

Make It Real CAD Online Challenge (3D Printed Piece)

Team name: VEX Cougars Reassembled

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The online challenge that our team chose to complete was the Make It Real CAD Online Challenge. The challenge was to 3D print a working VEX IQ piece. We decided to make our piece on the newest version of Tinkercad in December 2019. We came up with the idea to make a piece that you could snap into the inside of a wheel to prevent the axel from coming out and keep the axel really stable, solving a problem that we have. We have named this piece Hub Cap based on what a real wheel uses. Hub Cap is a circle that goes on the wheel. Hub Caps' outside circle is 34mm and 3mm tall. The lips inside the circle are 1.5mm high. The middle square is 3.50mm. Some challenges we faced were that the holes in the piece were too small for the pegs to fit into or the piece was too big to fit in the wheel. Here is how we overcame those challenges. The first challenge was when we took the piece out of the 3D printer and tested it, the holes were too small, so we had to measure the holes and make them bigger. When we printed the next piece and we thought it would be good but the holes were too big and the piece didn't fit inside of the wheel, so we tried one more time and the holes were perfect! They fit into a normal wheel and fit into an omni wheel. You need to use a two by one peg to attach the piece to the wheel or omni wheel. The piece is stable and it fits perfectly on an axle. We worked together to overcome some challenges, and in the process our team learned how to 3D print and figured out that we could make many useful pieces with a 3D printer. Making a 3D piece has taught us a lot! We are proud of the piece that we printed because we know that we put all of our effort into it. We have loved making a 3D piece, it has been a lot of fun!