



# 3D Printing

By Arianna Bordeleau



## 3D Printing Assistive Devices

3D printing has been around for nearly 25 years, but has gained the majority of its popularity in the last decade. This was due, in part, to the lack of affordable options available in the earlier years following its invention. Today, 3D printing has become a popular hobby to many wanting to make knickknacks, trinkets, models and more.

These printers, though, can be used for so much more and the possibilities are near endless. One very practical use is to create assistive devices to help people be more independent with daily living activities such as eating, cooking, hygiene and more.

***“Well couldn’t I just purchase the item I want online?”***

Sure, but what if that tool doesn’t fit or work the way you had hoped? The truth is, it’s not always as simple as buying a special handle for a spoon. There may be hundreds of different models that come in various shapes and sizes. Trying to find the right one will get expensive fast, especially with shipping since a lot of these specialized tools might not be available on Amazon. 3D printing is generally a more affordable option and provides the ability to really customize a tool.

## What Can Be Printed?

- Aids for Daily Living
  - Plug Pullers
  - Door Knob Lever Adapters
  - Utensil Handles and Grips
  - Key Turner
  - Bottle and Can Openers
  - Toothpaste Squeezers
  - Writing Aids and Grips
  - One Handed Scissor Guide
  - Shoe Lace Clips
  - Playing Card Holders
- Wheel Chair Accessories
  - Cup Holders
  - Push Assist
  - Ramps
  - Grabbing Tools
  - Cell Phone Caddy
- Around the House
  - Plug Pullers
  - Door Knob Lever Adapters
  - Light Switch Extenders
- Braille Devices
- Fidgets and Sensory Items



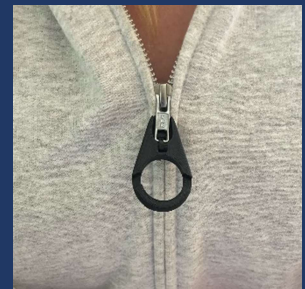
Plug Puller



Glow in the dark  
light switch



Shoelace Clip



Zipper Pull



## Putting it into Action

### DID YOU KNOW?

According to the *National Institute for Health and Care Research*, there are 6 main barriers to the use of assistive technologies:

#### Design and Function

Lack of user involvement in design  
Lack of customization options  
High Cost and Difficult to use

#### Information and Awareness

Lack of Training and instruction  
Limited knowledge about products

#### Service Provision

Lack of Person-Centered Care  
User's no being able to make choices  
Delays in receiving the technology

#### Psychological Barriers

Previously experiencing difficulty with other barriers that caused disappointment and/or stress

#### Support Network

Lack of encouragement by families and staff  
Little to no access to peer support

#### Stigma

Negative attitudes cause users to feel self-conscious about using tools  
Limited government recognition of assistive technology

## Kings Factory

The list of items we came up with included:

- Various utensil holders
- Adaptive Grips and Writing Aids (able to hold pens, pencils, markers, crayons, etc.)
- Zipper Pulls
- Assistive Nail Clippers
- Door Knob Lever (an adapter the can make a turning door knob into a lever)
- Fidgets
- Plug Pullers

One of the DSPs even admitted to being guilty of pulling plugs from outlets by the cord. That means that a plug puller is a tool that meets universal design standards. It will be used by all as an inclusive tool that will keep everyone safe.

On a recent visit to the Kings Factory group home, I was able to bring some prototyped tools and demonstrate the uses and functionality to the staff on shift. After seeing some of the initial prints and learning about additional tools and devices, the staff and I were able to come up with a list of items that could benefits some of the folks that live there.

The staff also shared with me that some residents had tried a few adaptive utensil holders, but they weren't the best fit. Purchasing different models to try also tended to be pretty expensive and homes aren't able to splurge on different items with their limited budget. Luckily, 3D printing is a much cheaper option that allows for folks to try multiple different models and devices.

## Do you support someone who could benefit from 3D printed tools?



Remember, the possibilities are not limited to items that I have already printed. 3D printed items can help people who have:

- Arthritis
- Differences in dexterity
- Tremors or shaking
- Differences in communication
- Mobility challenges

If you let me know what tasks a person is struggling to do independently, I can come up with a few items that they can try out.

Please contact me if you think that anyone you support could benefit from having an item or tool made. I can meet with that person wherever they are comfortable or you can schedule time to drop by my office. I can also come to group homes, just like King's Factory, and do a walkthrough to help identify tools that may help some of the residents become more independent in their everyday lives.

Arianna Bordeleau

Email: [abordeleau@perspectivescorporation.com](mailto:abordeleau@perspectivescorporation.com)

Phone: 401-862-2695