

TNT Racer Logo



Daily Updates

Day 1-

Today was the exciting first day at the Robotics YAP program! Our day started with an introduction to robotics and all of the amazing TAs and Professors who would be teaching us.. We learned that we would be building a DSTR robot in teams of four. There are four main parts to building a robot- electrical, mechanical, software, and communications. We split into teams of four, and each chose a branch to participate in. Each person in our team left to work on our branch with the experts (TA's)!

On the first day, the electrical group learned about each of the tools they were to be using that day, and started with the sled- the part that connects the mechanical frame, and the launching pad (software). They drilled holes into their sleds, and installed the "picnic table", which is a

platform that hold up the batteries. But, don't worry- safety first- they wore protective goggles while drilling.

In the mechanical group, they were cutting out parts, such as metal pipes, to construct the framework for the robot. They were measuring all of the parts they need to construct a stable structure for TNT racer.

In the software group, they learned basic code lines, and coded the Blink code. They were introduced to the lines of code that would be used to code the launchpad, and practiced coding to prepare to code the robot.

In communications, we were introduced to the field. We learned about how to use social media to market a company, and get our ideas out there. The great thing about communications is that you can always know what is going on in all of the four groups. We went around, and took pictures and notes about the first day, and got updated on all of the progress.

Day 2-

On to the second amazing day! Today's mini lesson was on social media. We learned about the professional uses of it and how it can benefit a company. Gaining a following is important, but it is also important to make sure that the content you post is professional, and only contains information that is important to the topic.

Today the electrical group made a lot of progress. They learned how to solder safely and practiced soldering a few times before soldering the wires for the robot. The solder heat can get up to around 300 degrees celsius! They soldered wires to the motors, and melted some insulation onto the exposed wire with a heat gun! Next, they bent the sled to the correct shape needed to fit the robot- with another heat gun.

In the mechanical group, they continued to cut out parts for the frame. They connected some pipes using specially filled plastic parts in which they drilled holes. They made a lot of progress, and almost finished the whole frame.

In the software group, they continued to code for the robot. They finished the code that day! Then, they tested the analog signals by attaching the launchpad to a certain computer to receive the data!

Over in Communications, we designed our team logo, and started tweeting on our professional social media accounts. We continued to take pictures and stay updated on the progress of the other groups.

In the afternoon, we did a mini lesson on PWM (Pulse Width Modulation). We learned about duty cycles, and other important information necessary to build a robot.

Day 3-

This morning's lesson was over an H-Bridge. We will be controlling a high power device from a low power device. In order for that to work, you need to use an H-Bridge.

Today, communications and software came together to learn about coding. The team member from software taught the team member from communications what they have learned in the past few days.

In the mechanics team, they completed the frame, and installed the wheels. Electrical combined what they had been working on with the software team. The launch pad was installed onto the

sled and other parts. Then, it was attached to the mechanical frame- and the robot was completed!

Later that day, we had mini lesson on the coefficient of friction. It is basically the static friction force divided by the normal force, and it represents the ratio of friction between two different surfaces. We would be testing our robot wheels on different surfaces to find the highest coefficient of friction the next day.

Day 4-

Today we tested many different properties of our robot. In the morning, we learned about the battery capacity. We were looking for the operational time- or how long the robot's battery would last.

Then we tested the coefficient of friction and found that the carpet had the highest coefficient of friction, linoleum and concrete being the other two surfaces.

We also tested different duty cycles and compared the robot's current and speed. The professor explained the rules and categories about the competition tomorrow.

Our robot is doing well, and TNT racer is ready to blow away the competition!