Assembling in CAD

Oct 04, 2019

FIRSTRoboticsBC.org

Thank you to the University of Victoria for hosting the FTC Workshop series!

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FIRST TECH CHALLENGE
BRITISH COLUMBIA

Today's Plan

- **Introduction to CAD**
- **OnShape setup**
- **Build a virtual robot**
- **Fusion 360 / Solidworks Overview**
- **Further Resources**

What is CAD?

Computer Aided Design

Many popular packages used by FTC teams

- Solidworks
- Fusion 360
- PTC Creo
- OnShape

Why use CAD?

CAD provides a virtual environment to test out designs and model the final product

- Save time assembling
- You know what parts you need to order before you build
- Compare designs which can't be made simealtaneously
- Design custom parts

Onshape

Onshape is a full service CAD program which runs completely in browser

- No installation
- Access to all your files on any device
- Version control allows you commit important revisions
- Live collaboration

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Get an Onshape Education Account

Visit https://www.onshape.com/products/education

It is recommended everyone make their own account and share files but a team could have 1 shared account too.
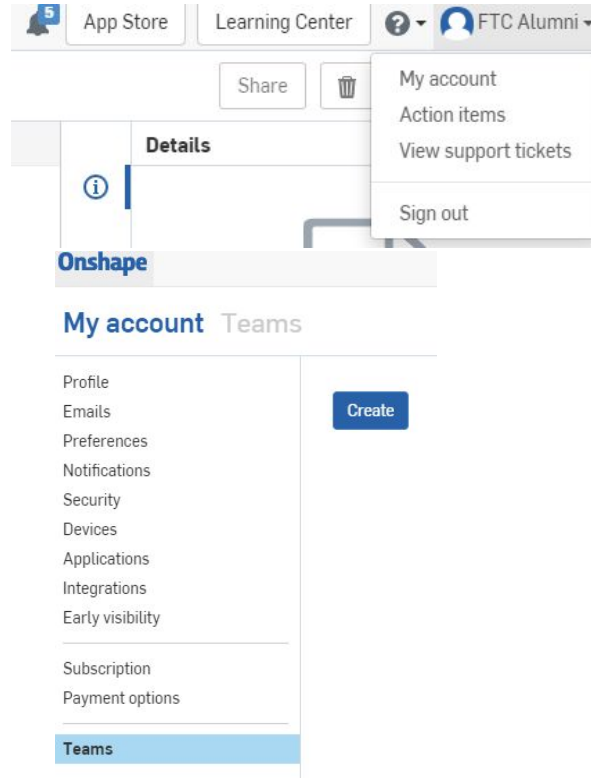
Share Your Work with Your Team

Go to My account

Next go to Teams

And click Create

Share Your Work with Your Team

Enter your team name

Add members to your team

Share Your Work with Your Team

Next return to the homepage and create a folder

Right click on the folder and choose Share
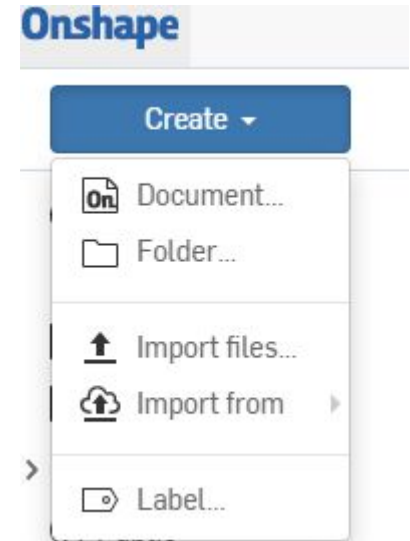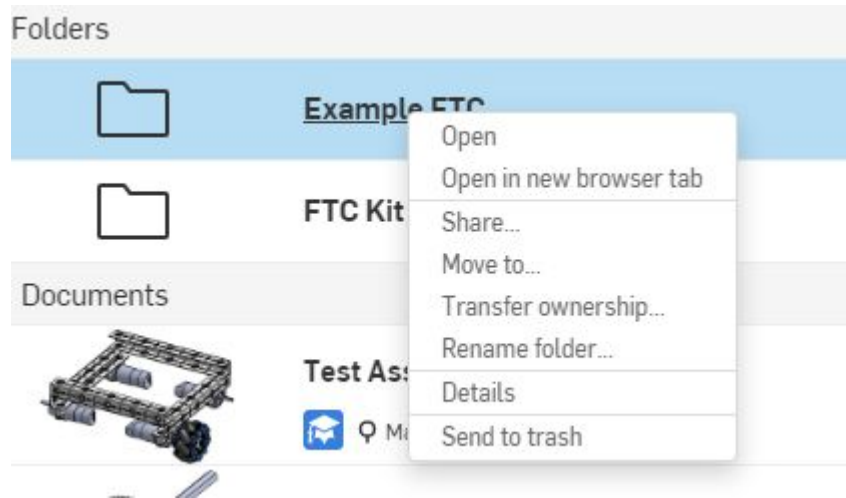
Share Your Work with Your Team

Finally choose teams

And make sure all of the boxes are checked including Link document.

From now on any files you create in this folder will be shared

Share settings for
📁 **Example FTC**

Owned by: 🔵 FTC Alumnl

×

Only users listed below can access this folder.

Individuals	Teams

Search names   Can edit ▼   Share

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Solidworks Overview

Solidworks is similar to OnShape but has more features particularly for modelling
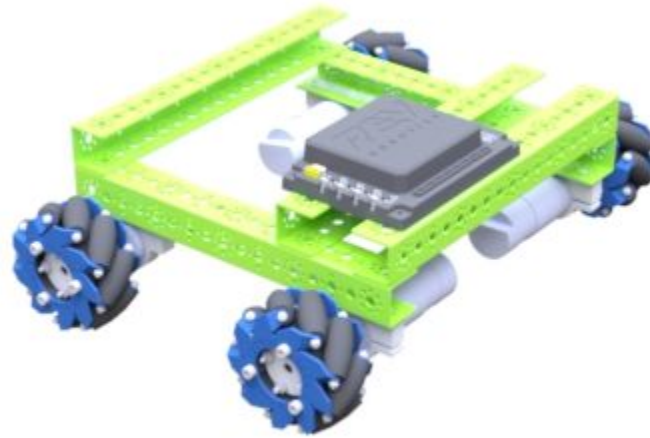
Used in industry

Cons

Needs to be installed

Requires computer with good performance and RAM

Slower process to get free FTC license

Let's Build a Robot!

Other Resources

The Kit of Parts I shared is primarily based on https://github.com/Spectrum3847/Spectrum-CAD-Library

If you want to make fancy renderings, the OnShape app (extension) RealityServer is pretty cool

Next Time: Programming with Vuforia

No workshop next week!

Programming with Vuforia Oct 18 at 4:30 - 6:00pm.

Vuforia is a computer vision library built into the FTC app which can be used to identify the vision targets