MICHIGAN STATE UNIVERSITY

Beta Presentation

Robotic Job Coaching

The Capstone Experience

Team Michigan State University CSE

Adam Cohen
Kaiwen Jiang
Olivia Pal
Stavro Polis
Kyle Roleson
Ekene Umobi

Department of Computer Science and Engineering
Michigan State University

Fall 2024

From Students…
…to Professionals

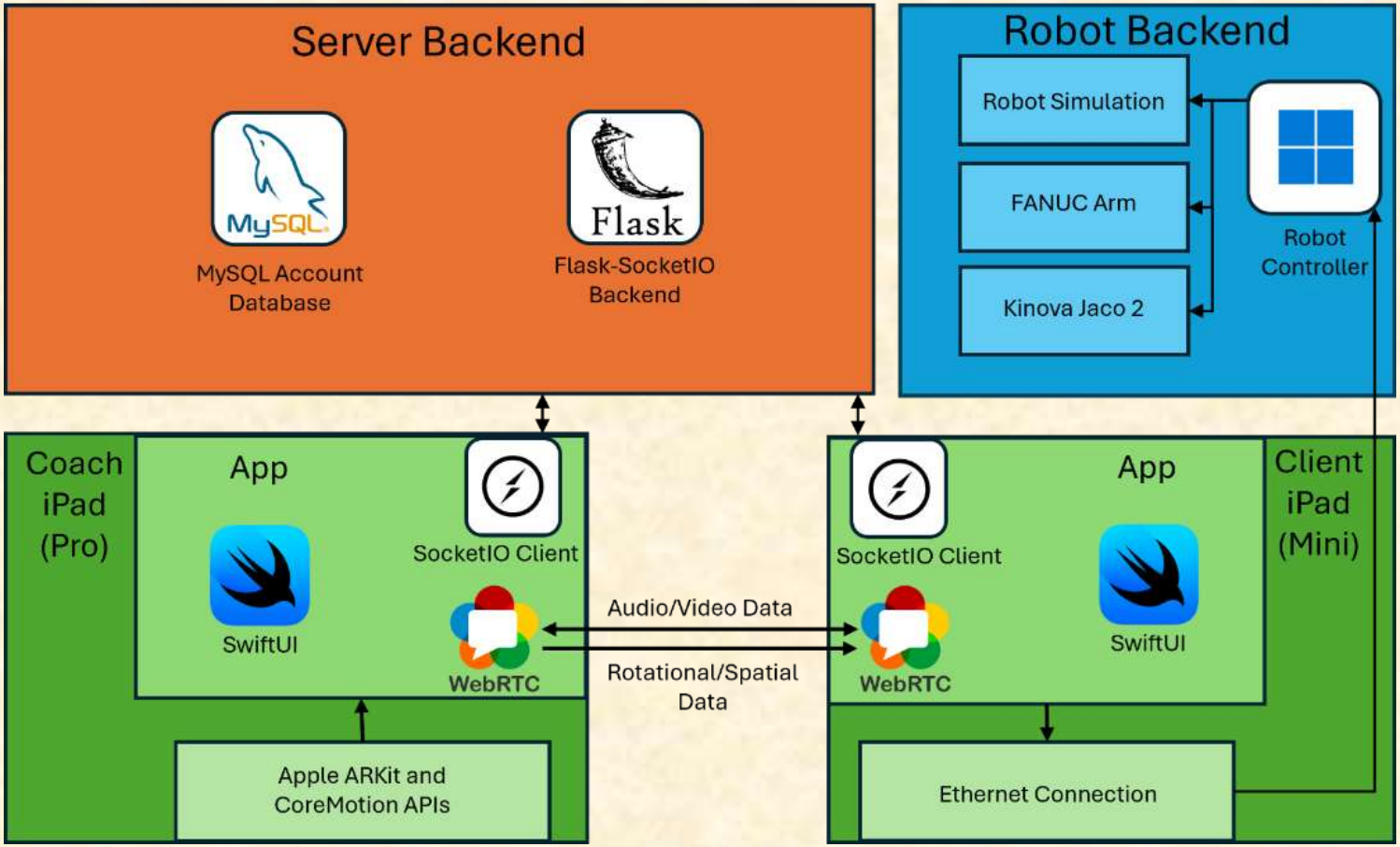
Project Overview: Problem

- In-person job coaching is inefficient
  - One coach can only manage so many clients
  - May be significant time delay in receiving assistance
  - Limits how much attention each client can receive
- Existing virtual job coaching also has issues
  - The coach has a static view of the work area
  - The coach can’t gain a proper understanding of their surroundings or the work

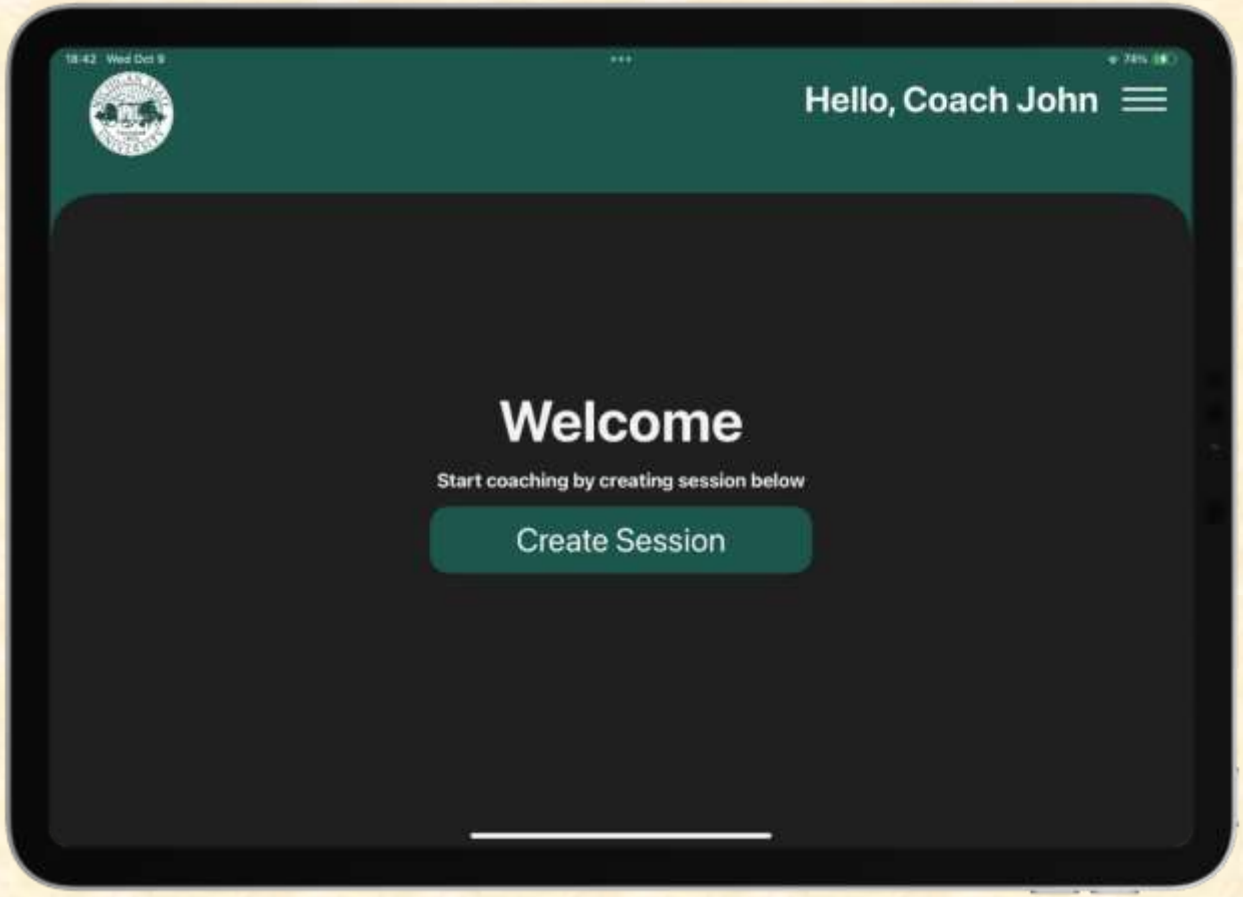
Project Overview: Solution

- Streamline connecting job coaches and clients with an iOS application
  - Job coach can assist many people simultaneously
  - Improved availability to assist clients
- Allow coach to remotely control their view using a robotic arm
  - No longer reliant on the client to manage the camera
  - Can freely and intuitively observe the work area without interruption
- Improved experience for both parties, especially for clients with cognitive disabilities

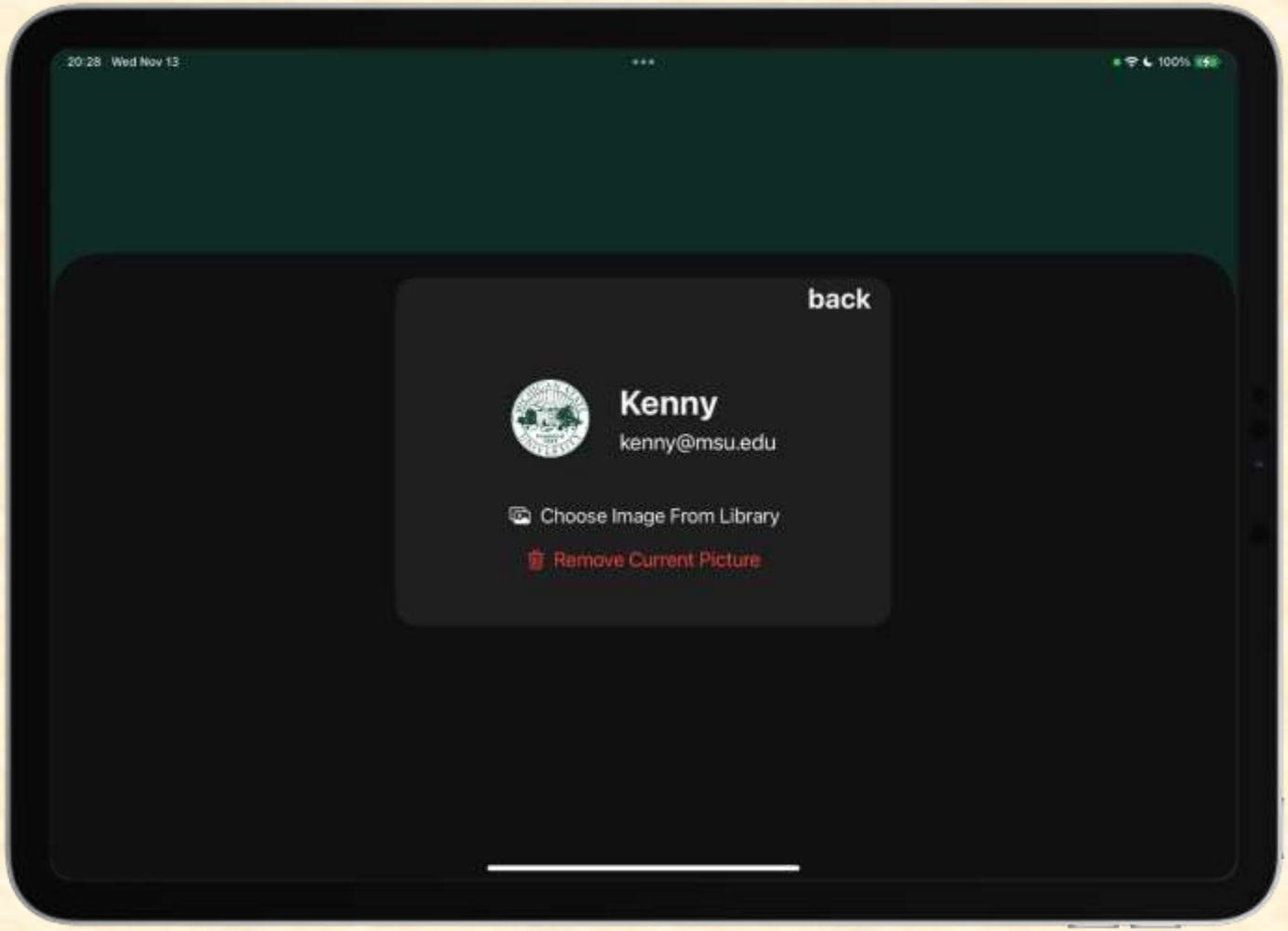
System Architecture



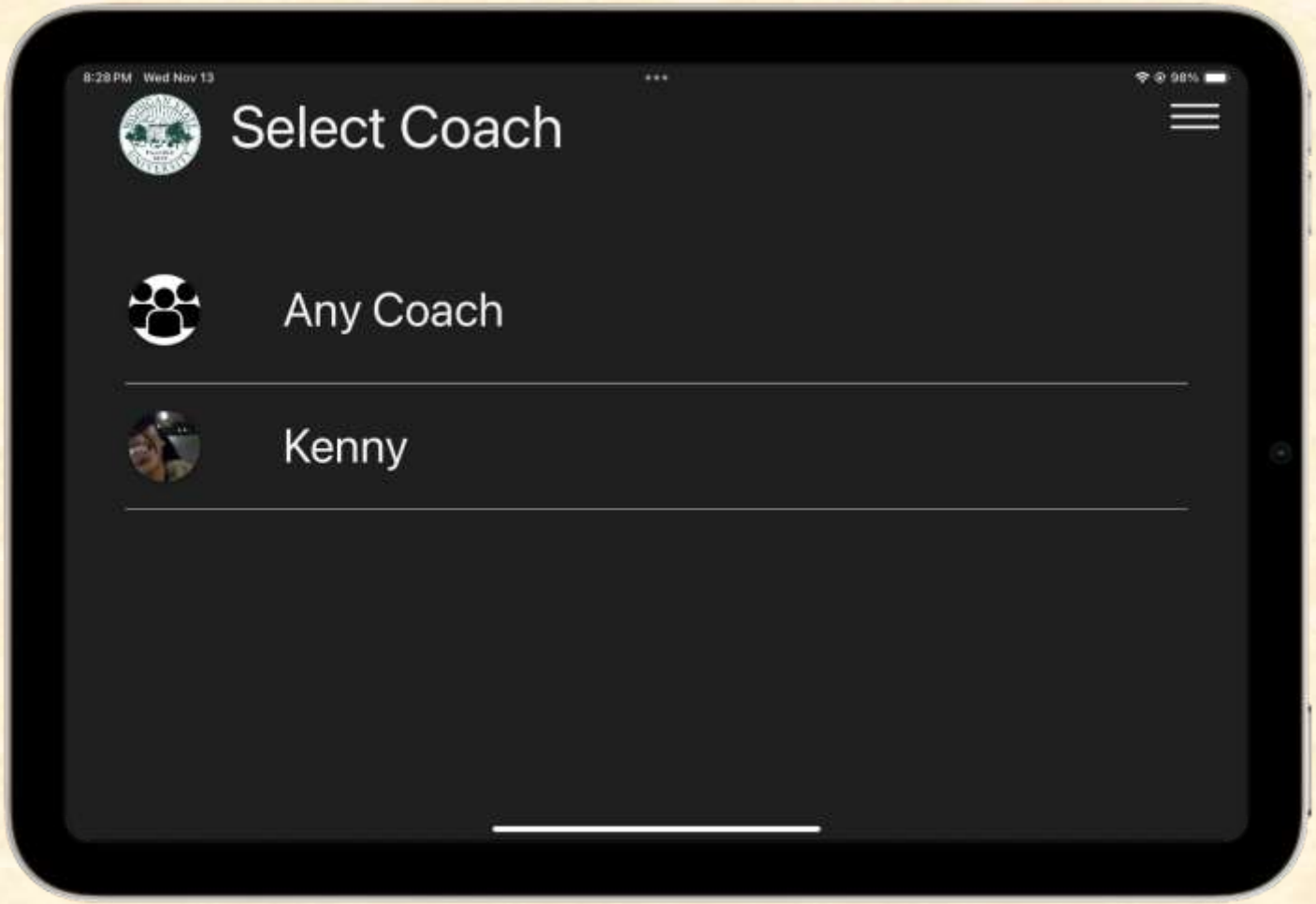
Create Session Screen



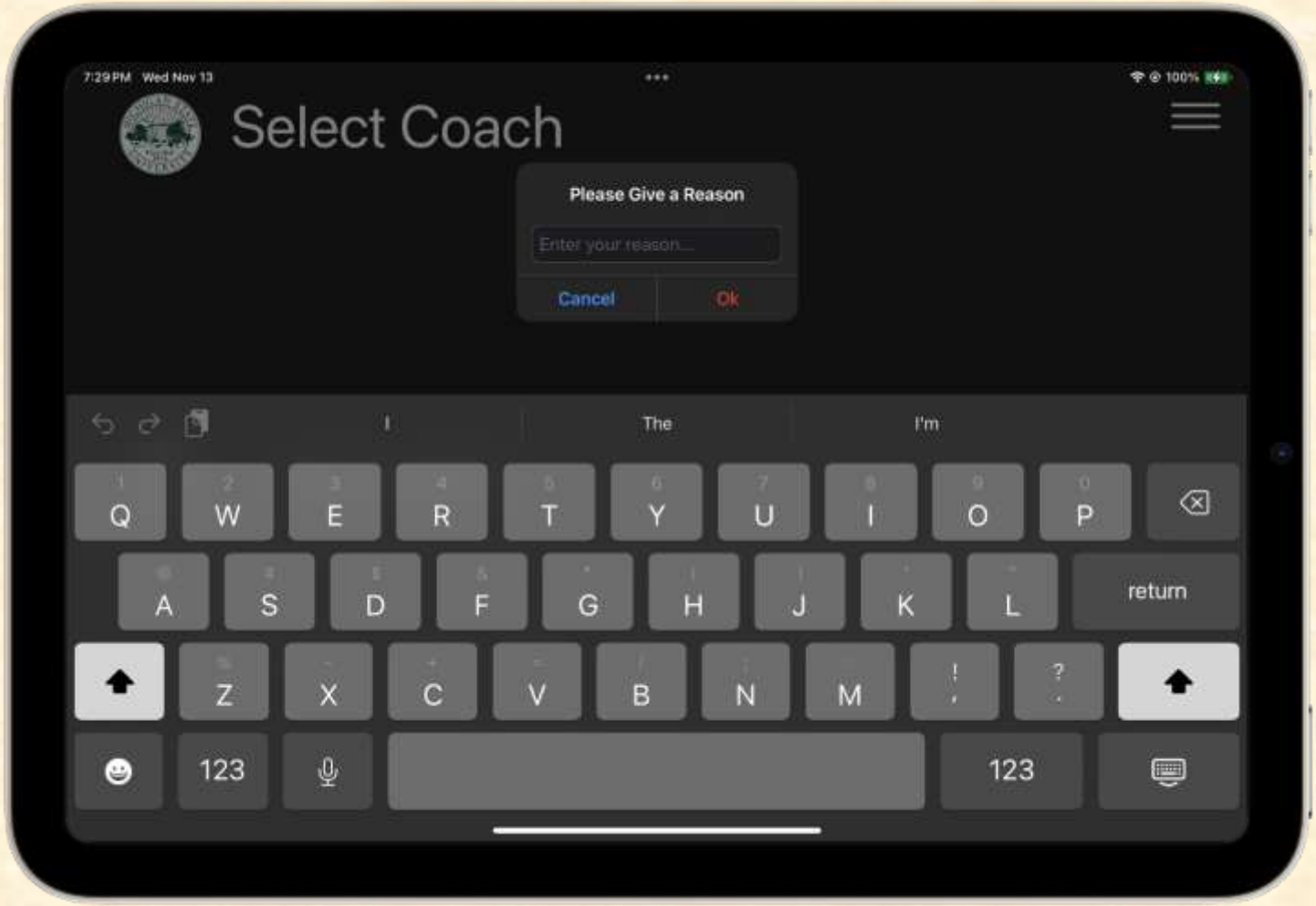
Set Profile Picture



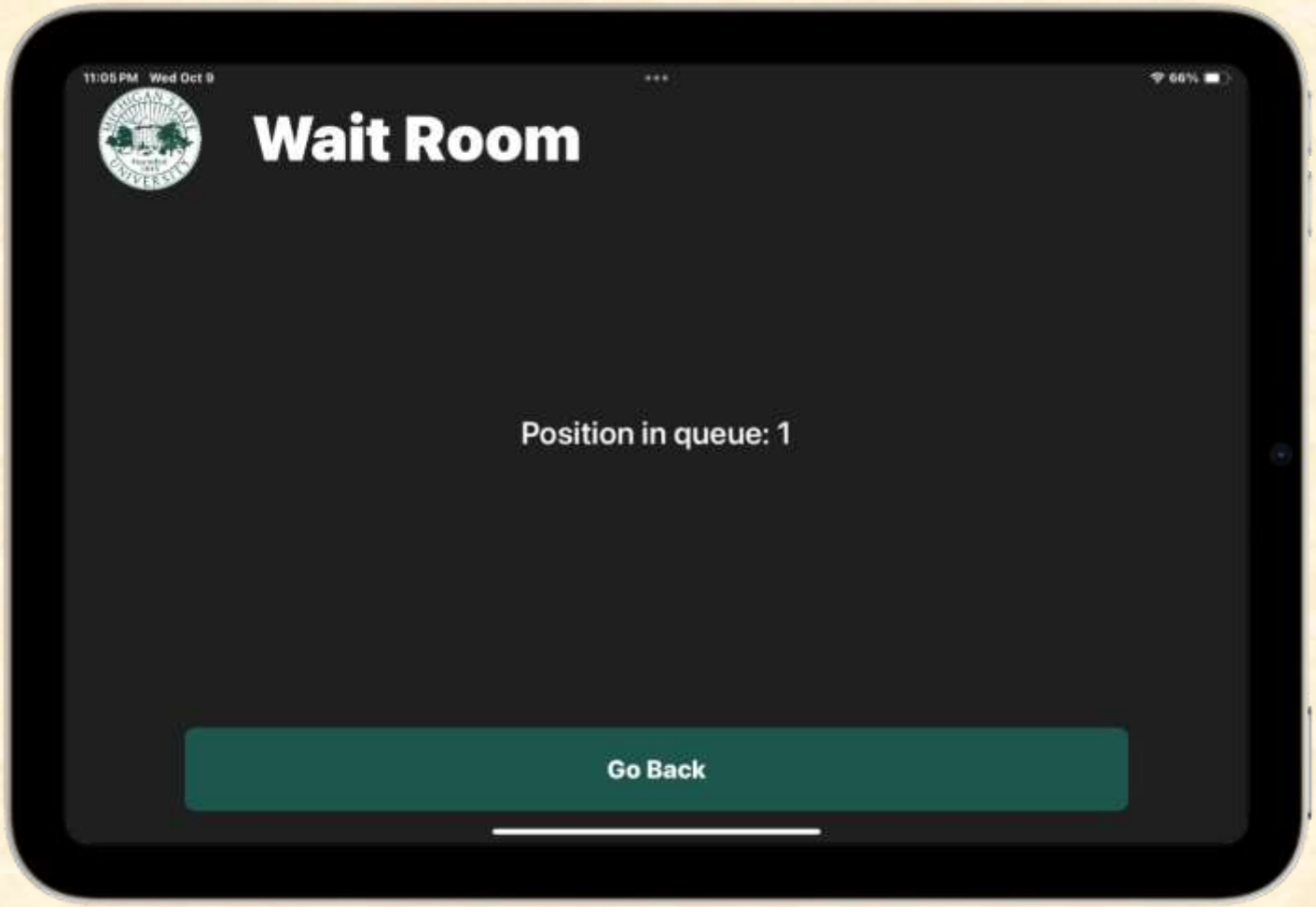
Select Coach Screen



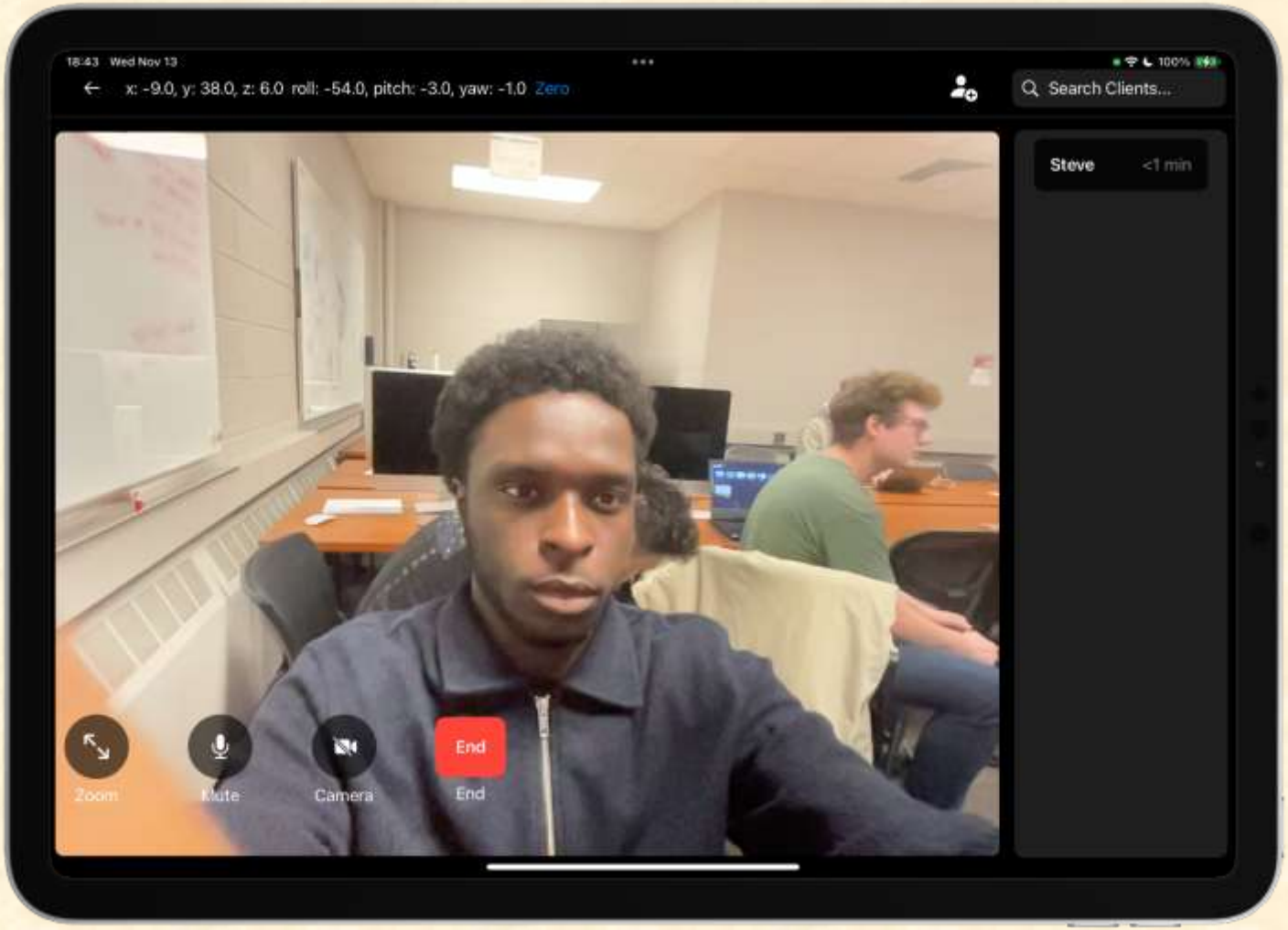
Enter Reason For Help



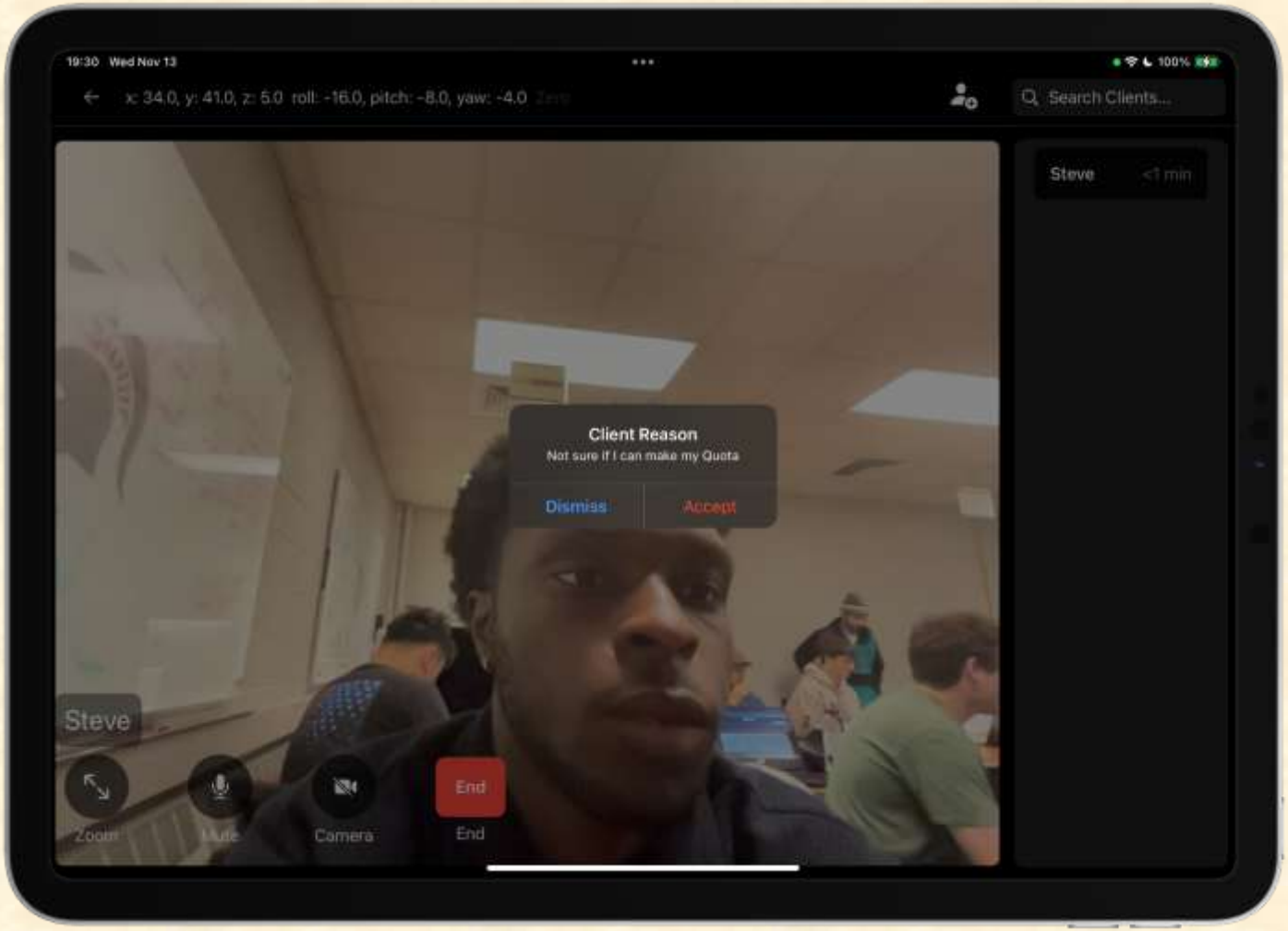
Waiting Room



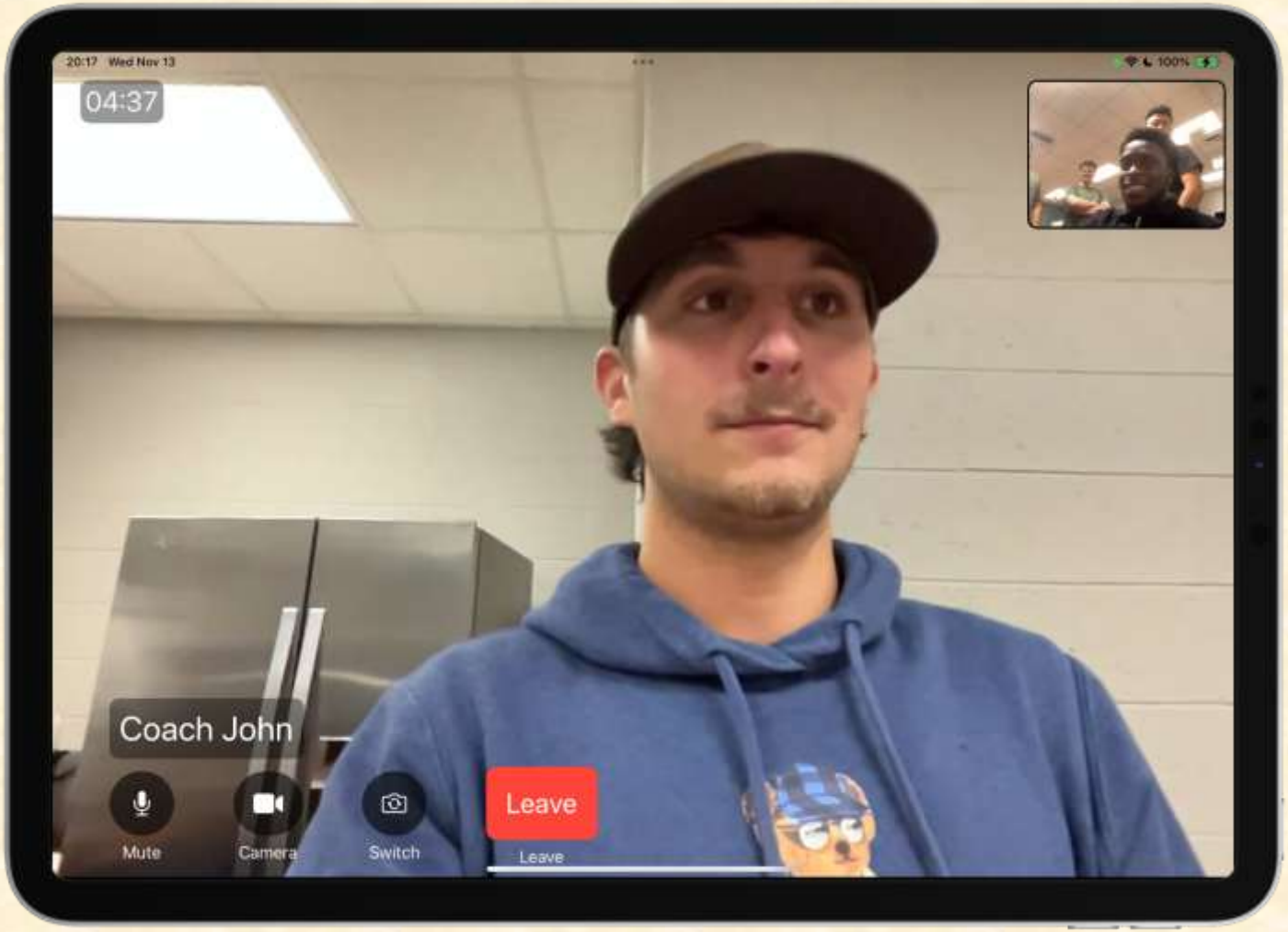
Conference Screen (Coach)



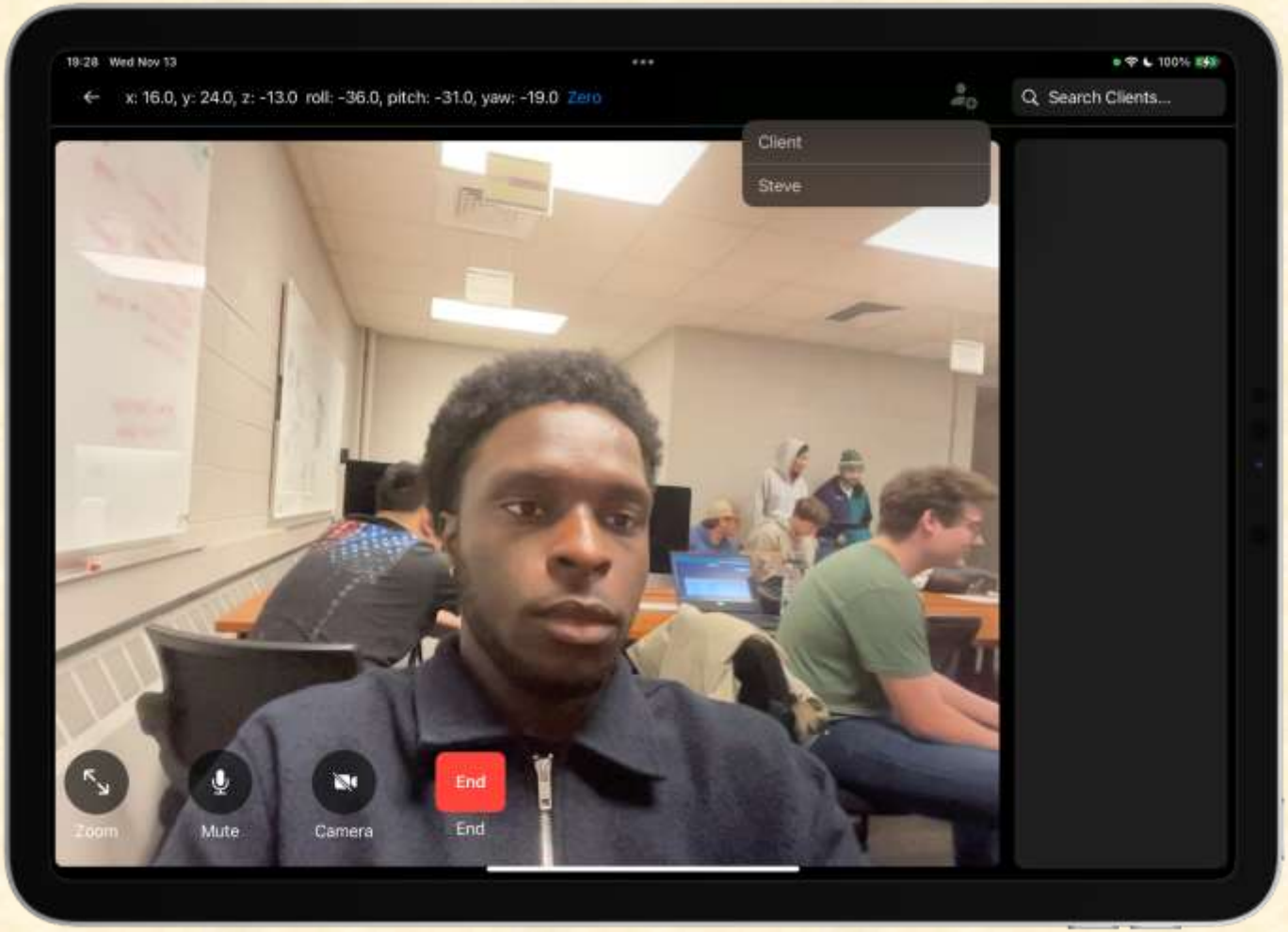
View Client's Reason



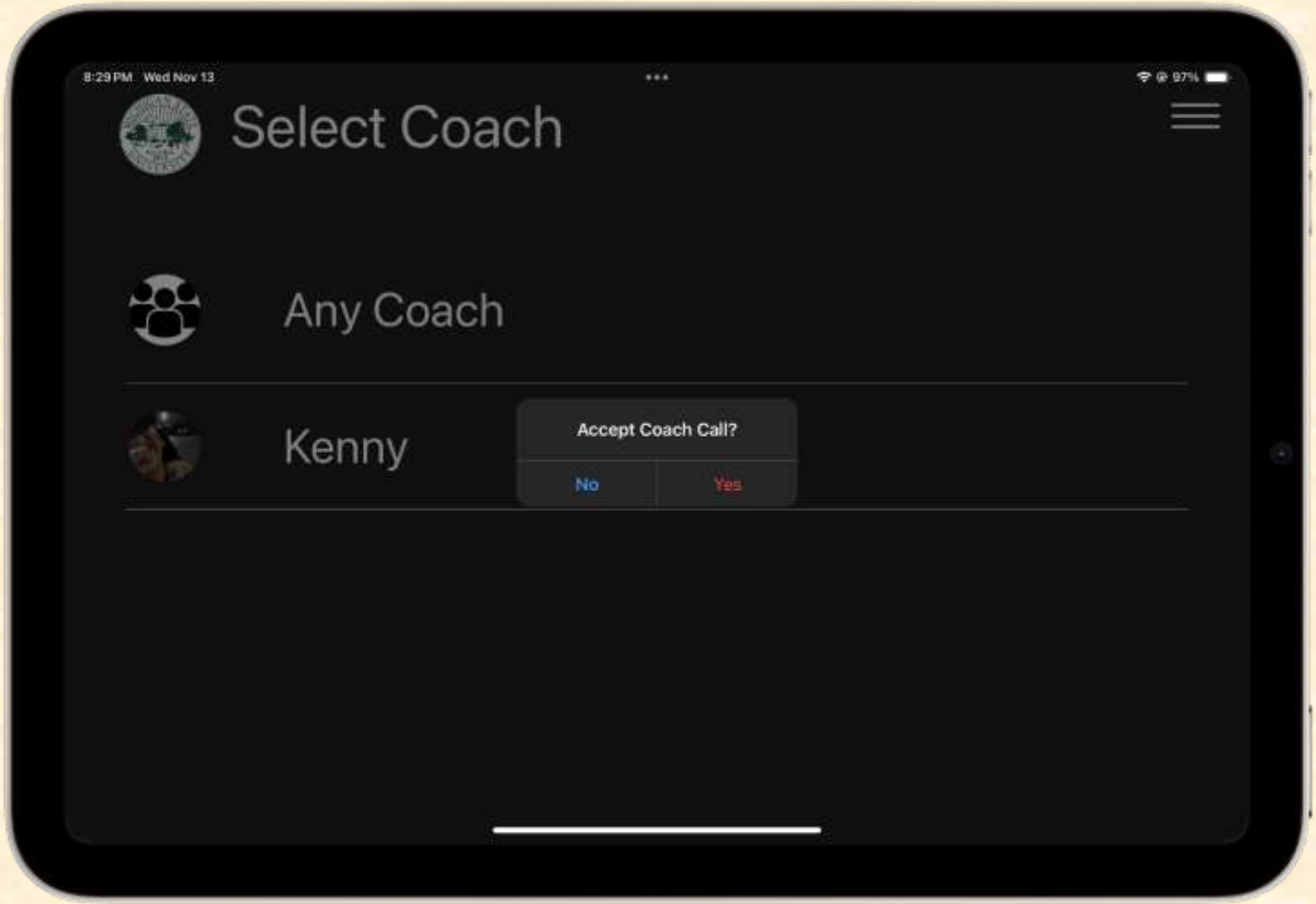
Conference Screen (Client)



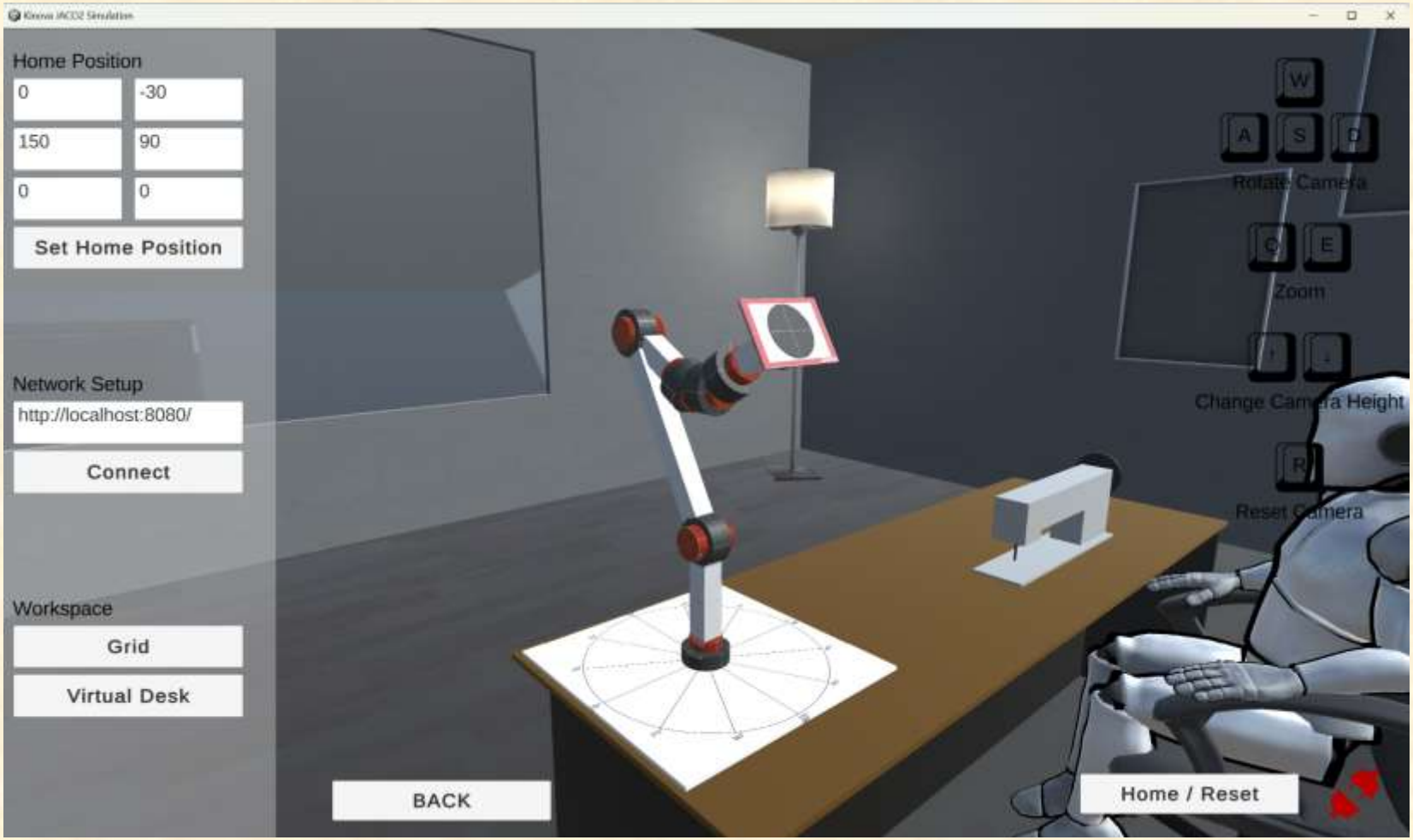
Reverse Call Option



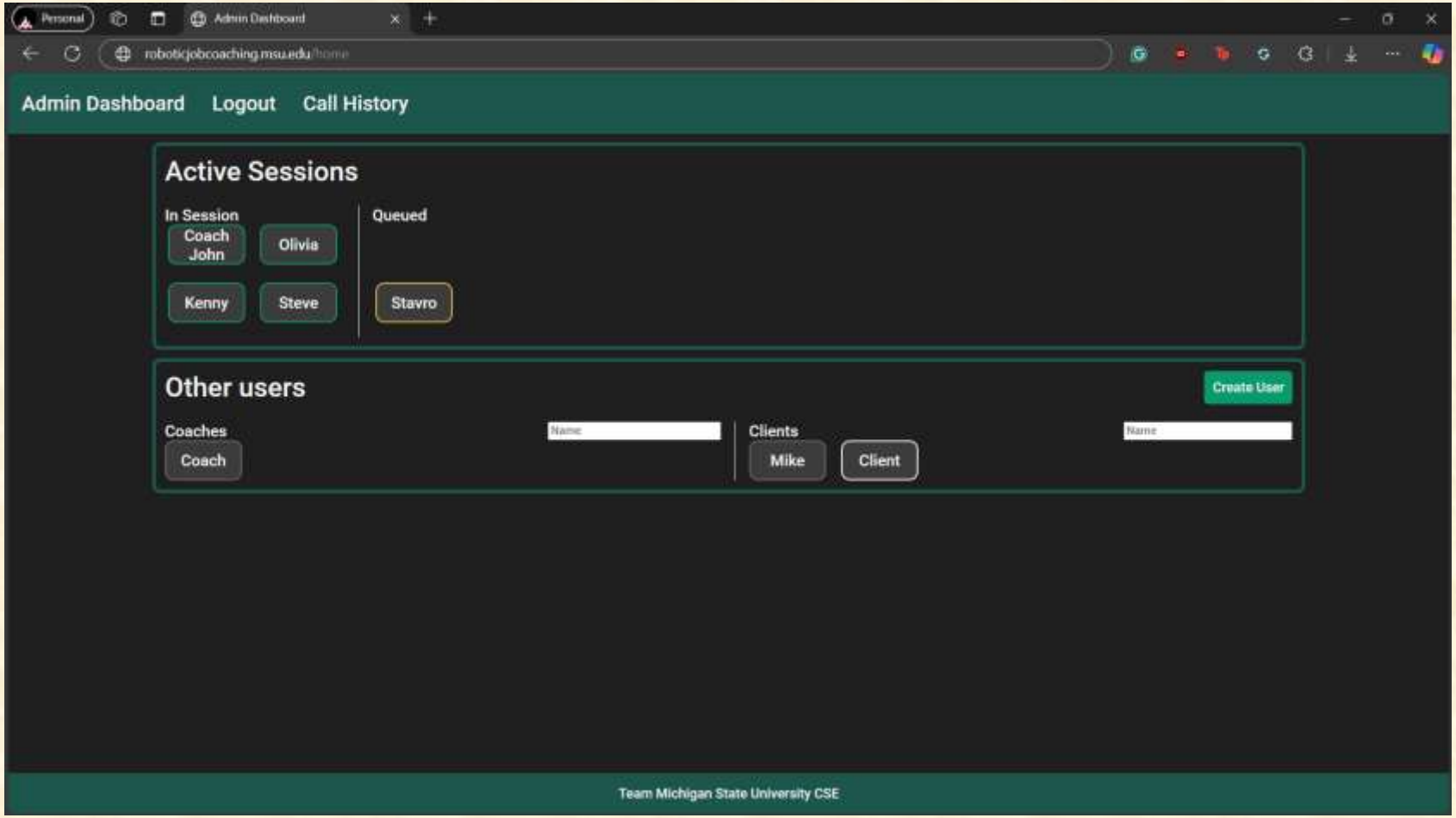
Accept Reverse Call



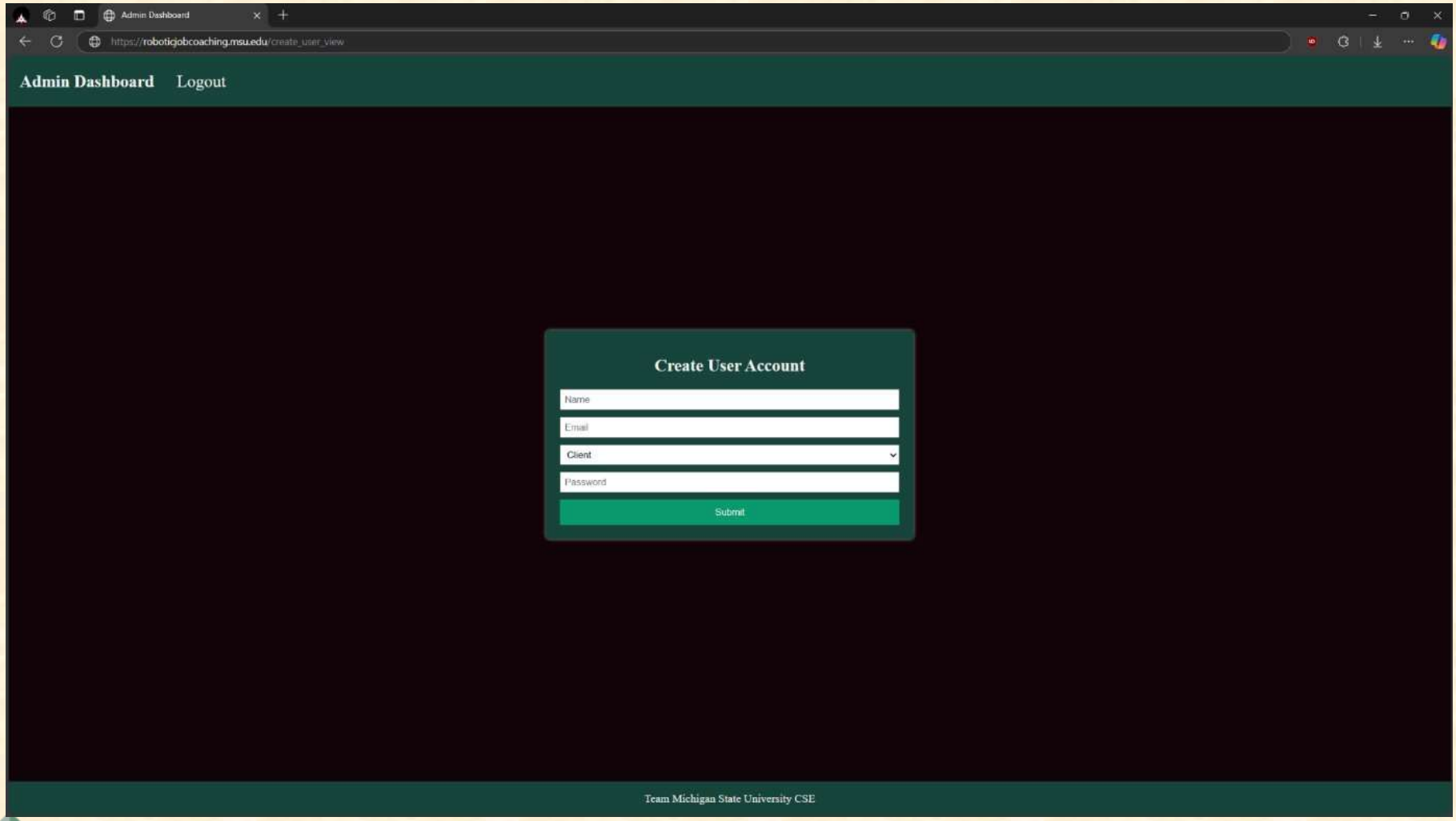
Kinova Jaco 2 Simulator



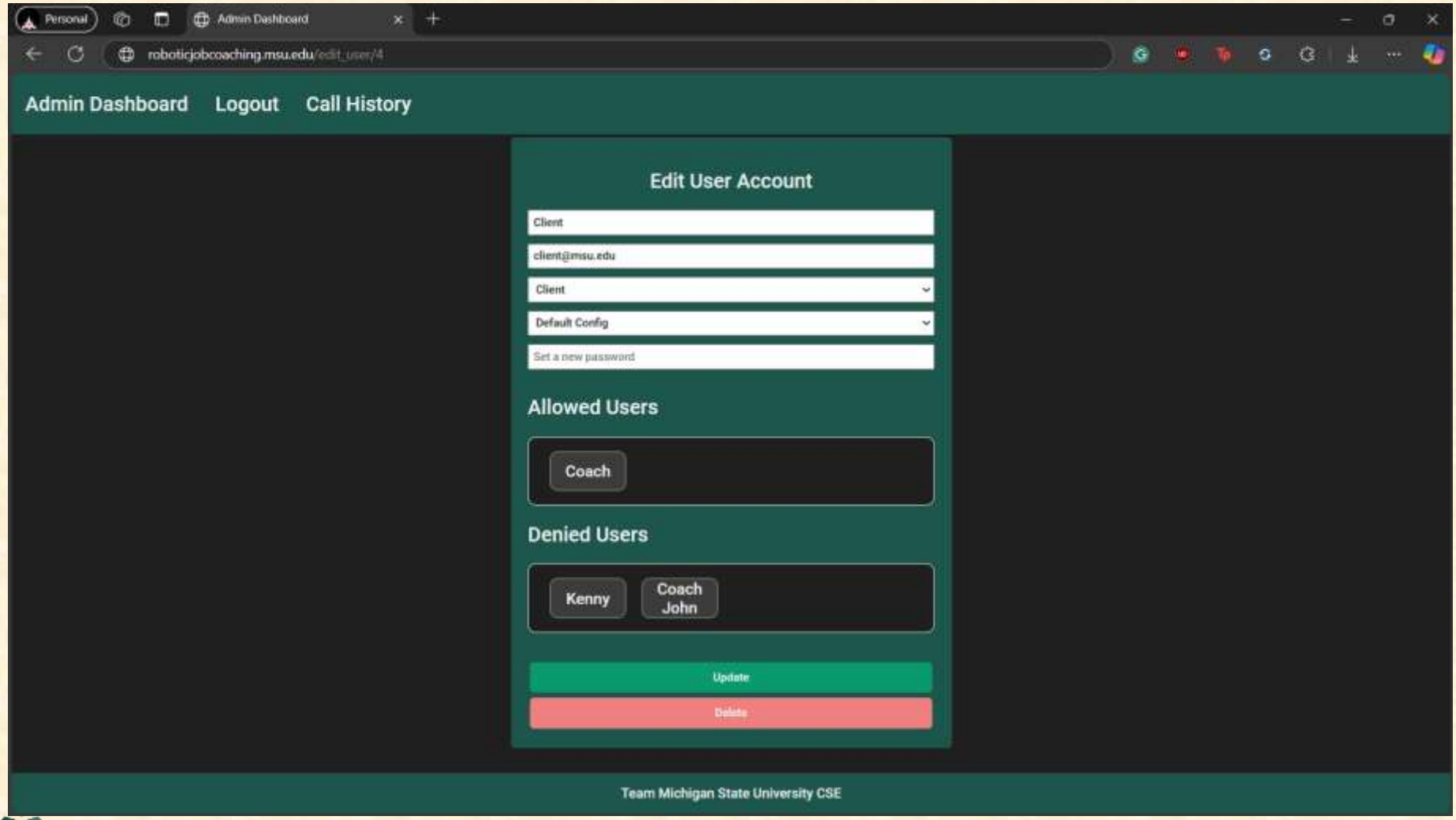
Admin Home Page



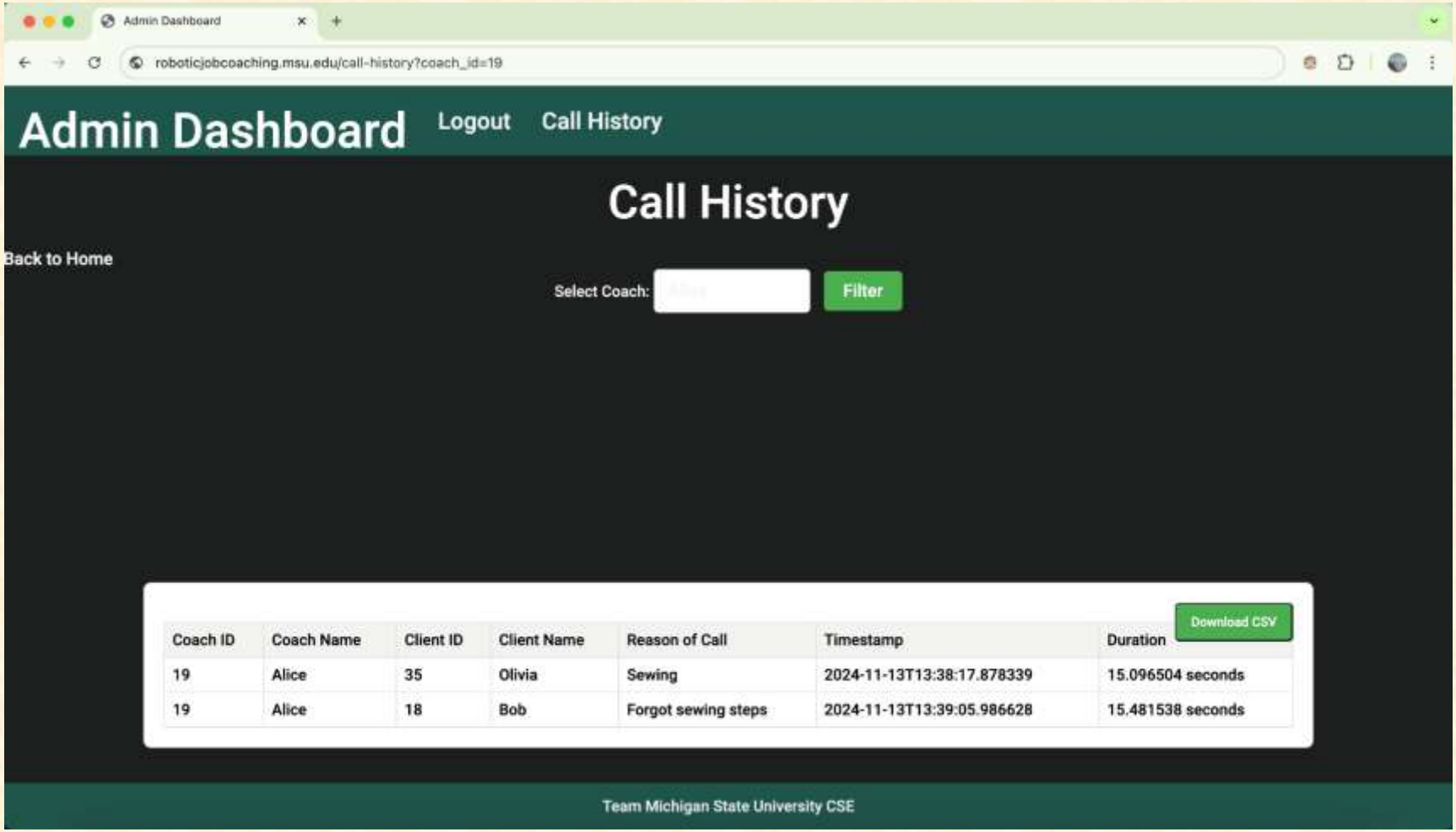
Create User Page



Edit User Page



Call Logs Page



What's left to do?

- Stretch Goals
  - TURN server
  - Recording calls
  - Have way for a client to re-convey urgency
  - Laser indicator
- Other Tasks
  - Fix edge-cases relating to event de-sync on visualization
  - If we get a robot, implement with it

Questions?