

EVENT REPORT: Gulf Coast Robotics Sports 2

● by Seth Carr

July 11th was the second Gulf Coast Robot Sports event at the Robot MarketPlace in Bradenton, FL. Fifteen robots showed up for a chance at one of the prizes, totaling over \$150. It was a fun event, with an even mix of old (chronologically) builders and new ones. Notable entry Sting was one such newbie to SECR-FL events. Sting swept through the three-pound Beetleweight class, going undefeated to first place. In the one-pound Ant weight class, overnight-built Sporkinok surprised everyone — even its builder — by coming in second place, with both losses to first place winner DDT. In

the 150 gram Flea weight class, there were only three entries, so the fights were in the round robin format. At the end of all three robots fighting, everyone was even, so a double elimination round robin tournament was held.

The event took place inside the Hobby MarketPlace, which is the physical store front to the Robot

MarketPlace. Fighting happened in the enclosed and permanently set-up arena which used to be used at SozBot events. The event drew a good amount of spectators, most of whom heard of the event through word of mouth and flyers that were posted in the store. The next event is slated for mid October. **SV**

The Robot Market Place arena made the move from the west coast to Florida.



PARTS IS PARTS: Coloring Titanium

From the RioBotz Combob Tutorial

● Original Text by Professor Marco Antonio Meggiolaro; Summarized by Kevin M. Berry

Curiosity about titanium is that its surface can be colored without paints or pigments; just using Coke (or Pepsi) in a technique called electrolysis or anodizing.

To color it, you need a piece of stainless steel (SS) with an equal or

larger area than the one of the titanium to be colored, a SS screw, a titanium screw, Coke, and a DC power source (of at least 30V). The setup is shown in **Figure 1**. Polish the titanium surface well and clean it with alcohol or acetone — do not

leave any fingerprints. Place the titanium part (which will be the anode) and the SS one (the cathode) submerged in Coke (the electrolyte, which can also be replaced with Trisodium Phosphate [Na_3PO_4]) very close together but

without making contact. Make sure the titanium screw is in contact with the titanium part to be colored but not with the SS plate (we used a rubber grommet to guarantee this, as shown in the **Figure 2**); and the SS screw only touches the SS piece.

Connect the positive of the DC power source to the titanium screw and the negative to the SS one without letting the wire contacts touch the electrolyte. Apply a DC voltage between 15V and 75V for a few seconds and it is finished — the titanium part is colored!

A range of colors can be done. The titanium color obtained by the electrolysis process depends on the applied voltage. The higher the voltage, the thicker the titanium oxide layer will be that is formed on the plate (anode), changing its color.

This color change happens



FIGURE 1

because the oxide layer causes diffraction of the light waves. The colors are gold (applying 15V), bronze (20V), purple (25V), blue-purple (30V), light blue (35V), white bluish (40V to 45V), white greenish (50V), light green (55V), yellow-greenish (60V to 65V), greenish-gold (70V), and copper (75V). There are other colors up to 125V, but they are opaque, (not very brilliant).

Coke works well, but it is not the best electrolyte. We've discovered that Diet Coke is a little better because it doesn't have sugar which

accumulates on the contacts. The best option would be to use Trisodium Phosphate (also known as TSP), diluted at about 100 grams for each liter of distilled water (about 13 oz/gallon). Besides being transparent (which allows you to see the colors as you increase the voltage), TSP is a detergent that helps to keep the titanium surface

clean during the electrolysis, resulting in a more uniform color.

In **Figure 3**, you can see Titan's side walls, the top two plates before the process, and the bottom one after being colored using TSP and 30V. Note the masking that we've used on the top plate (written TITAN) is made out of waterproof adhesive contact paper. The mask protects the region during electrolysis, afterwards leaving letters with the original color of the titanium (as it can be seen in RioBotz written on the bottom plate). **SV**



FIGURE 2



FIGURE 3

THOUGHTS OF A NEW EO

● by Seth Carr

So, you've been building robots for a while and now you want to put on an event. Sounds easy enough, in theory. Theory — however — is not as easy as it seems. Organizing an event (or "EOing" as it's called) of any size is

stressful. You have to find a venue; then you need an arena; then you have to get said arena to said venue; then you have to set up said arena; then you have to make the brackets; then schedule fights; make sure the crowd is entertained;

make sure the competitors are accommodated; and... Well, you get the point.

As the size of the event goes up, so do the stressors and other extenuating factors. For the sake of simplicity (and this article), we'll be