Armor:

General Construction:

- Made of 10 mm EVA foam floor mats and 4 mm adhesive backed foam
- Used a variety of fasteners including zippers, magnets, and velcro to allow for ease of transport and wear
- Seams and dents were filled with Kwik seal (caulk) and edges were sanded with a rotary tool
- Patterns for the armor were made by me (with the exception of the shoulder pads) out of duct tape and newspaper

Chestplate Construction:

- The entire front plate of the chest plate is detachable. It is secured with elastic and velcro straps, as well as magnets. I made it like this for ease of getting out of the costume (so I can get in and out of the costume without a handler)
- The battery pack for the LEDs on the neck piece of the chest plate is hidden in the jetpack. The jetpack is held on the back of the chest plate with foam tabs and velcro so it is easily removed for access to the batteries
- The jetpack is smoothed with model magic to create rounded edges
- Details are done in 4mm foam

Legpiece construction:

- The upper leg armor has foam holders on the inside for the battery packs
- The upper leg armor is fastened with zippers to keep its shape, and for ease of getting in and out of the armor\
- The lower leg armor is fastened with neodymium magnets so it can snap over the boots.
- Details are done in 4mm foam

Bayard:

- Was constructed out of foam, a 3D printed piece made from PLA and a pvc pipe
- The handle and place where the LEDs rest was made out of 10mm and 4mm foam, save for the pvc pipe that gives the bayard structure. It was glued together with barge and e6000
- The bayard blade was 3d printed in PLA, the STL file was created in autodesk inventor, by me

LEDS and Electronics:

- In the chest plate and upper leg armor, weatherproof LED strips are used. They are covered by .02 mm PETG which is sanded to diffuse light
- For the belt and shoulder pieces, I used standard blue gumdrop LEDs and powered them off coin cell battery packs. They run off 2 coin cells each and are connected in series. The belt has 3 LEDs and the shoulder pieces have 2 LEDs each. They're glued in with hot glue. They shine through .02 mm PETG which is again, sanded to diffuse light
- For the bayard, there is a strand of neopixels mounted in a foam channel I made underneath the plastic. The wiring is then routed through the handle to an Adafruit itsy

bitsy controller powered off a lithium polymer battery. I programmed the breathing cycle by referencing code found in the neopixel library. The leds are turned on and off with a little slide spdt switch.

Painting:

- Paints used were either Angelus Leather paints and basic acrylics
- This was my first time airbrushing! I wanted a more professional finish than spray painting and I've had trouble with spray paint cracking in the past, so I decided to use an airbrush (0.5 mm)
- All armor was sealed with a gloss finish to give it a nice shiny effect
- The PETG over the LEDs was sanded and tinted with paint to diffuse light.

Undersuit:

- Test suit was made of cheap translucent lycra to ensure fit and make any modifications before moving to final
- The final suit was made out of wicking jersey spandex and Dri-Fit mesh. This is to combat the heat that comes with walking around in a suit of armor all day. I put vents at high sweat areas with the mesh to ensure airflow and comfort.
- Seams were ⅜ seam allowance with a lightning stitch. They were graded to reduce bulk and the curves and princess seams were clipped to ensure flat lying seams
- The panels were sewed in with a lightning stitch at the top, and overcast stitching at the bottom
- Leg holes were hemmed with an overcast stitch around the edge.
- Armholes were hemmed by hand with a catch stitch. Due to their tiny size, they were too delicate to be stretched over the sewing machine.
- The fabric attachment for the shoulder was made using a tutorial by toyaJaxCosplay. It is attached to the suit with elastic and velcro and has mesh in the back for extra breathability