Clip on Keps Nut

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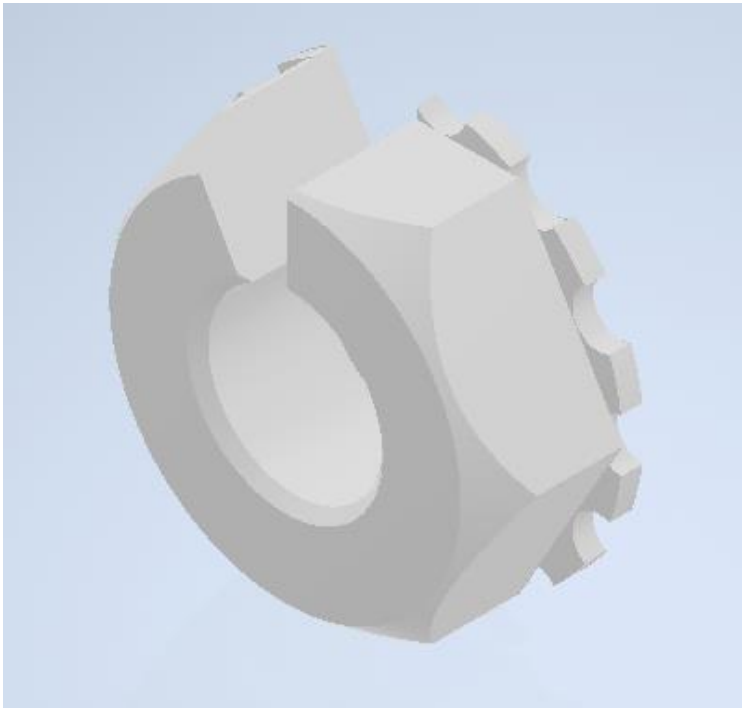
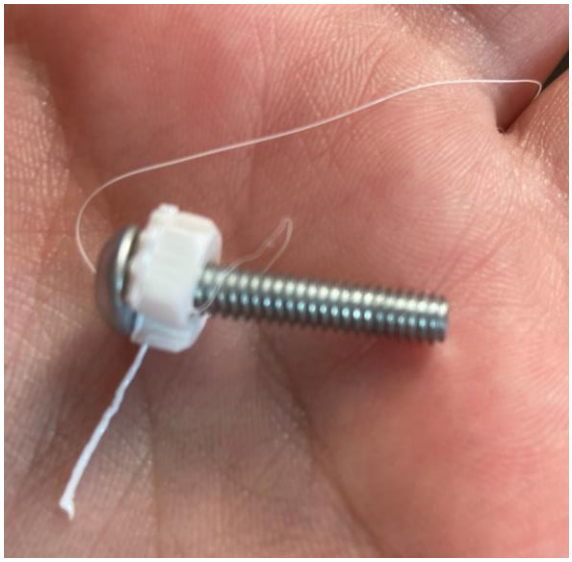
2021 “Make it Real” CAD Engineering Online Challenge



Our team made this Clip on Keps nut to make working in small spaces easier. This Keps nut also makes taking apart your robot simpler. Instead of unscrewing screws out of the regular Keps nut all you must do is pull the clip on Keps nut off its screw. This process does not require any keys or wrenches.

Before beginning this design, as a team we thought about what we could create to make building robots easier. After coming up with a list of ideas we decided to design the clip on Keps nut. We gave it a small opening that would allow it to be pulled off the screws but prevent it from falling off during matches. The clip on Keps nut would make the prototyping and building process faster. It will be much easier and way faster to put together the robot and to take apart the robot.

First, we downloaded a Keps nut from the VEX robotics website, then put it into Autodesk Inventor 2021. Then created two planes through the center of the Keps nut. Afterwards, we cut the solid by using the split tool to remove the faces in between the planes. Then we printed several prototypes to find the best angle for the clip on keps nut opening. We used flexible filament with the FlashForge Finder 3D printer.



The 3D printed clip on Keps nut would be a helpful piece to have while building a robot. It will make building robots easier and faster because it stays on firmly but is able to be snapped on and off of screws. The clip on Keps nut is a great solution to attaching VEX pieces in tight spaces. With regular keps nuts you would have to hand tighten it but overtime the Keps nuts end up loosening. The best way to tighten the original Keps nuts is with a wrench or a drill but in a tight space there isn't room for those tools. That is why the clip on Keps nut is a great alternative to the original Keps nut.