

Desktop Fan Project

Introduction

ME 120

Mechanical and Materials Engineering

Portland State University

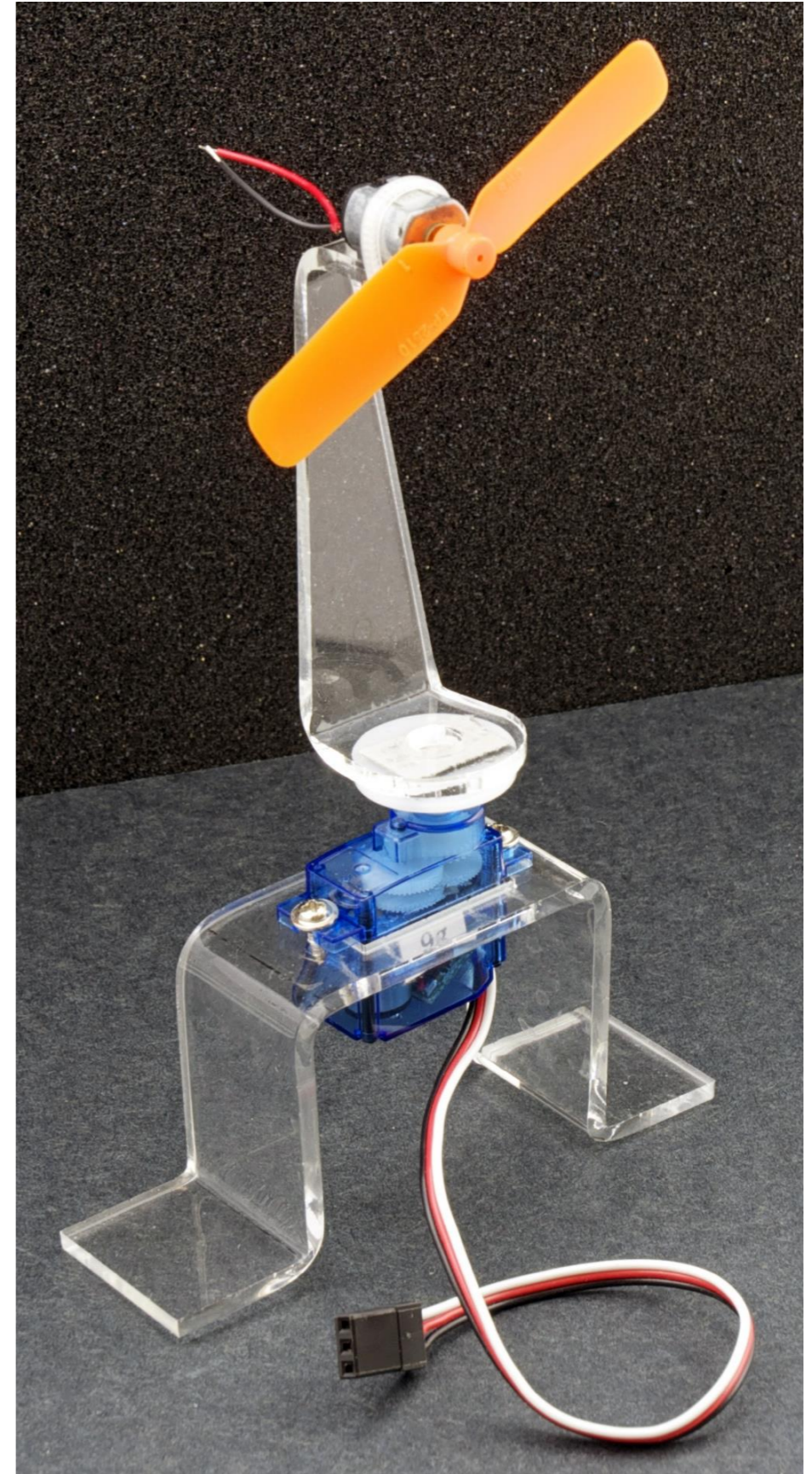
<http://web.cecs.pdx.edu/~me120>

Goal

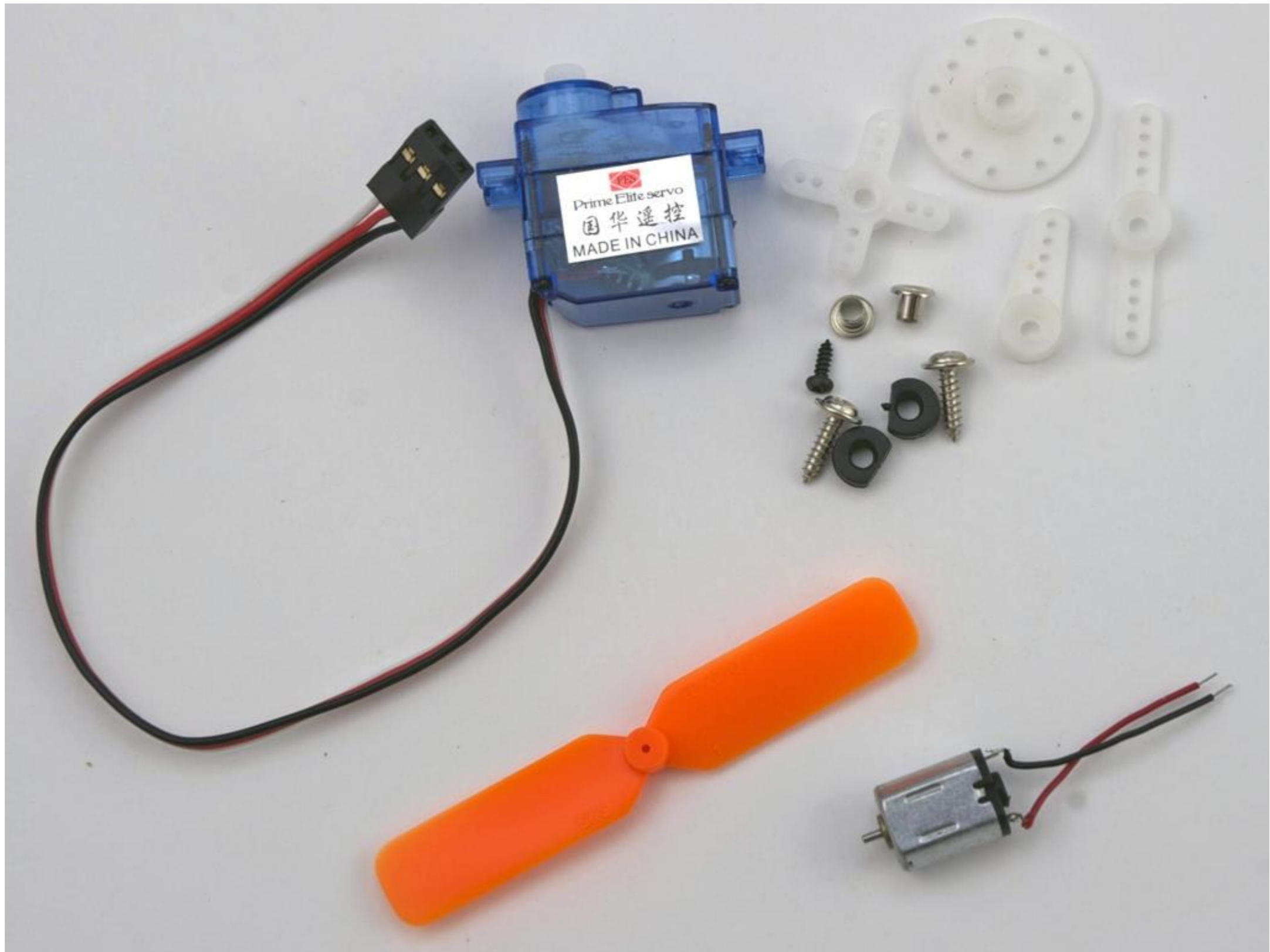
- Build a desktop fan from parts in the Sparkfun Inventor's Kit
- Work in teams of two
- Learn new skills
 - ❖ Controlling a servo and DC motor
 - ❖ Make a 2D drawing with Solidworks
 - ❖ Send drawings to Laser cutter
 - ❖ Soldering
 - ❖ Presenting
 - ❖ Writing a report

Tasks

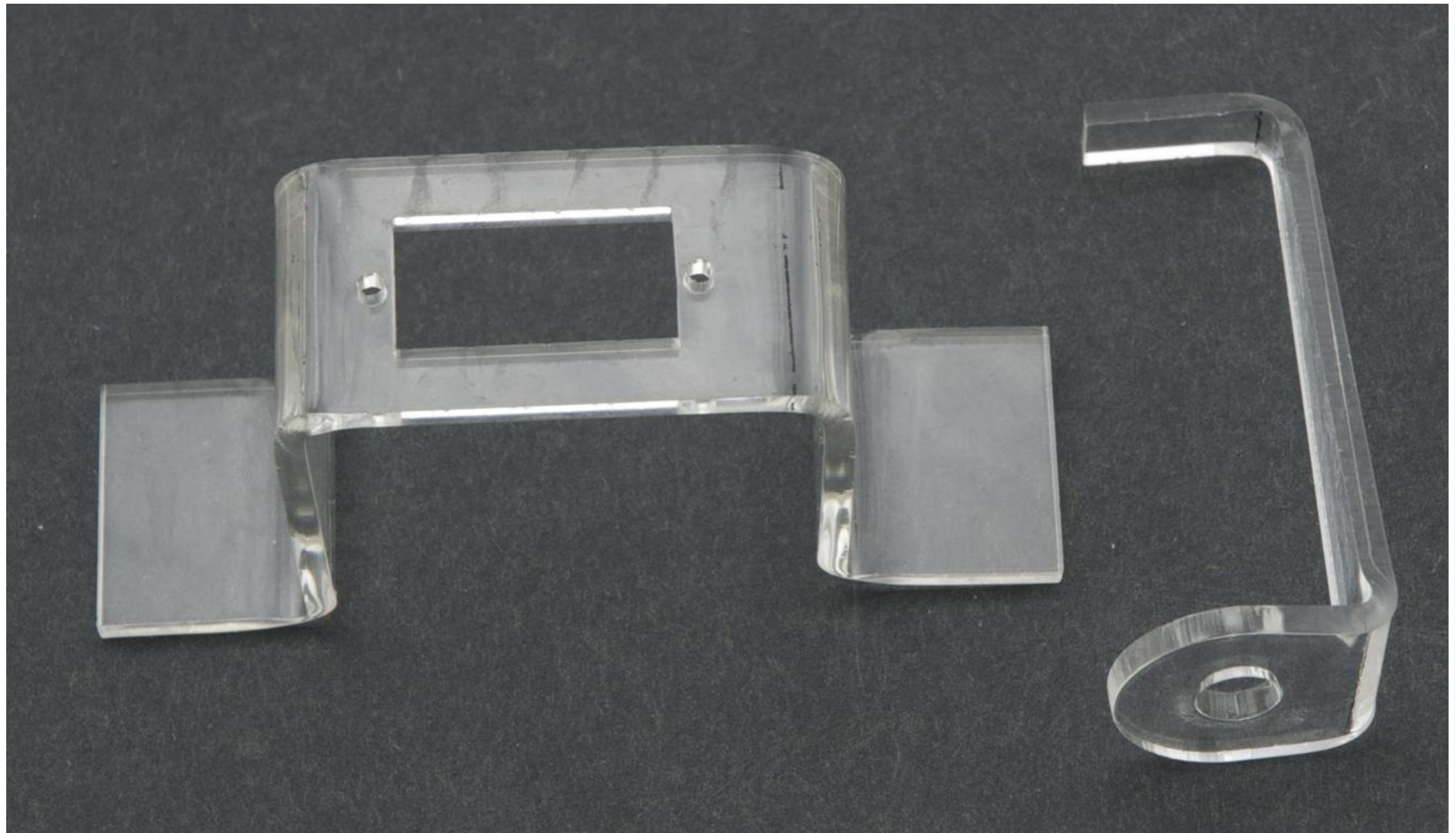
- Measure servo and DC motors
- Sketch on paper the acrylic dimensions
- Create Solidworks model of the base and prop support
- Cut acrylic parts
- Assemble system
- Write Arduino program to control servo and DC motor



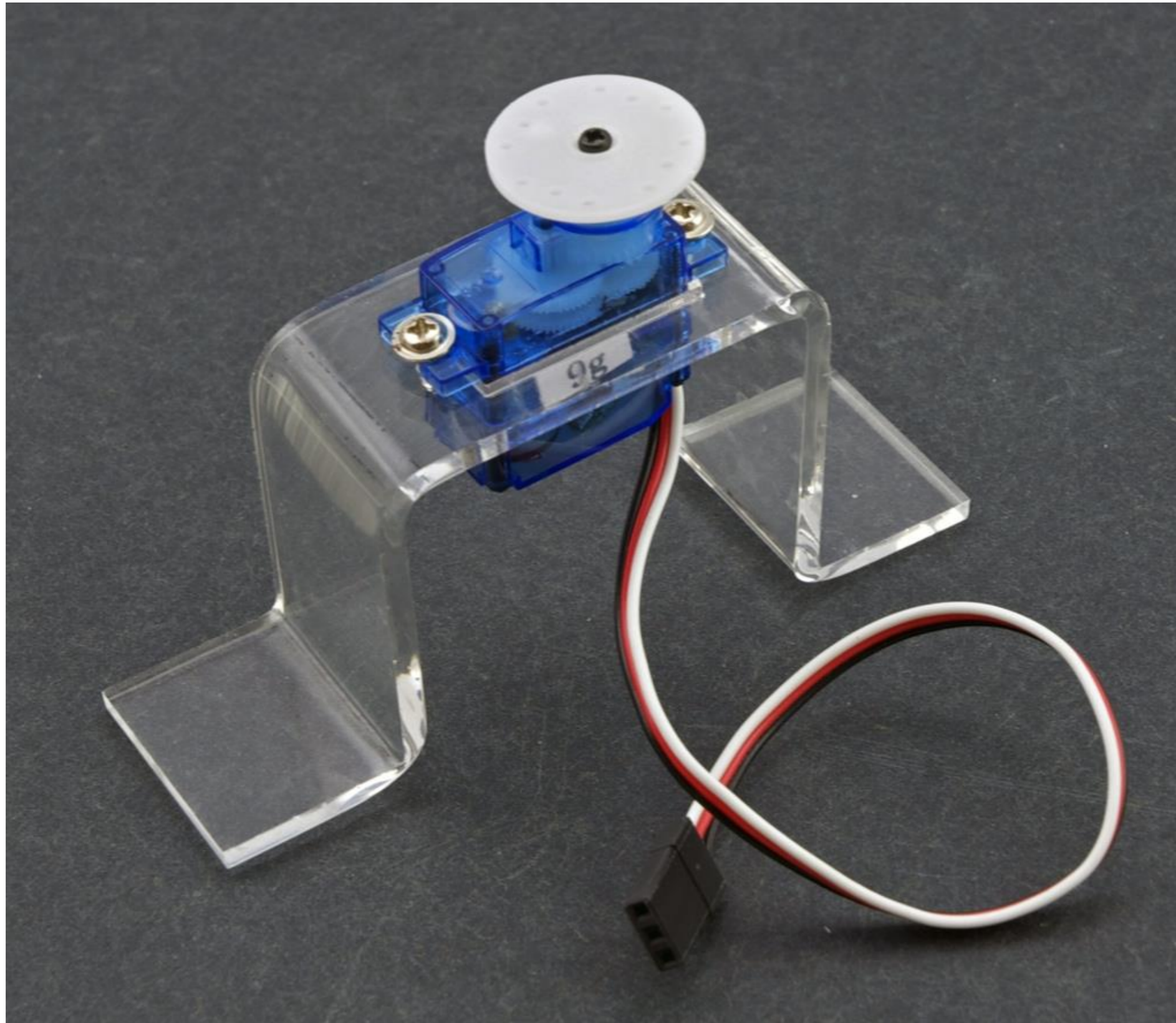
Propellor, and Parts from Inventor's Kit



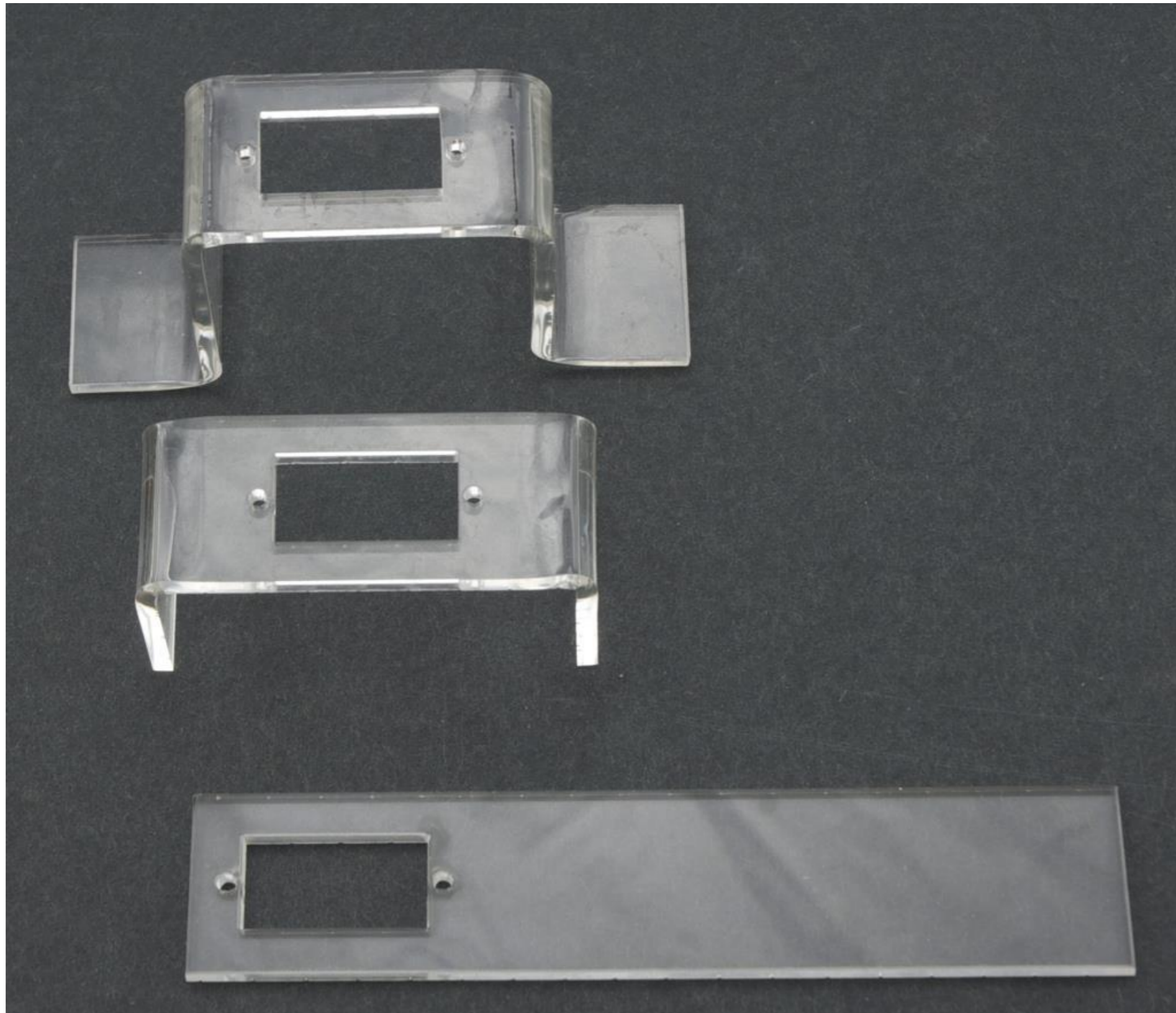
Acrylic parts



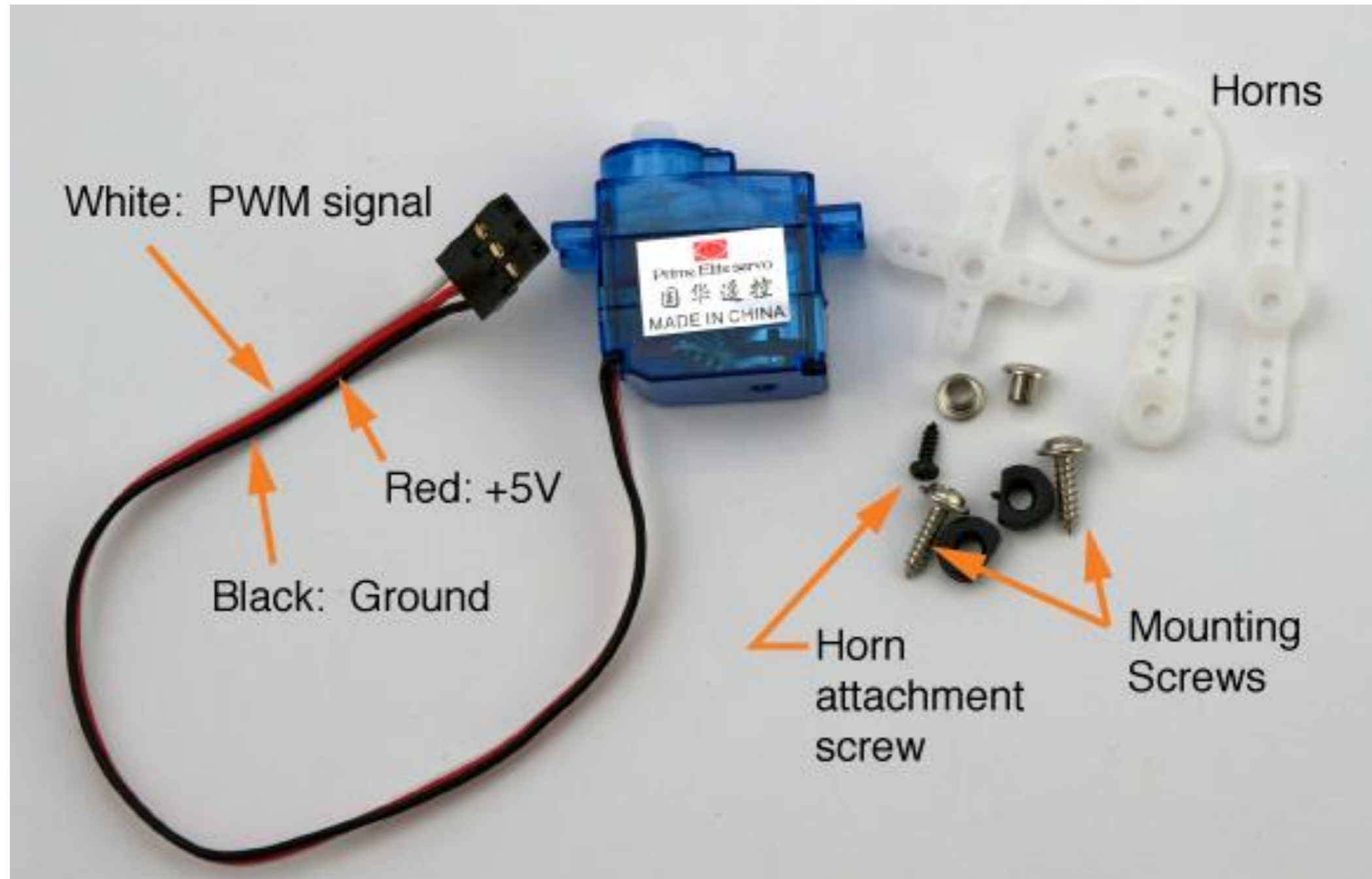
One base design



Alternative base designs



Servo Motor



Fan Project: First Steps

- Make a hand sketch of the structural parts
- Measure the Servo and mounting screws
- Use measurements to add dimensions to the sketch
- Redraw the sketch as a 2D “flat” drawing
 - ❖ Laser cutter works on thin sheets in 2D
 - ❖ Use the acrylic bender after parts are cut
- Watch the Laser cutter video:
 - ❖ <http://youtu.be/DJA8EmBUfLo>