

2018-2019 CREATE Project Descriptions

Alfred University/Arc of Steuben

- Pallet Wrapper - A large, rotating metal plate with accompanying arm that will hold plastic wrap for large pallets. It will eliminate the physical strain of having to walk around the pallet several times, and cut down on the time it takes to wrap a pallet of product.

Cooper Union/United Cerebral Palsy of New York State

- Serve and Go – A wheelchair attachment to help individuals with cerebral palsy that work at Grab & Go Café deliver food and drinks to customers throughout the office building. It will include an element of rigidity to prevent the spills, while using fabric for flexibility and comfort for the user, allowing them to carry more items at a time.

CUNY City College/Goodwill of New York City and Northern New Jersey

- Augmented Workplace with AR and VR – A VR/AR remote assistance system to provide collaborative workplace training and accessibility for those with autism. The goal of AR/VR training is to improve quality of learning, employment, and life through practice of social cues and communication.
- IndoorAssist – An indoor navigation system using smartphone apps. It will allow blind and visually-impaired users to navigate the interior of a building by planning their route through the app. A “pre-journey” experience will allow users to practice navigating on their phones in a low-risk setting, allowing user to feel more comfortable during their actual navigation process.
- InterVR: VR Interview Simulation with Stress Monitoring – A job interview simulator that will provide training and experience needed for adults on the autism spectrum. It will monitor the user’s stress levels using EEG biosensors and heart rate monitors, providing an objective, real time analysis of stress levels. This will allow the user to pinpoint which aspects of the interview process require practice.
- SCAN: Smart Cane for Assistive Navigation – An indoor positioning system for blind and visually impaired users, using iBeacon to determine the user’s location in a building. CASENet edge detection will help users navigate through crowded locations and will tell users if a moving object is in their way.

NYIT (New York Institute of Technology)/AHRC NYC and AHRC Nassau

- Coffee Box Assembler - A tool kit to assemble coffee catering containers. This tool kit will allow users to put a flap over a plastic bag opening and to twist the cap over the plastic bag opening, then pull a lever or press a button, allowing the tool kit to complete job. It will include a rack component for the ten pieces of coffee containers to improve counting accuracy.
- Conscious GPS – A device that connects to Google's APIs and services that host information from MTA, providing a sight-impaired user with info about a user-specified bus stop. This device will allow the user to record their surroundings by short video or a series of pictures, then leverage the Google Cloud Vision API to analyze their area and help them navigate to their bus stop to get to work.

- Head Controlled Robotic Arm – A simple robotic arm controlled by EEG signals. It will receive, process, and classify the EEG signals, then analyze and manipulate the input signals. Users will connect a headset to the device wirelessly through an Arduino and laptop, controlling the arm using signals from the brain.
- Object Detection with AI Vision – A device that will automatically count objects (pallets, boxes, etc.) by analyzing the images collected in real time. Basic image analysis strategy will include several iterations of image segmentation. Workers will be relieved of counting to avoid errors, focusing only on the output of the indicators.
- Pen Plus – An autonomous pen reader that will be able to read multiple lines and various font sizes to assist users with dyslexia or other visual impairments. It will improve on existing technology that reads texts of all color with various backgrounds; this pen will scan a wider variety of texts, sizes, while allowing more than one pen communicate to the same database/network.
- Robotic Arm Control Using EMG Sensors – A mechanical robotic arm controlled by human electromyography signals. This project will help a specific client who has cerebral palsy, who has a job maintaining a garden bed. The arm part will have a joint spherical structure, while the hand part will be a mechanical grabber. Arduino will control movement of the arm and hand and bio signals collected by EMG and flex sensors. The arm will be mounted on the client's wheelchair.

RIT (Rochester Institute of Technology)/Arc of Livingston-Wyoming

- Hilltop Bottle and Container Return – An efficient recycling process, allowing for increased container intake across the facility. An IR Light Beam Counter will count containers in order to improve accuracy, and then scan them with a barcode scanning/color coding system for sorting purposes. Containers will then be placed into mobile bins and carts to collect bottles throughout each workstation in a timely manner.
- Window Latch Assembly Automation and Process Improvement – An automated process to assemble window latches in large quantities. The process should increase output, decrease task time and redeploy workers to other tasks. It will involve an automated device that will assemble cams into carriers, and a human operator will complete the assembly by fastening the lock.

Rochester University/Unistel

- Workforce Accessibility by Thor Designs – A clip securing process to improve assembly efficiency and accessibility. The current dust cover assembly process requires highly specific and expensive equipment, as well as a high level of motor ability to complete. The new design will include an adaptable slider that can be changed to accommodate various dust cap types on one slider, reducing cost and movement while increasing safety and accessibility.

SUNY Albany/Center for Disability Services and Living Resources

- Bee Notified – A smart mobile location-based scheduling, messaging, and alerts application. Be Tethered will accommodate people with disabilities in an effort to help them schedule work-based events and to stay organized with everyday tasks. It will also provide a form of assistance when they face difficulties completing certain tasks by notifying their job coach.
- E-Misty – A service robot that roams around the workplace, observes the status of workers and reports any occurrence of incidents when detected, to assist caregivers or supervisors in helping these workers maintain emotional stability and work efficiency.
- MedKit – An accessible packing and inventory tracking system for medical kit assembly. The proposed system for keeping track of resources for medical kits will improve efficiency and accuracy. It is a database system controlling the items comprising each medical kit, including a cubbyhole lit with LED lights to locate the components required for each medical kit.
- palletPAL – A pallet tracking system. The proposed design is an inventory management system that will significantly reduce time spent on tracking inventory, increase accuracy and simplify the process, which should open up job opportunities to employees with disabilities.

SUNY Polytechnic Institute/The Arc Oneida-Lewis Chapter

- Hi-Cone Six-Pack Remover – A yoke remover to re-package cans of beer. This machine will help remove workplace barriers within their packaging plant, where workers remove plastic six-pack yokes from beer cans shipped to the facility by local breweries.

Union College/Schenectady ARC

- Automated Greenhouse Watering System - An automatic irrigation controller and water delivery system that will be affordable, easy to maintain, and simple to operate. It will automatically provide gentle, regular watering to a seedling bed, while being easy to operate by workers with developmental disabilities with relatively little supervision.