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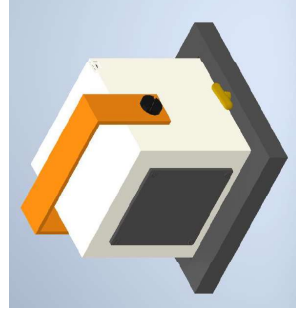
Mentor(s): Kathryn Lieffrig, Stephen Gilbert, Ph.D.

### Ergonomic Assessment via Virtual Reality: Is it Possible?

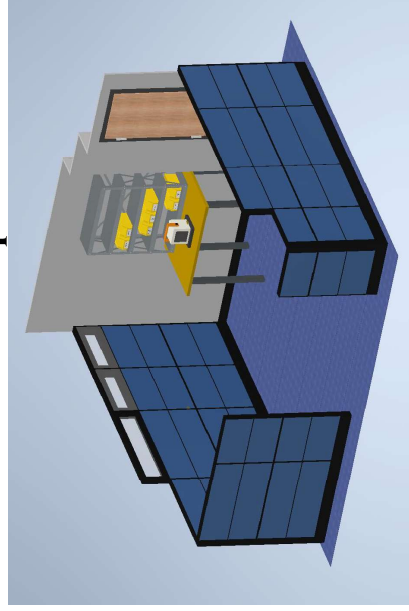
#### The Challenge

To determine if virtual reality ergonomic assessments are a statistically equivalent substitute to physical ergonomic assessments.

#### PEAT: Portable Ergonomic Assessment Tool



#### Virtual Workspace



#### Data Collection Tools

##### Human Tech:

Video-based tool that uses outline drawings to make ergonomic assessments

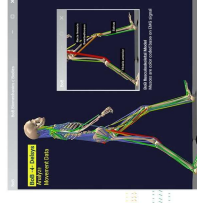


##### REBA and RULA Assessments:

Ergonomic assessments that evaluate body angles

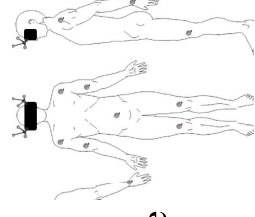
##### DELSYS System

Square shaped electromyography sensors that track body movements



##### Advanced Realtime System (ART)

Small balls tracked by infrared cameras that produce coordinates in space



#### Methods

##### TRIAL 1: Real Assembly

- Assemble PEAT while standing at the workbench
- Video recording of participant
  - Baseline Cycle Time
- Participants become familiar with assembly

##### TRIAL 2: Real Assembly Again

- Participants tracked with DELSYS and ART systems to perform a motion analysis while standing at a physical workbench.
- A video will be taken of participant:
  - Human Tech Analysis
  - REBA & RULA Assessment

##### TRIAL 3: Virtual Assembly

- Assembly will be done in virtual environment modeled after the physical workspace
- Participants tracked with DELSYS and ART system to perform a motion analysis.
- Video recording of participant:
  - Human Tech Analysis
  - REBA & RULA Assessment