

# ROOKIE INTRO PROJECT

**Don't hesitate to consult a group lead and the blue model for help.** Anyone is welcome to improve on the design for their own stand (Ex: put the plate that the iPad rests on further down, form the top of the stand into a triangle, etc.)

## PART 1: GATHER MATERIALS

- Measure and mark out the dimensions of pieces 1-7 with a Sharpie, an X-Acto knife, and a ruler (piece dimensions are enclosed at the bottom).
- Measure and mark out the three pieces of angle bracket with a sharpie, an X-Acto knife, and calipers; take into account the thickness of the blade.
- With a center punch, mark where you are going to drill the holes for the rivets and bolts.
- Find the part number of rivets and bolts we will be using on [McMaster Carr](#). Please show this to a mechanical lead to ensure correctness.
  - Rivets: 5/32"
  - Bolts: #8-32
- Find the correct size drill bit you will need for both fasteners and tell these to your lead as well.
  - Use [littlemachineshop](#) to figure this out. Let a lead know the drill bit size you are using before drilling holes for the bolts.

## PART 2: PREPARE MATERIALS

- Bandsaw parts 1-5 according to the marks you made.
  - Round off the sharp edges of your metal with the belt sander or a file.
- Drill a hole with the drill press and subsequently deburr these holes.
  - If both drill presses are in use, hand drills may also be used
  - Use caliper to see dimensions of rivet.
  - Use Littlemachineshop to find the diameter of the outside of the threads of the bolt.
  - When you drill a hole in the metal, remember to clamp everything down and if you're inside, to place something on the table under it to protect it.
- Chopsaw the pieces of angle bracket that you marked off

## PART 3: ASSEMBLE PROJECT

- With a square, measure that all parts are perpendicular to each other before they are riveted together
- With a rivet gun, rivet the according pieces together (this will require some effort, so do not worry if it takes excessive force)
- Using a hex key and the correct sized wrench, tighten the nut onto the bolt in corresponding pieces.
- Before you rivet or bolt anything, remember which side of the fastener goes on which side of

the iPad stand and to ensure that if you put one on, you will be able to put on any ones next to it or perpendicular to it. Ensure that the nuts are easily accessible for tightening.

### PARTS

1. Upper 7"x2"
2. Lower 7"x2"
3. 6.5"x1" (2)
4. 7.5"x1"
5. 4"x3"
6. Angle Bracket 2.5"
7. Angle Bracket 1.5" (2)

### SKILLS

- Use McMaster Carr and littlemachineshop
- Locate drill bits corresponding to standard sizes
- Use measuring and marking devices (sharpie, ruler, xacto knife, center punch, etc.)
- Accurately mark holes
- Use files to round off sharp corners and smooth sharp edges
- Use tools to deburr holes
- Drill multiple pieces at once
- Search by part number
- Types of nuts and uses
- Types of rivets and uses