

# Videos/Pictures

We submitted all of our Fall 2016 student projects (14 in all) to the 2017 Source America Design Challenge, a national design competition to design workplace technology for people with disabilities. Please see our award winning team's poster presented at the finals in Washington D.C. in April 2017 below:



# Lawrence Technological University

## KEEN



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**Background**

**Vision & Solution**

**Bill of Materials**

- Inspiration: Entrepreneurial Engineering Design Studio Course
- Partnership with the nonprofit, Services to Enhance Potential (STEP)
- STEP has 6 resource centers in the metro Detroit area that support the employment goals of individuals with disabilities

Our Spray Bottle Assembly Device features a rotating cup that reduces the physical discomfort of assembling spray bottles for employees with disabilities. For employees with dexterity issues, the new device enables them to complete the process with a single hand, resulting in increased productivity, efficiency, and comfort. Since our product is mass producible and cost effective, we plan to research the potential commercial opportunities.

Increase Productivity

Reduce Wrist / Back Pain

Decrease Bending / Reaching

Less than 10 Components

Less than \$200

Item	Function	Price
MDF Sheet (8' x 4' x 3/4")	Construction Material	\$29.15
Small Knobs (Set of 2)	Handle for Box Drawer	\$ 1.80
Small DC Motor	Rotates Sprayco Bottle	\$12.98
DC Motor Hub	Attaches Parts	\$ 4.99
Limit Switch (Pack of 2)	Activates Motor	\$ 1.93
3D Printed Cup	Holds Spray Bottle	\$10.00
AC-DC Power Supply	Powers Motor	\$ 9.99
Misc. Hardware	Screws, Dowel, Wires	\$ 6.50
<b>Total:</b>		<b>\$ 77.34</b>

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**The Team**

**Old Method → New Method**

**Computer Design**



(Left to Right)  
Jon Behr  
Robert; Subject Matter Expert  
Steve Slayton; STEP Director  
Steven Graczyk  
Devson Butani

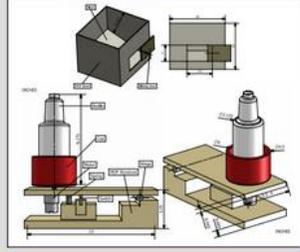
- 18.2 Seconds per Bottle
- Wrist and Back Pain
- Unnecessary Reaching

**39% Less Time**

- 11.1 Seconds per Bottle
- No Wrist and Back Pain
- No Unnecessary Reaching







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**Impact**

- More Bottles = More Money
- Reduced Pain and Strain
- More Workers Can Participate
- Simple, Marketable Design
- Assembly is Now Enjoyable

For more information including our award-winning team's video go to: <https://www.sourceamerica.org/design-challenge/2017-winners>.