

3D Design with OnShape

Hello Droids,

As part of our build season we will be using the OnShape 3D CAD platform to help us design and test our robot. Below are some answers to questions about OnShape, links to learn the software, and an outline to your first project.

FAQ's

What is OnShape and why are we using it?

OnShape is a computer aided design software (CAD) that allows you to create parts and assemblies. This type of software is used in every facet of product design and engineering. It allows you to design a product in 3 dimensions without having the expense of making multiple physical models or prototypes. It is easier and more cost effective to make changes to the computer model than prototypes and hand drawings.

In addition creating 3D computer models makes it easy to utilize computer aided machining and manufacturing techniques such as CNC Routers, CNC Mills, CNC Laser Cutters, and 3D Printing.

Why OnShape not another 3D CAD Program?

3D CAD software has been around for a while and there are many good solutions out there. OnShape has many of the same basic features as all the others but what makes this program well suited for what we are trying to do is that it is web based and cross platform. You can successfully model on computers, Chromebooks, and even your iPad. Since it is web based it allows you to share your models easily so multiple people can contribute.

LEARNING RESOURCES

[100 Days of Onshape](#) : This is a youtube series that does a great job of using small projects to teach you the tools and design concepts.

[OnShape Resource Center](#): OnShape's own resources and tutorials

PROJECT

In your kit you received a [photoresistor](#) and led's. You are to make a housing that will mount to your robot and hold both of these items creating a line following sensor. The led should shine down and not directly on the photoresistor. The photoresistor should be able to sense the reflected light from the led.