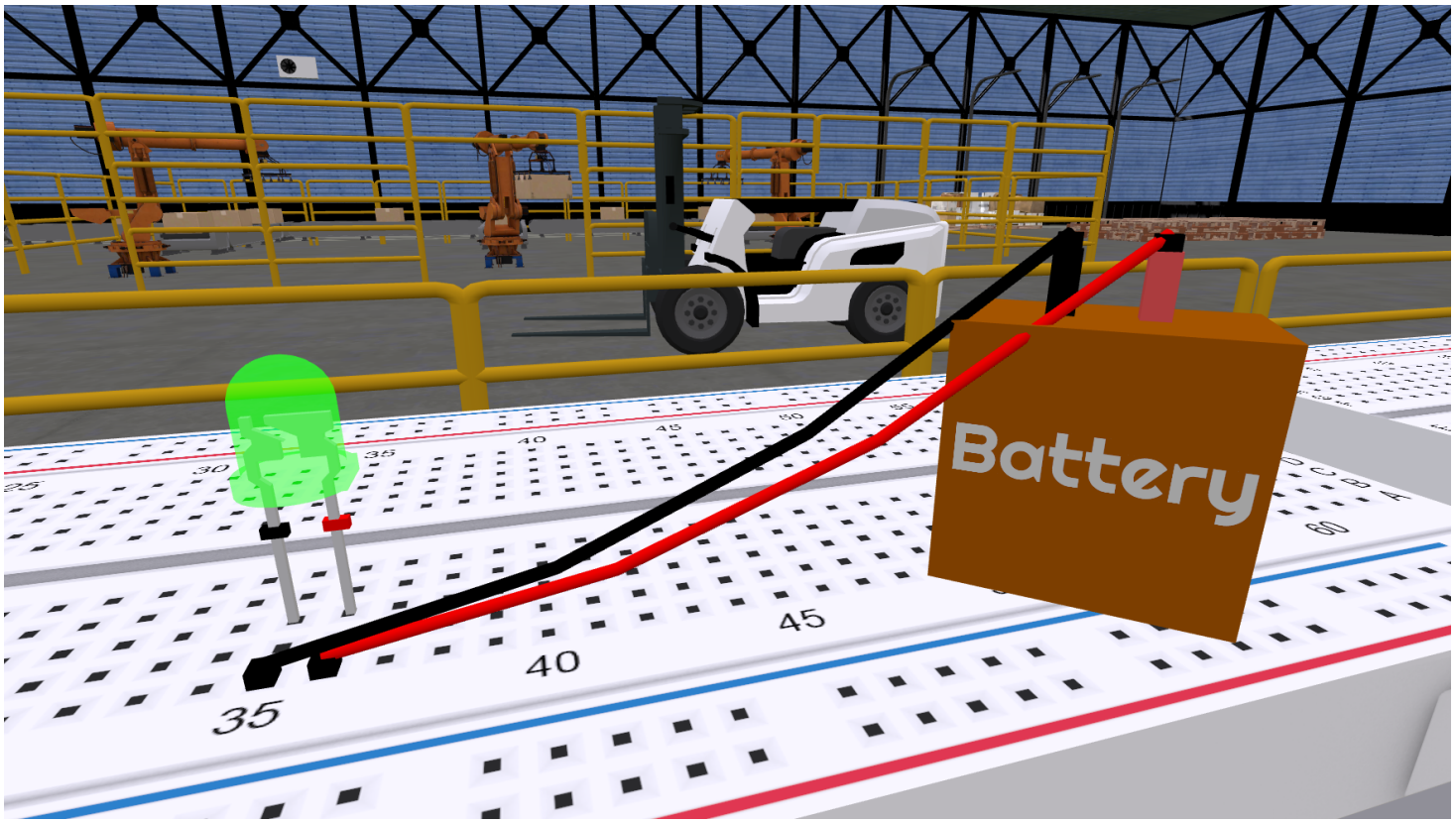
CTE: Tech

Overview:

Embark on a thrilling virtual reality journey with CTE Tech: Robotics. Immerse yourself in a captivating world where the possibilities of robotics come to life. This cutting-edge VR experience is designed specifically for students interested in robotics, offering an interactive and educational adventure like no other. In this course, you'll dive headfirst into the exciting field of robotics. Get hands-on with state-of-the-art virtual robots and learn the fundamental principles of robotics engineering.. Develop your problem-solving skills and unlock the secrets behind building and operating robotics.



Gameplay Instructions

When you enter the course, you will find yourself in an industrial setting with three work tables to your left. Above and behind the tables instructions are posted. You will practice making connections on a circuit board, making connections to a battery, and working on the Arduino Uno microcontroller. When you have successfully completed each task, the work area will light up green and a chime will indicate the task has been successfully completed.

Continued on next page →

Robotics
Teacher Support Page

Titles and Simulations

Introduction to Robotics

Robotic Applications

Robots and their Use Cases Sim

Charge

Voltage

Current

Resistance and Resistors

Ohm's Law

Capacitors

Inductors

Drawing Circuit Schematics

Series Circuits

Parallel Circuits

Direct and Alternating Current

DC Motors

Speed, Torque, and Power in DC Motors

Servo Motors

Servo Motor Control

Prototyping Circuits with Breadboards

Constructing Breadboards

Testing DC Power Source

Multimeters and their Usage

Printed Circuit Boards

Soldering Techniques

Magnetics in Robotics

Robot Sensors Overview

Active and Passive Sensors

Sensors in Robotics

Breadboards and Circuits SIm

The Engineering Design Process

Introduction to Computer Programming

Effective Program Planning

Writing Computer Programs

Boolean Logic

Boolean Laws and Logic Operators

Digital Logic

Algorithms and the Flow of Data

Programming Paradigms

Data Types and Variables

Programming Structure

Selection Structures

Loop Structures

Debugging Programs

Diagnostics and Troubleshooting

The Software Behind Robots Sim

Databases Overview

Database Information Management

Database Rules

Programming Flow Charts

Software Development Cycle

Robotic Software

Artificial Intelligence

The Robot Coding Environment

Behavior Cases

Voice Commands

Question and Answer Sequence

Building a Robot Arm Sim