

Choosing your CAD software

Arguably one of the most important elements of engineering, Computer Aided Design (CAD) is also an integral part of the FIRST Robotics Competition. Ensuring that you have an accurate and descriptive 3D model of your robot can be quintessential to performing well throughout the competition season.

In order to develop these CAD models however, you need to choose the best piece of software for your individual team, out of a wide range of existing products. In this article, we'll be discussing what solutions exist, and their defining features which you should definitely consider when deciding what to use as a team.

Solidworks:



Solidworks is the industry standard CAD software that comes with a variety of professional features. A solidworks licence can cost upwards of £1,000 (~\$1300), although FRC teams and students are able to claim a free licence while in their team or while they remain in education. Using solidworks in your FRC team can often be helpful for team members later in their career, as being skilled and experienced in the industry standard for CAD is a sought-after capability by many employers.

Fusion 360:



Fusion 360 is a CAD package created by Autodesk that is frequently used by hobbyists and industry professionals alike. It comes with native cloud collaboration features that enable easy and convenient synchronisation between multiple devices, along with powerful simulation, animation, and rendering capabilities. Fusion 360 is constantly being updated, and includes state of the art technology such as generative design which can help you to build stronger parts in a minimal form factor, through the help of AI. Fusion 360 is free for

hobbyists and students, but can once again cost more than £1,000 (~\$1300) for those using it in industry.

Onshape:



Onshape is a relatively new piece of CAD software that runs entirely online, in your browser. Onshape's architecture can bring a revolutionary level of collaborative potential to your team, enabling multiple people to work on the same project simultaneously from different devices, so long as they have an internet connection - completely removing the hefty hardware requirements needed for almost all other available CAD packages. Onshape also comes with an extensive library of FRC parts, known as the MKCAD library, which can help to streamline your team's design process through drag and drop components and assemblies.