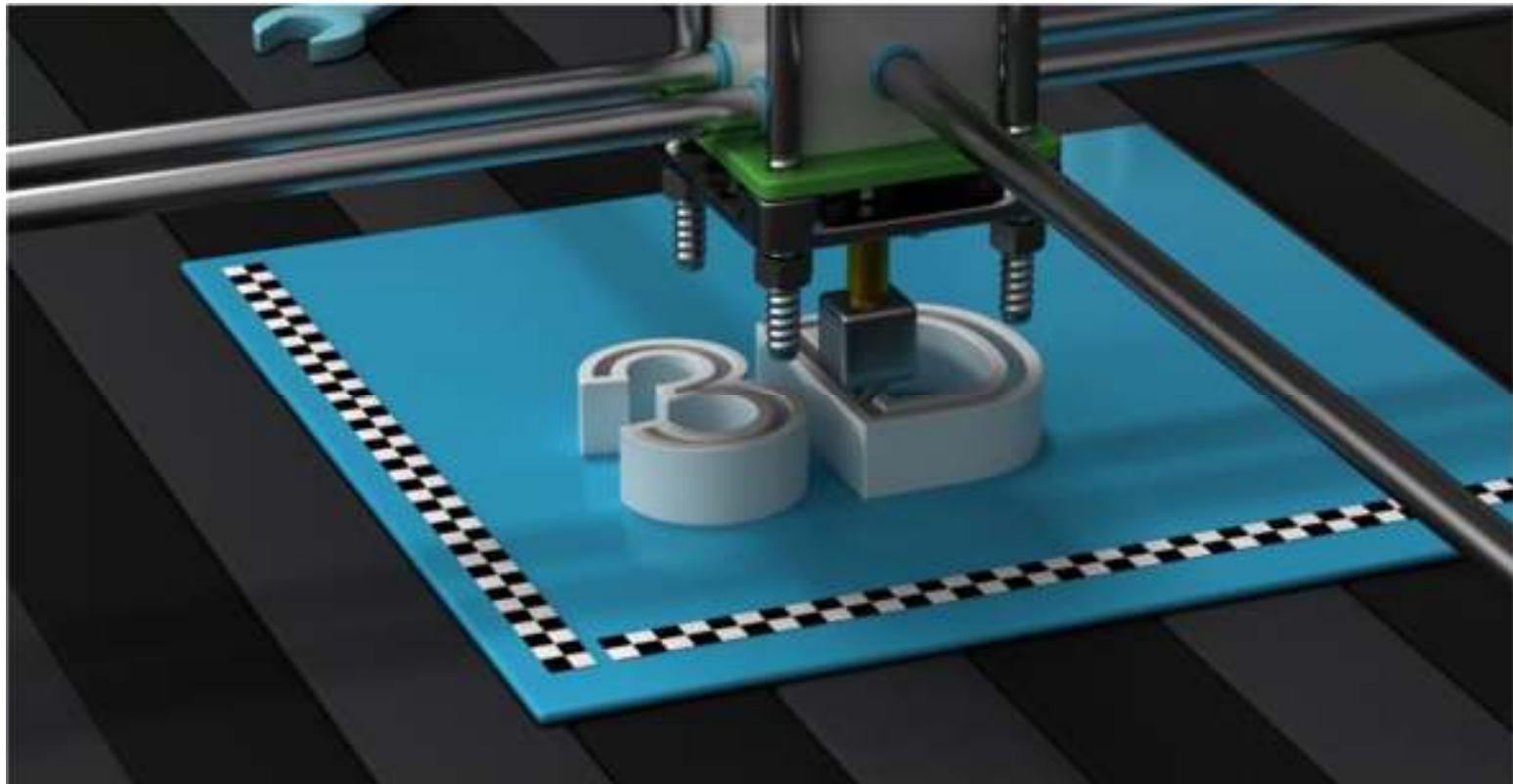
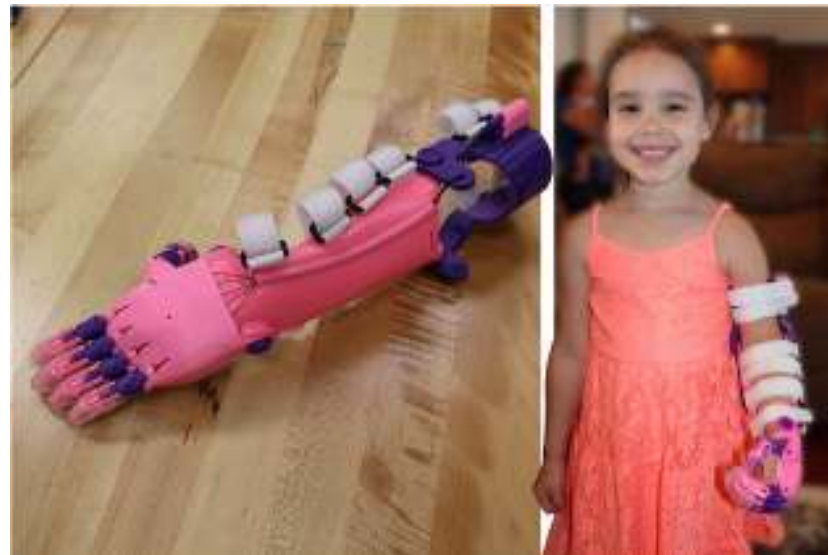


3D Printing

3D Printing is a method whereby 3 dimensional objects are created in a layering process. There are both commercial and Hobbyist versions of the tools needed.

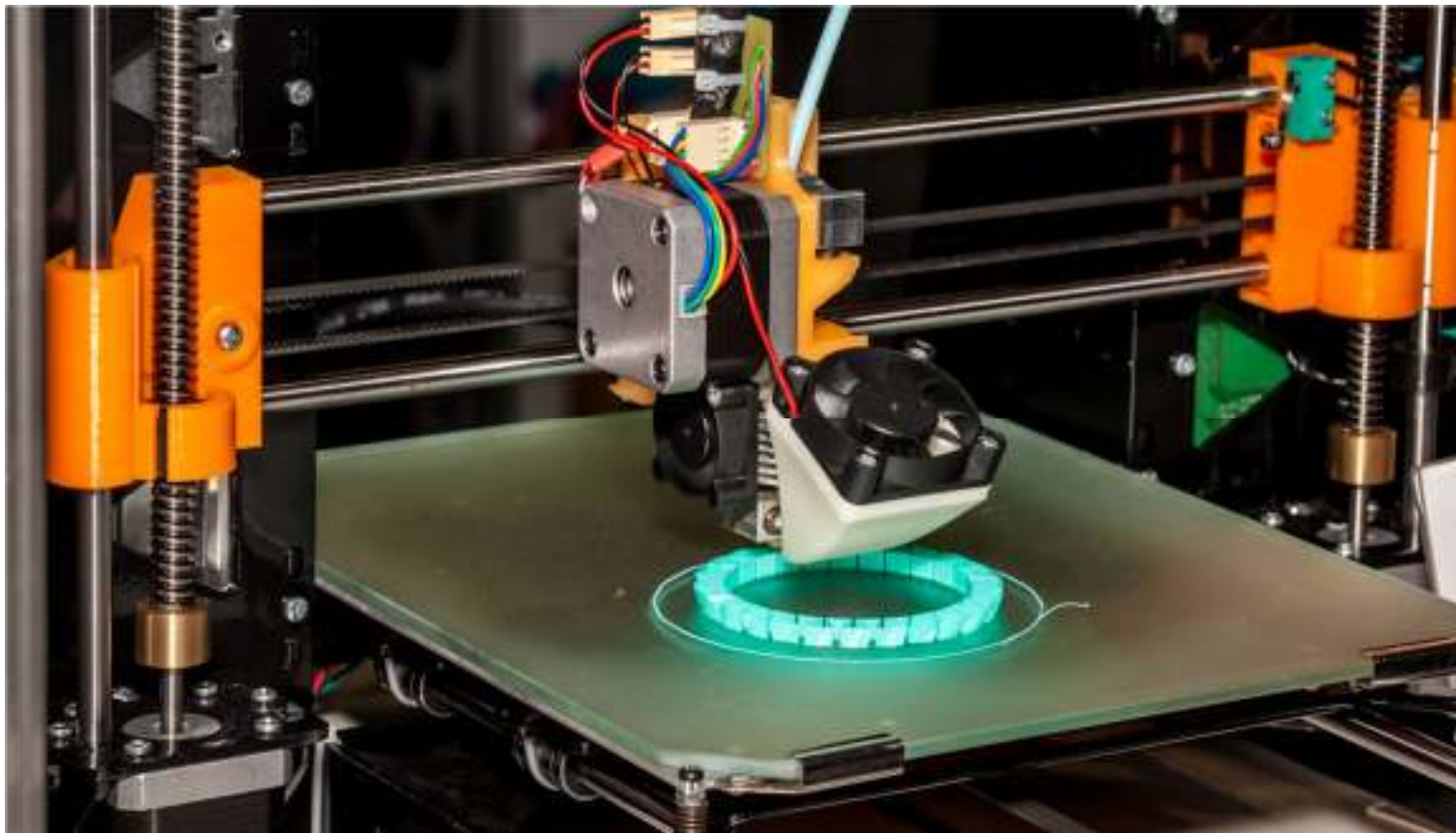


Limited only by your imagination



What do you need to get started?

- 3D printing is done with a “3D Printer” (Optional)
- Design is done with a 3D CAD Program (also Optional)



3D Printers for Hobbyists

- There are dozens of printer models for hobbyists.
- What to choose?
 - Price
 - Support & Reputation
 - Your Experience Level
 - Bed Size & other 'hardware specific items'
 - There's always the next best thing
- Turn-Key, KITS, DIY
 - Turn-Key – eg. MonoPrice MP Select
 - KITS – eg. Most I3 PRUSA clones
 - DIY – eg. Ultimaker 2 clones





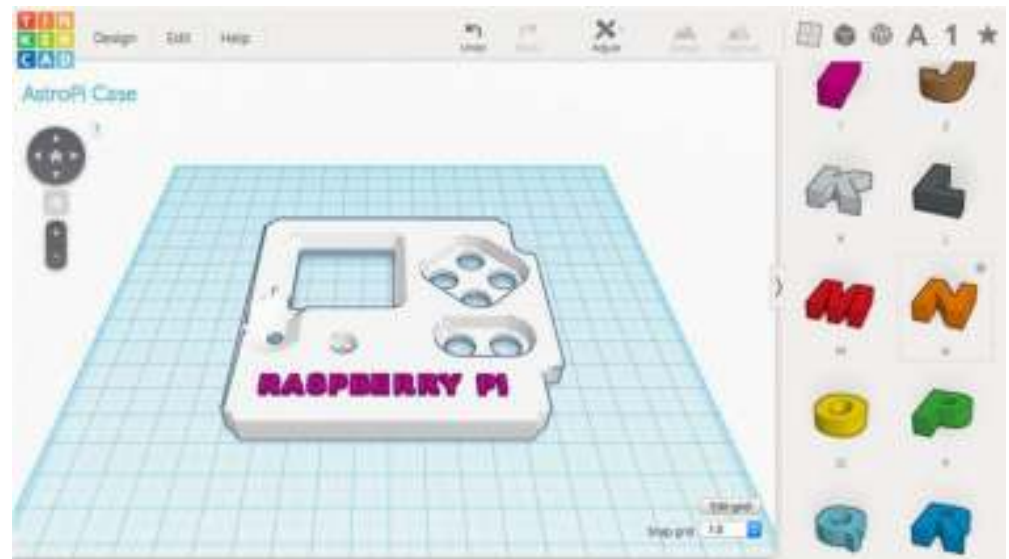
3D Design Software

- There are several software packages that will design objects that you can print on your 3D printer
- 3D Slash
- LibreCAD
- PhotoShop CC
- SculptGL
- SelfCAD
- TinkerCAD
- Clara.io
- DesignSpark
- FreeCAD
- MakeHuman
- MeshMixer
- Moment of Inspiration
- nanoCAD
- openSCAD
- Sculptris
- SketchUp
- 3ds Max
- AutoCAD
- Blender
- Cinema 4D
- Modo
- Mudbox
- OnShape
- Poser
- Rhino3D
- Zbrush
- CATIA
- Fusion 360
- Inventor
- Solidworks

**Half of these
are FREE**

Top 10 Software, free, for Beginners

1. 3D Slash
2. LibreCAD
3. PhotoShop CC
4. SculptGL
5. SelfCAD
6. TinkerCAD
7. Clara.io
8. DesignSpark
9. FreeCAD
10. MakeHuman



What if you don't want to Design?

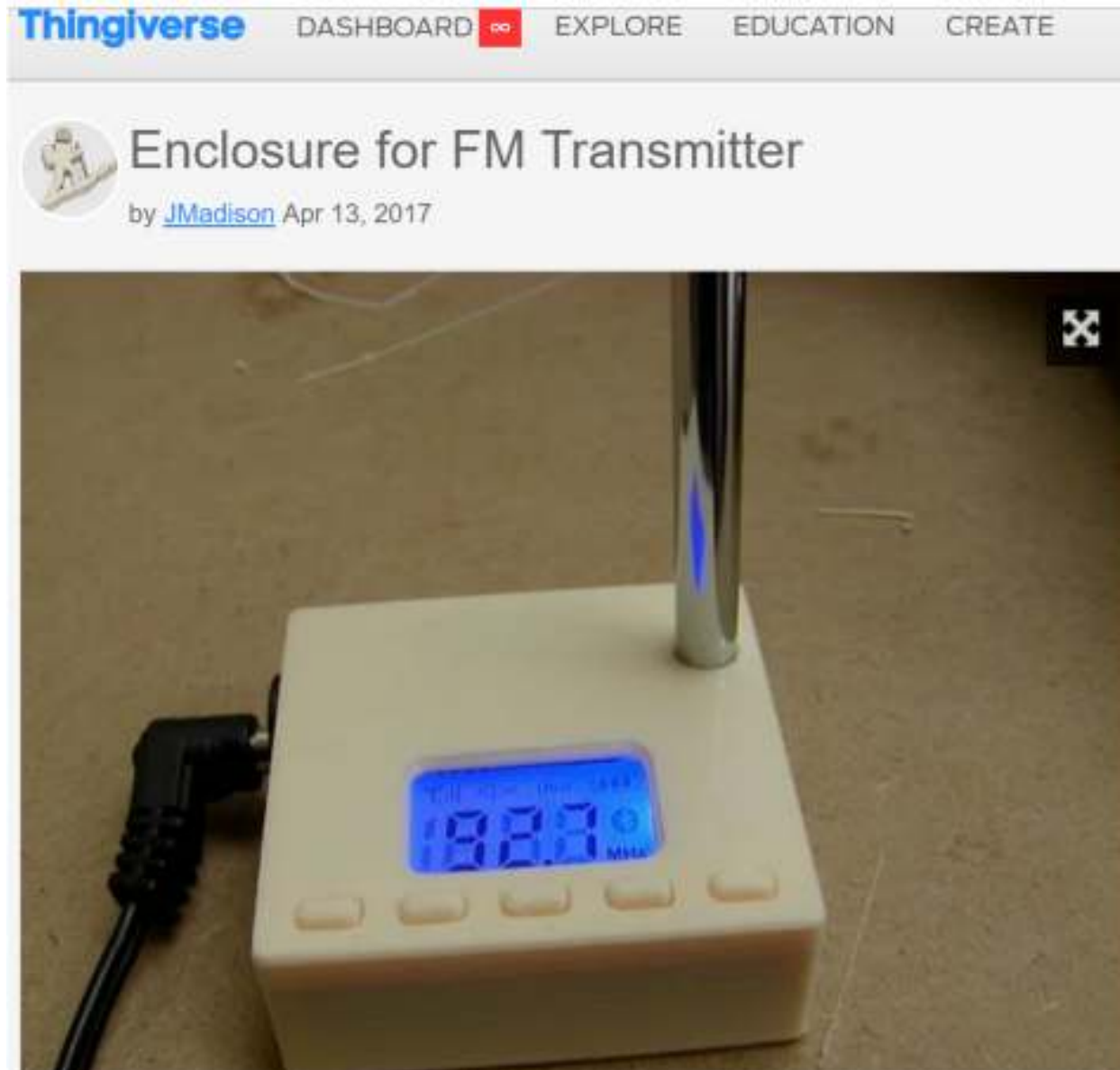
If you are not interested in the software design part of this hobby, no problem. Many designs are free & shared.

Thingiverse to the Rescue!

Thingiverse is a website dedicated to the sharing of user-created digital design files. Providing primarily free, open source hardware designs licensed under the GNU General Public License or Creative Commons licenses.

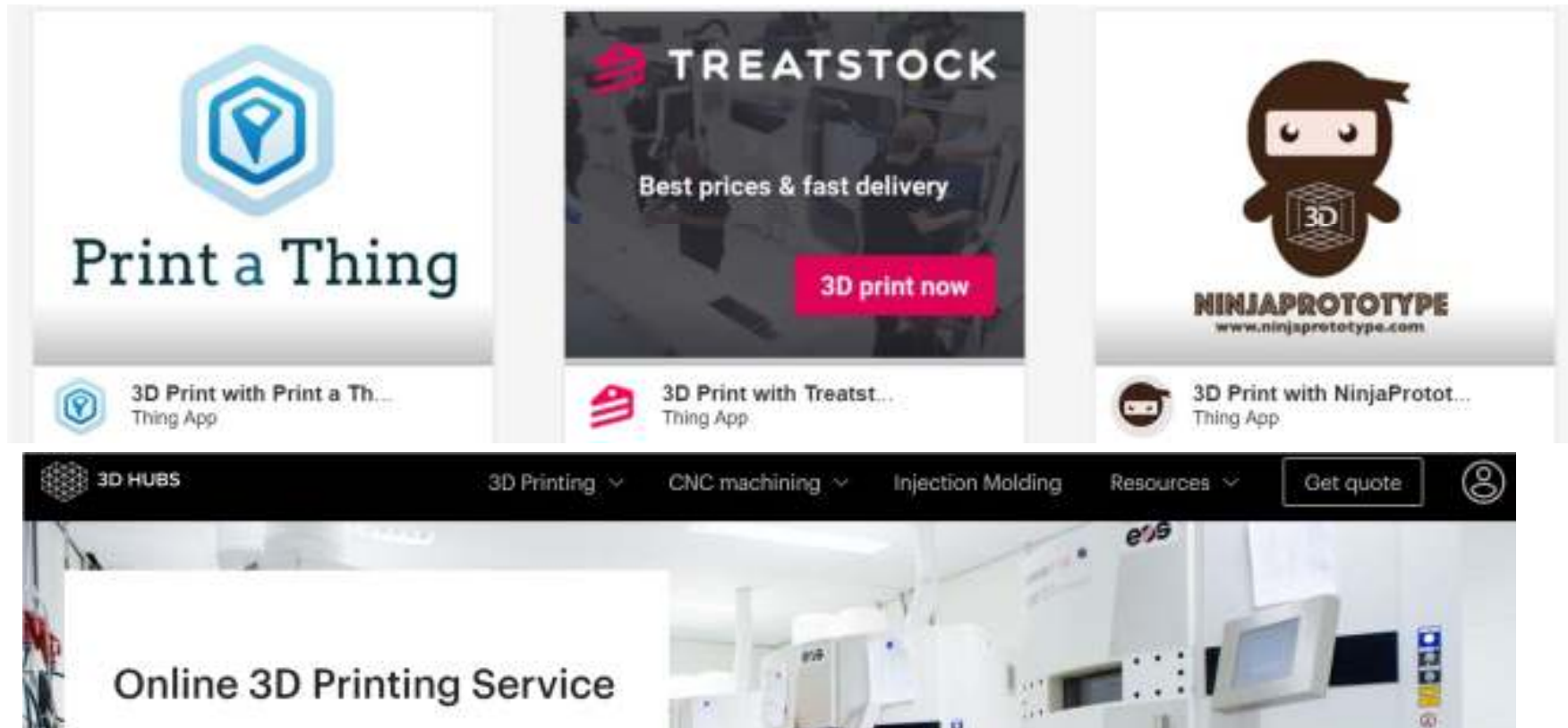


THINGIVERSE Example



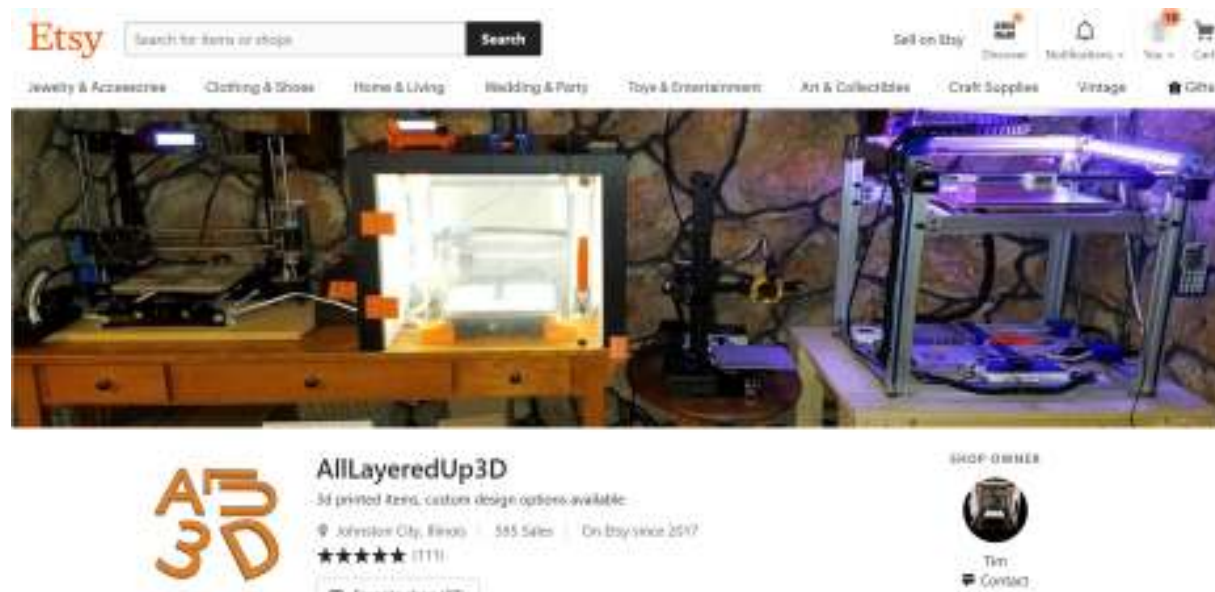
What if you don't want to buy a printer?

- There are 3D printing services that can print your item
- Services are available both locally and remotely



All Layered Up supports LUO

- For the second year, All Layered up sent giveaways !





3D Printed FM Transmitter Case !

- All Layered Up set up a coupon code for 15% that will run from May 1st, 2019 through May 1st, 2020 for attendees of the event, coupon code is 'LIGHTUPOHIO2019'

A Christmas Light Group on Facebook

- 3D Printing For Christmas Light Enthusiast Group.
- This group only discusses and shares their designs that facilitate the use of props and lights for Displays !



The Amazing Keith Hoyle

- Keith attended last year but could not this year
- Last year's pixel tree..... Most did not see it, a shame.
- Keith is active on the Facebook group and Youtube-> Search: [Carolina Mountain Lights](#)
- He sent two examples of this work....



Keith Hoyle – True3D Sphere

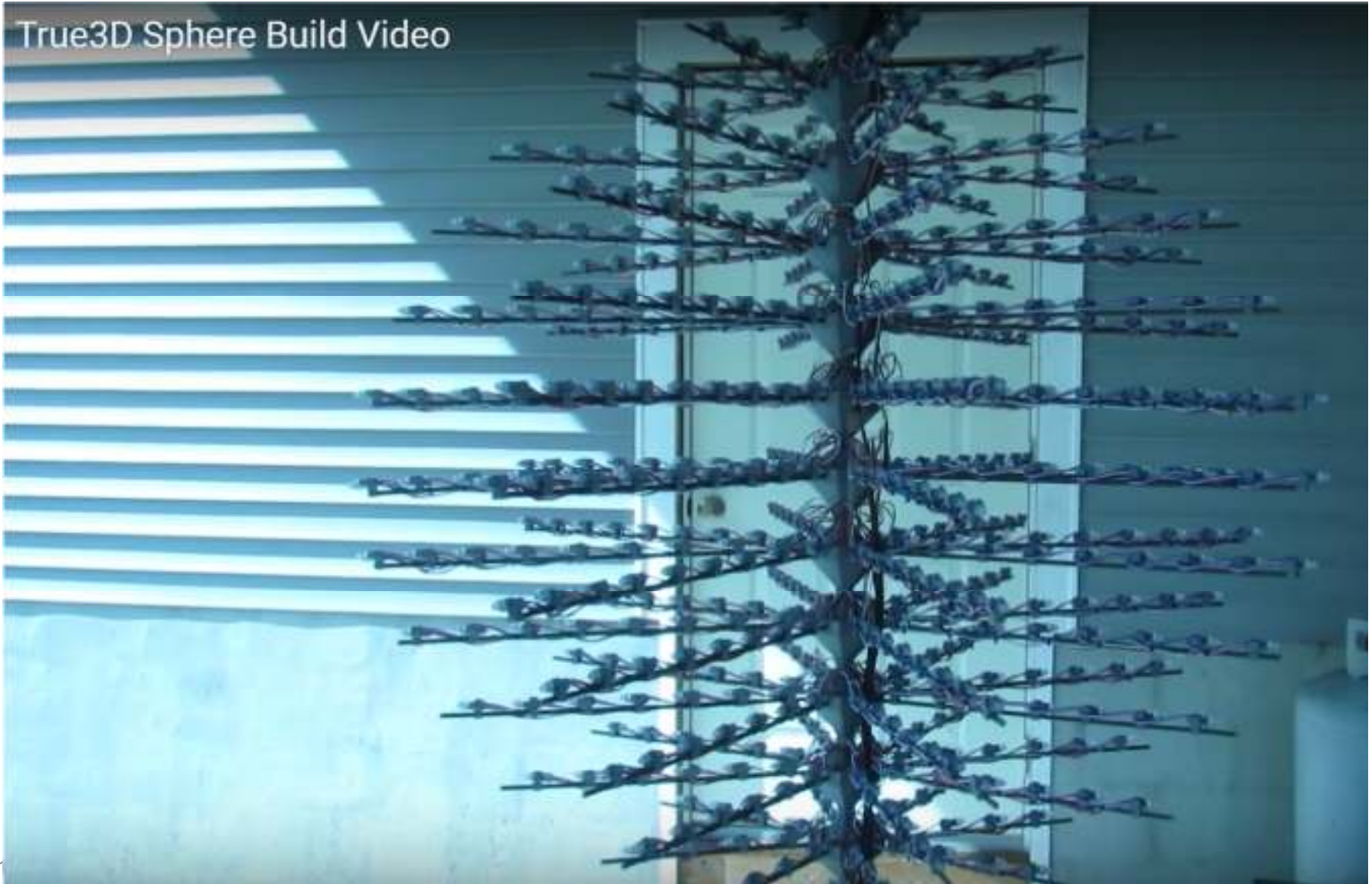


Keith Hoyle – True3D Sphere



Keith Hoyle – True3D Sphere

True3D Sphere Build Video



Keith Hoyle – True3D Sphere



Keith Hoyle - 48" 12 Arm Spinner Hub

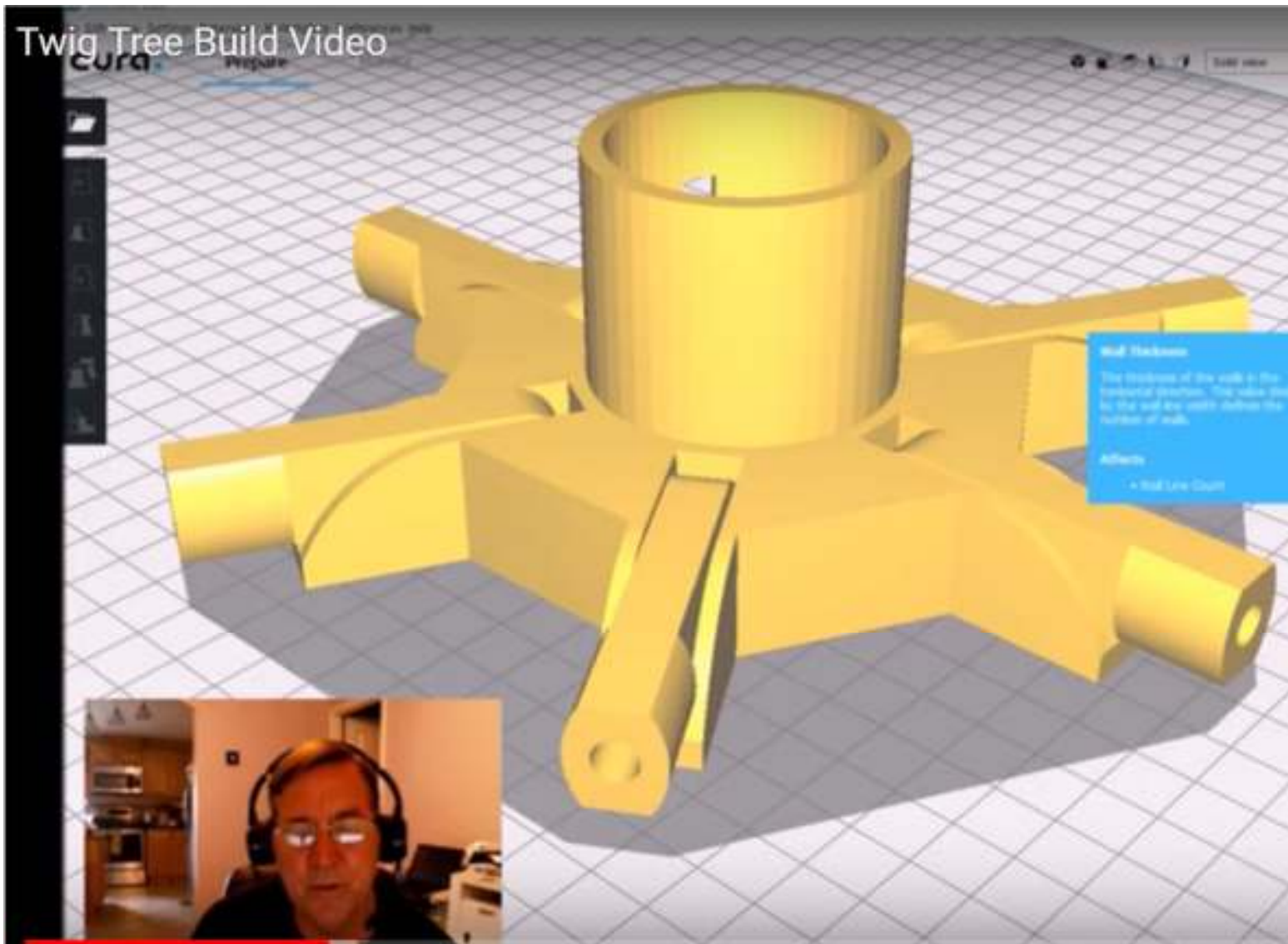
My New 48" 12 Arm Spinner Hub Model For Christmas 2019



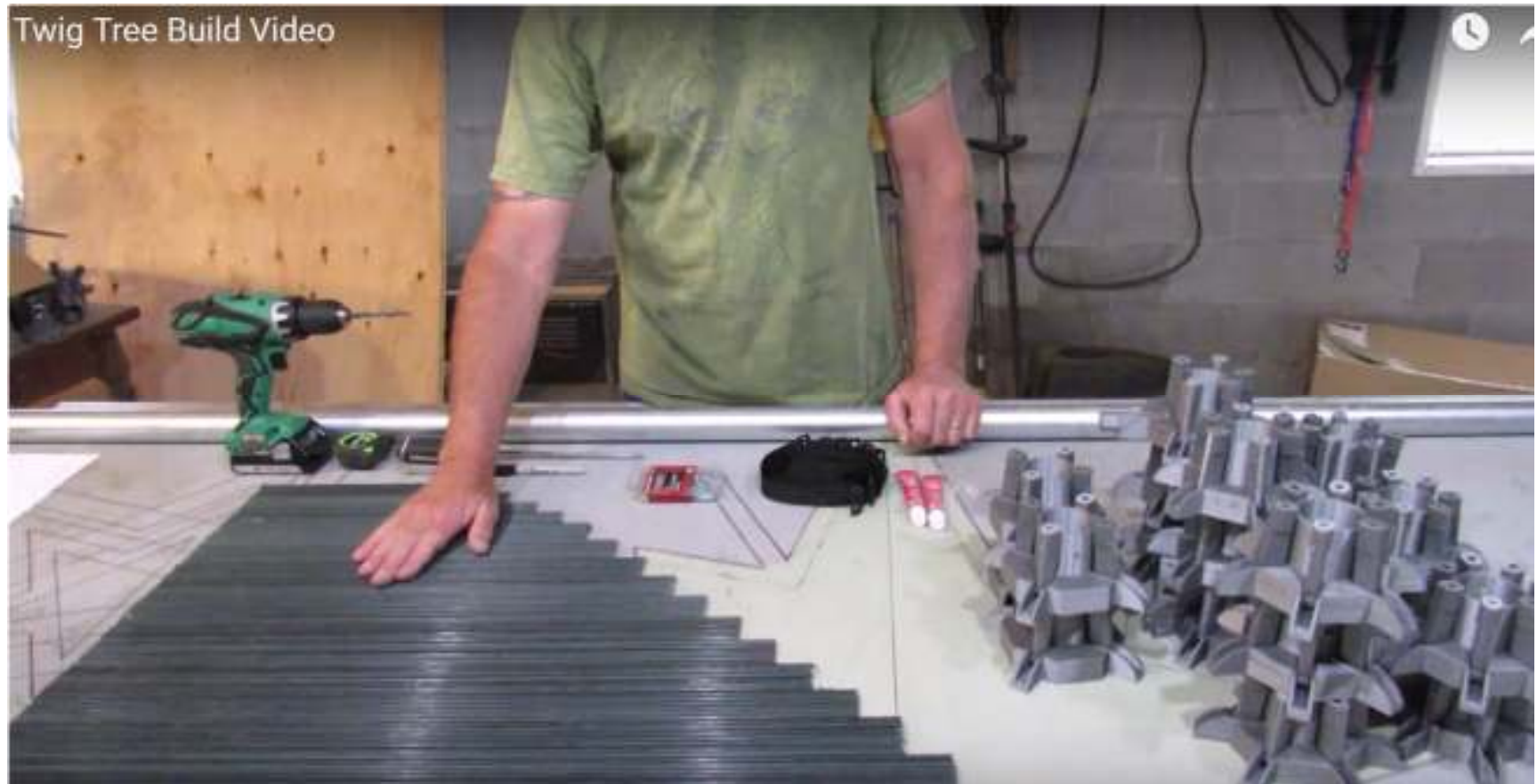
Keith Hoyle - 48" 12 Arm Spinner Hub



Keith Hoyle – Folding Twig Tree



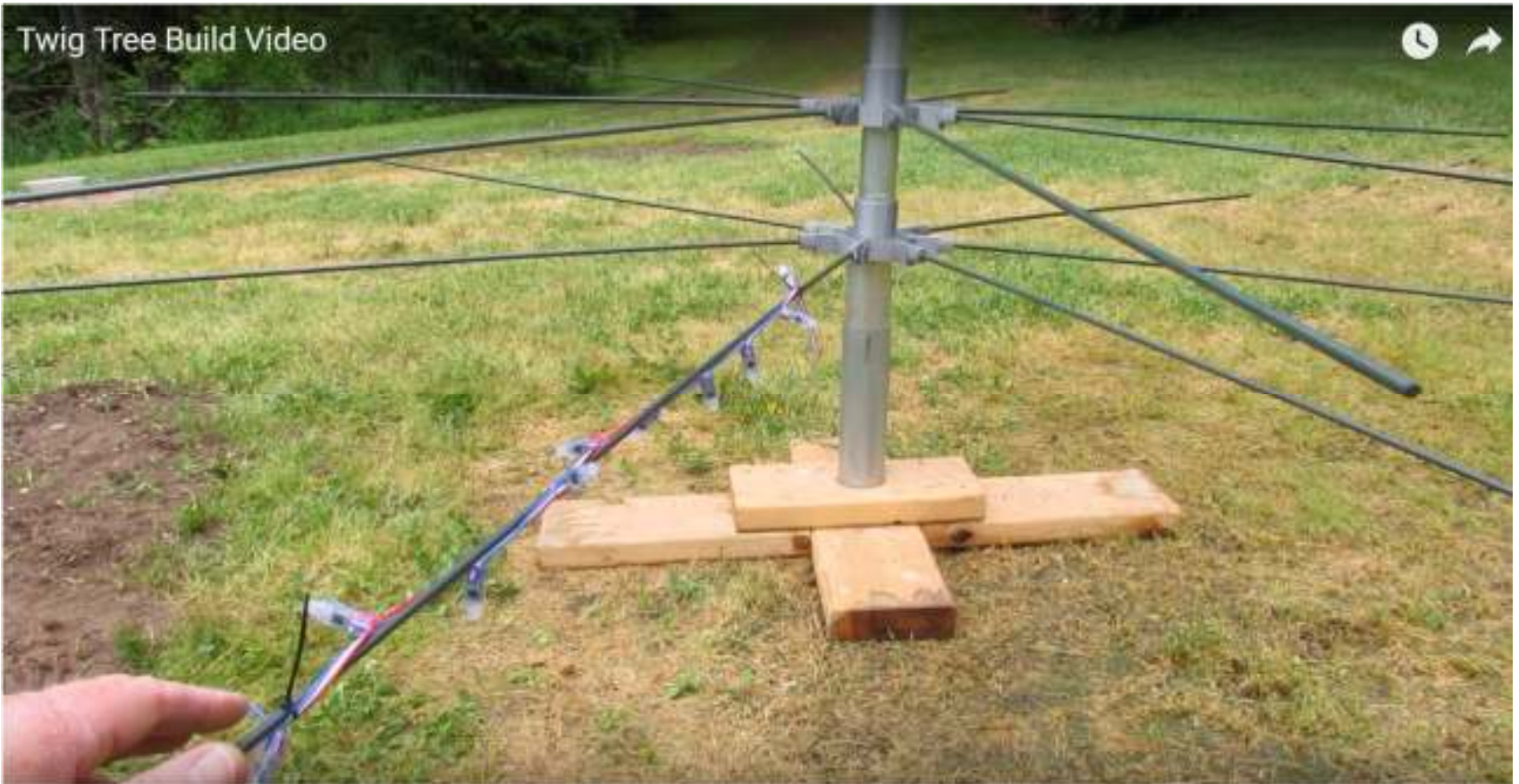
Keith Hoyle – Folding Twig Tree



Keith Hoyle – Folding Twig Tree



Keith Hoyle – Folding Twig Tree



Keith Hoyle – Folding Twig Tree

