98472A

VEX Gear Shifter

Introduction:

The vex gear shifter was designed as a compact way to transport a gear from its place with out using pneumatics .
Its designed to convert the rotational motion of the motor to a liner motion to get the movement that we want

How the part will-be used :

The vex gear shifter consists of two new parts.
The arm and the gear housing as well the necessary hardware like :
The motor ,screws , a nylock nut , shaft , and a 1*3*1*25 C-channel

The motor rotates the arm, and the gear housing is screwed into the arm and we put the gear inside the gear housing.
When the motor starts running the gear housing will push the gear from its original position to the required position.

ROBOTECH

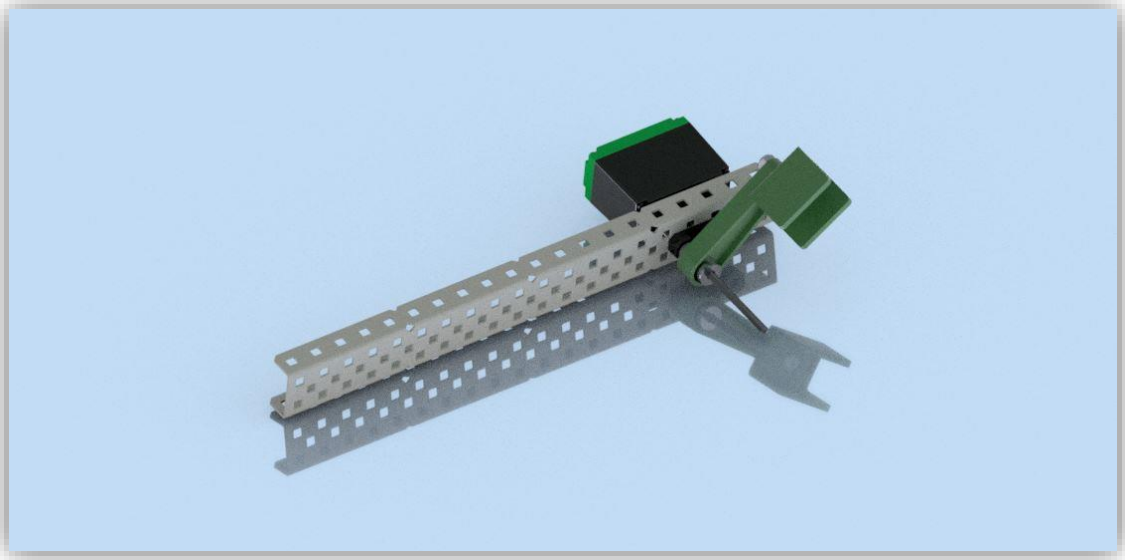
How we used Inventor :

Autodesk Inventor Professional was used to design, render, and animate the gear shifter.
the sketch, extrude, and the fillet tool , we used them to create each of the new parts.
The assembly environment was used to assemble the parts to ensure that they fit together and moved properly.
The Inventor Studio environment was used to set up renderings of the final model , as well as to create several animations showing the gear shifter assembly and use.

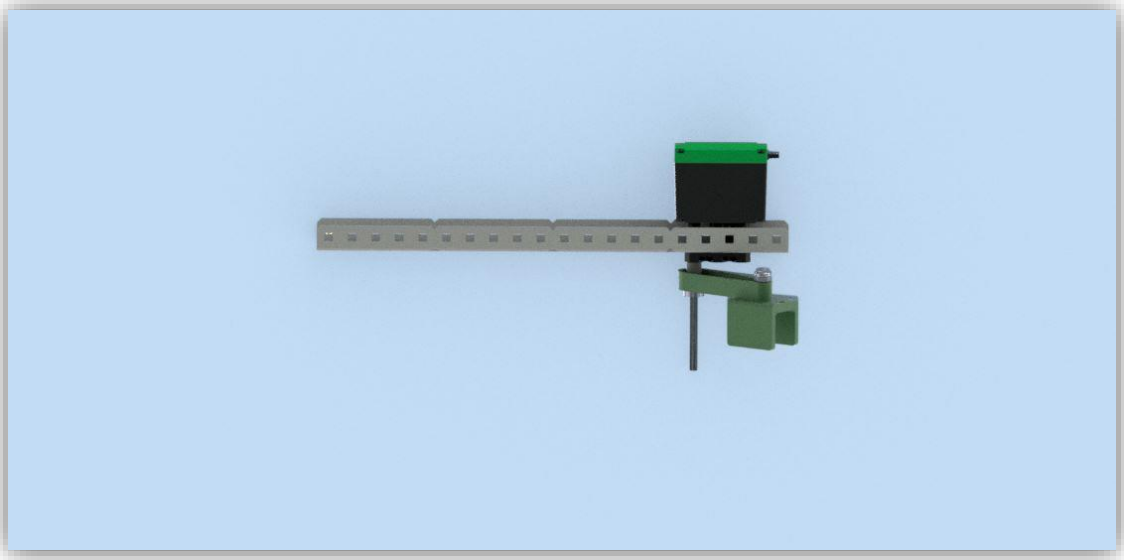
Design Process :

As a team we decided to make every Tuesday of every week a brain storming day for the ' Make it real cad challenge ' and just after 2 weeks we found this idea and we started working.
We started by drawing the first part which was the arm on inventor and gave it some details then we drew the second part which was the gear housing and we gave it some details.
After that we started assembling and by the team work we made the part and the assembly in just 2 weeks.

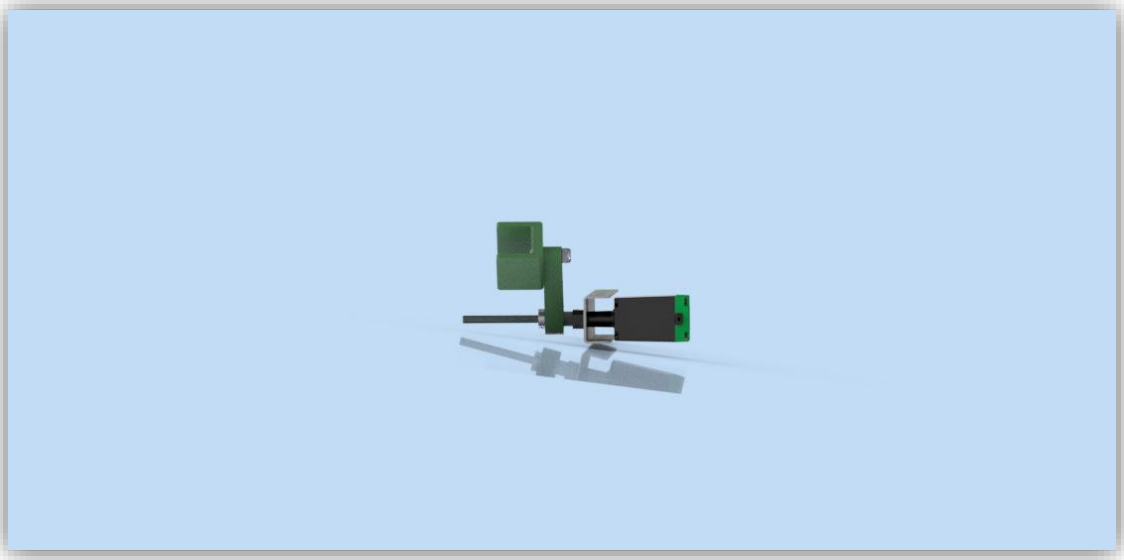
1- The VEX Gear Shifter



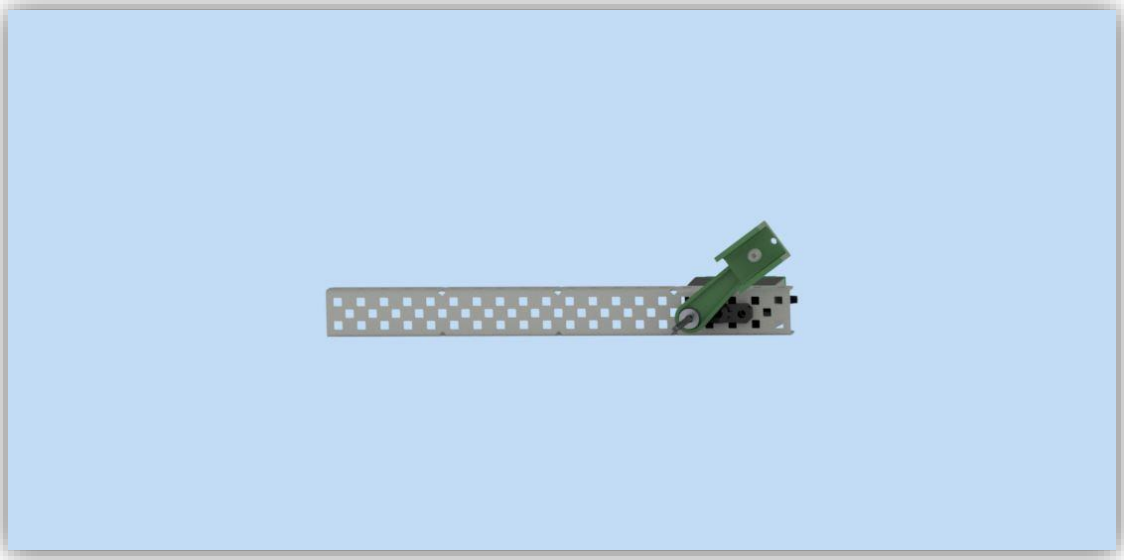
2- Top View



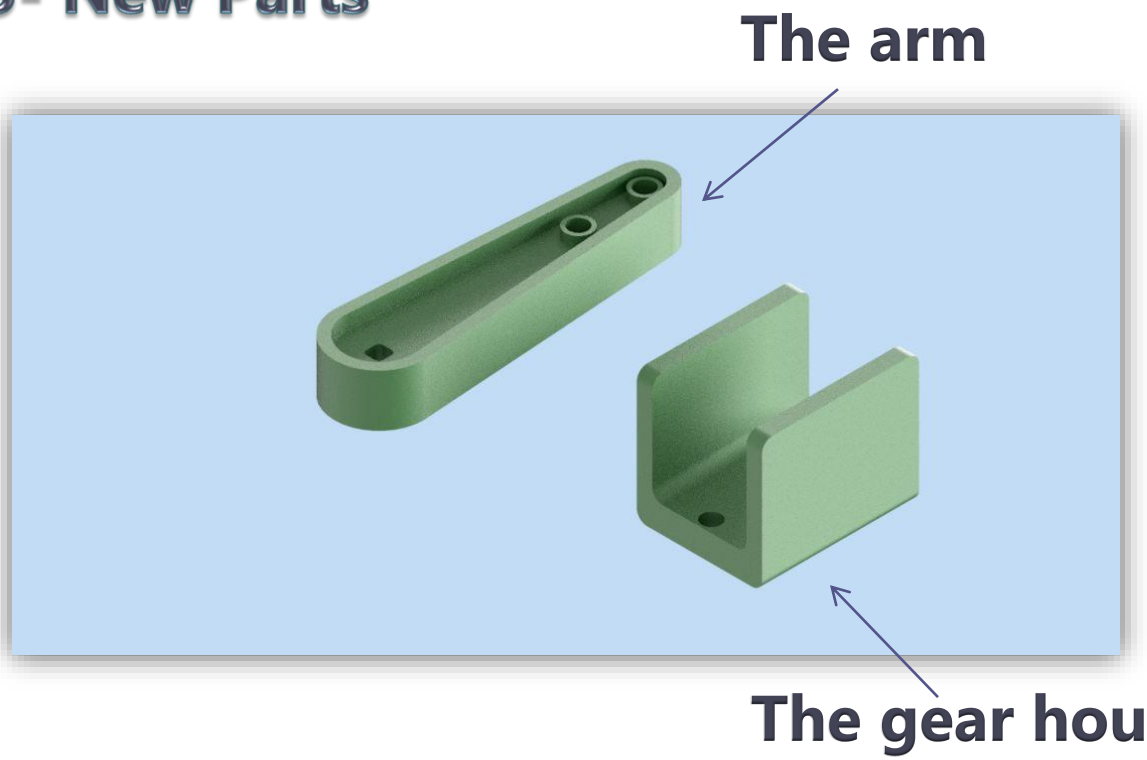
3- Front View



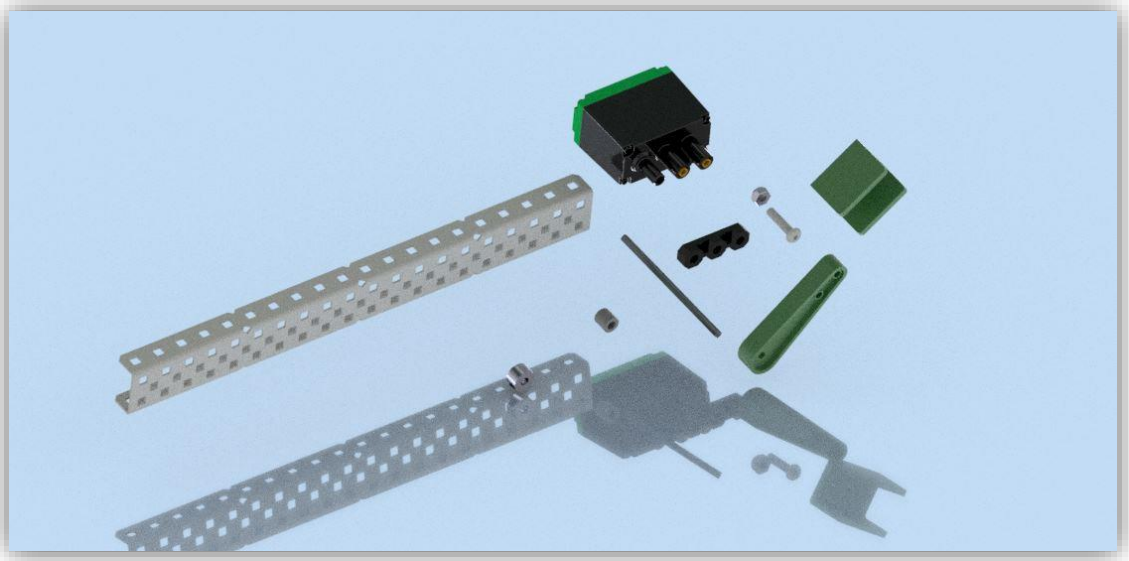
4- Side View



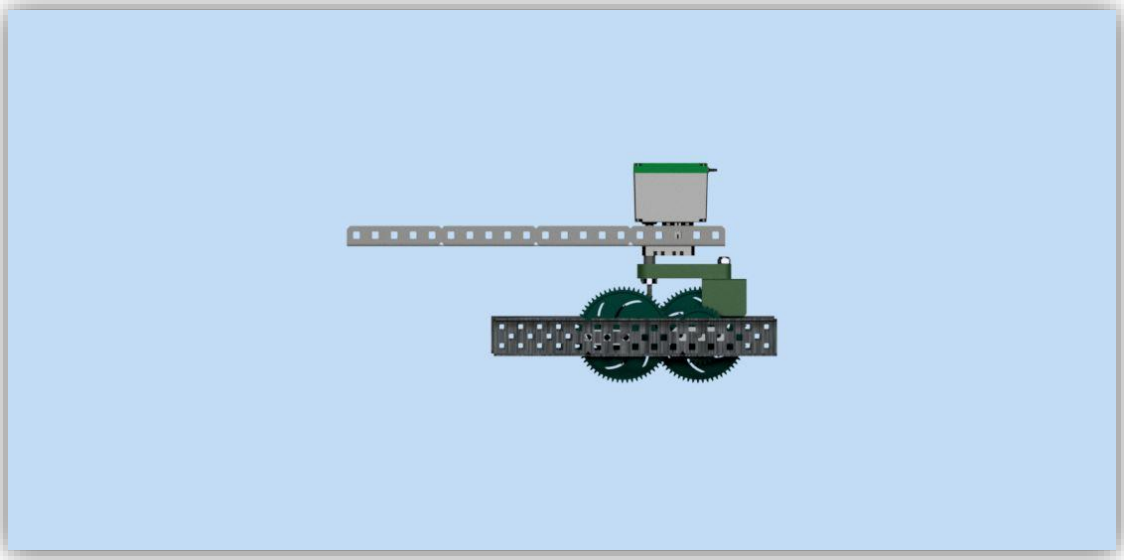
5- New Parts

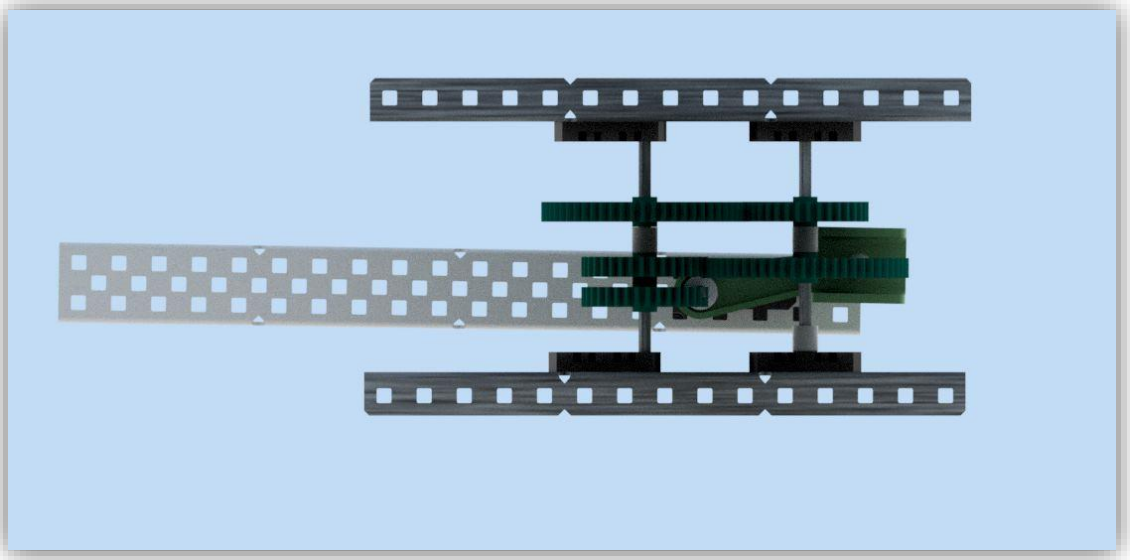


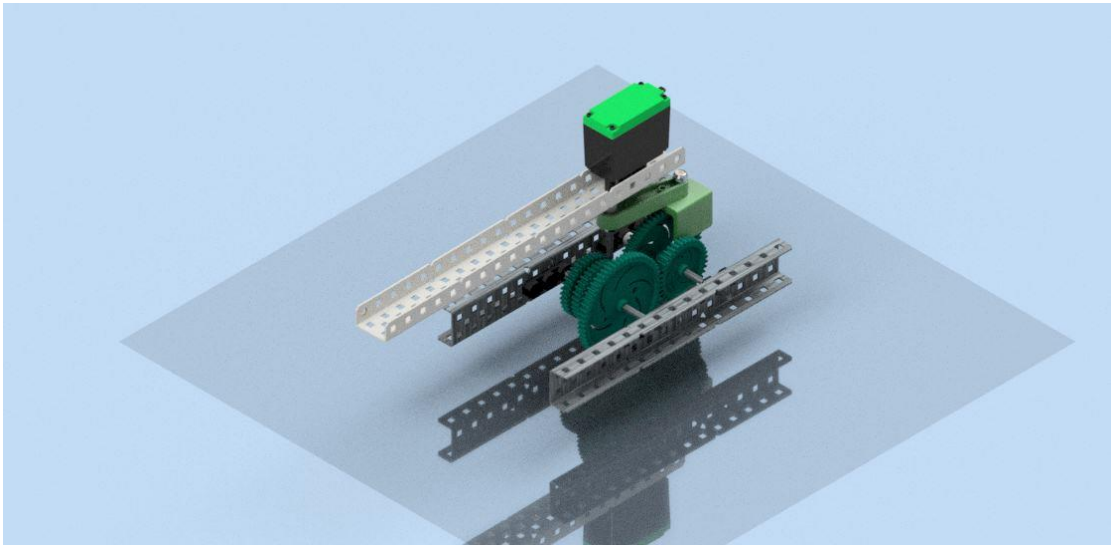
6- Exploded Assembly



7- The Gear Shifter Working







The conclusion:

We used and will continue to use Autodesk Inventor to help us design our robots and other projects.
We found that designing a robot for a competition before building it ، is helpful and time consuming because we can adjust anything at any time without reassembling the real robot until we settle down for the final robot.
We can build it in a maximum of 4 days so we thank Autodesk for making this professional software

Team Name: ROBOTECH Team
Team Number: 98472A

we thank Misr Elkher foundation for supporting us.

The persons who helped us :

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