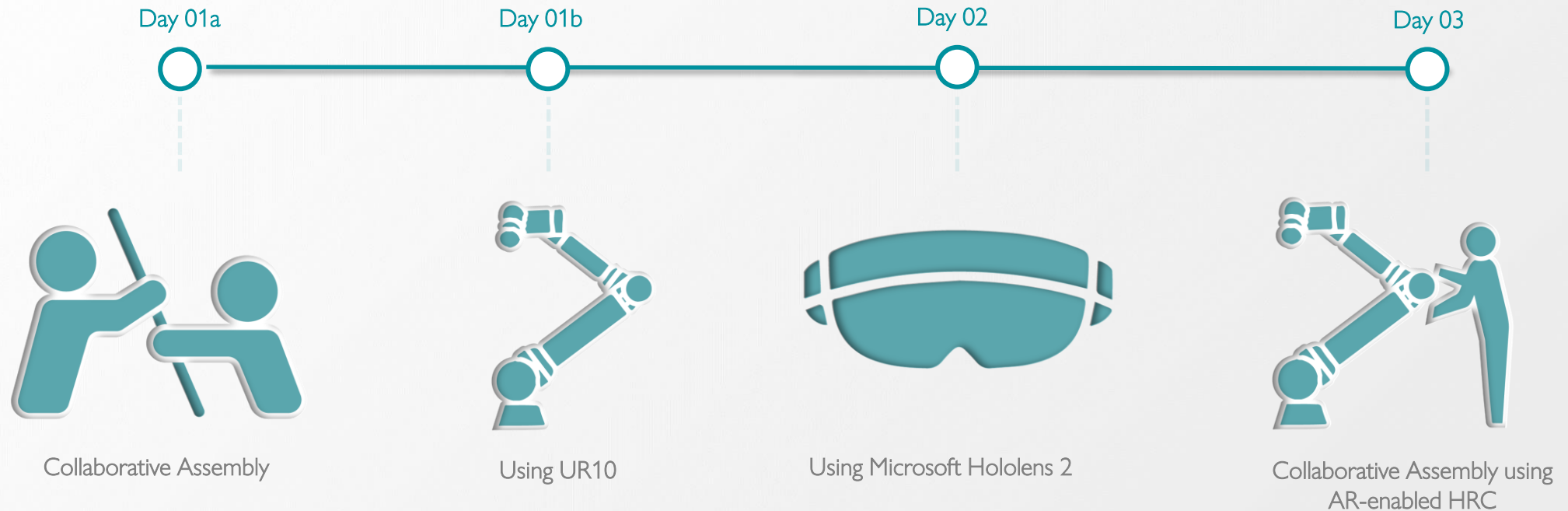


Image: Overall Schedule for CAADRIA Workshop 2024 – AR-enabled HRC for Collaborative Assembly Tasks. Source: Author 2024.

CONSENT FORM

Your participation is **completely voluntary**** and agree for the CAADRIA workshop to be **audio and video recorded**.

** If you wish to withdraw your consent to participate please ask the research team for the withdrawal of consent form. Your withdrawal **will not jeopardise** your relationship with QUT.

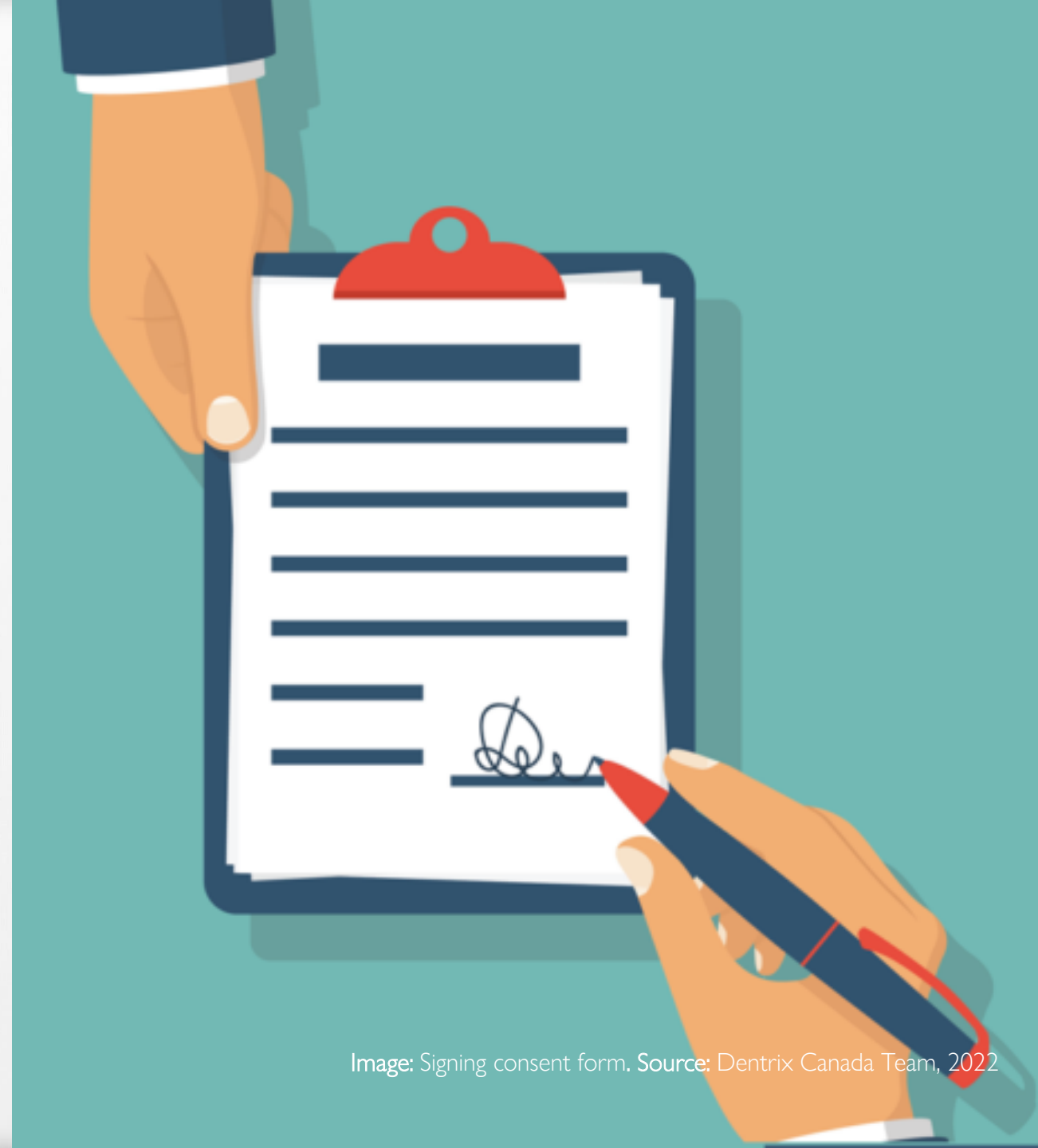


Image: Signing consent form. Source: Dentrix Canada Team, 2022

BREAK & WILL BE BACK

10 minutes (make sure you have *stay hydrated*)