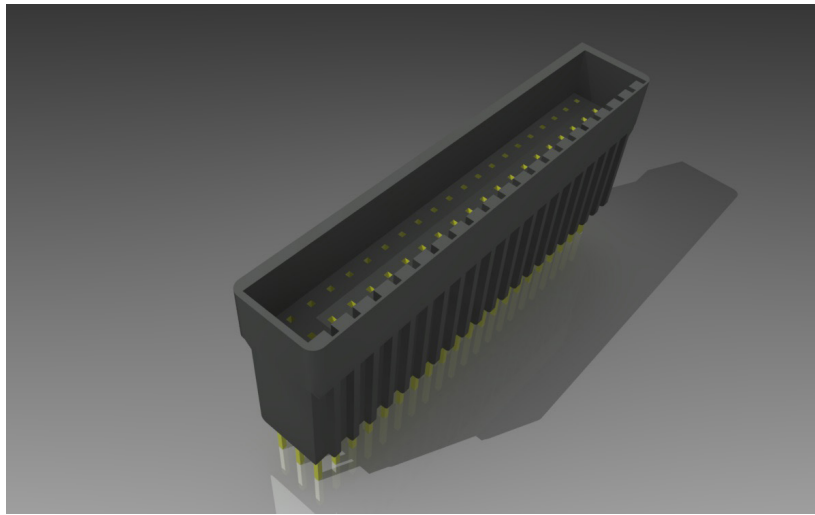
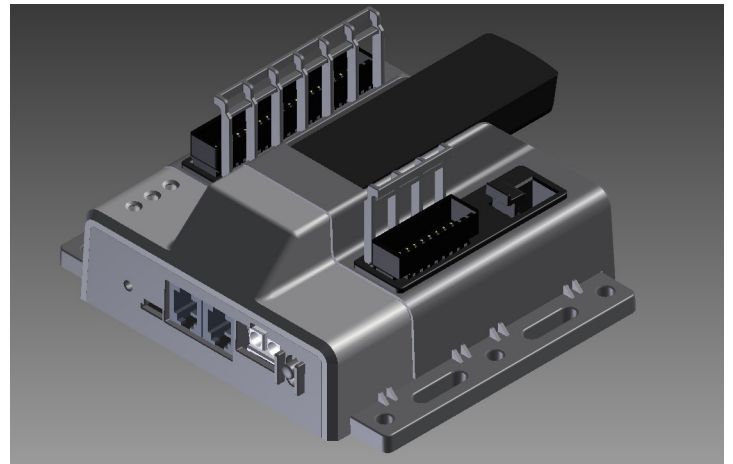


The Easy Connect



The part our team developed has two main functions. The main use of the tool is to make wiring an easier job, and allows for switching of the cortex. The CAD software our team decided to use was Autodesk Inventor 2015. We used this CAD software to brainstorm the final design of our product. This allowed our team members to visually see how the tool looked like in 3D, so if there was any problems with the CAD we could go back to the brainstorm portion of the design process and redesign the product in order to get it to work as we desired.

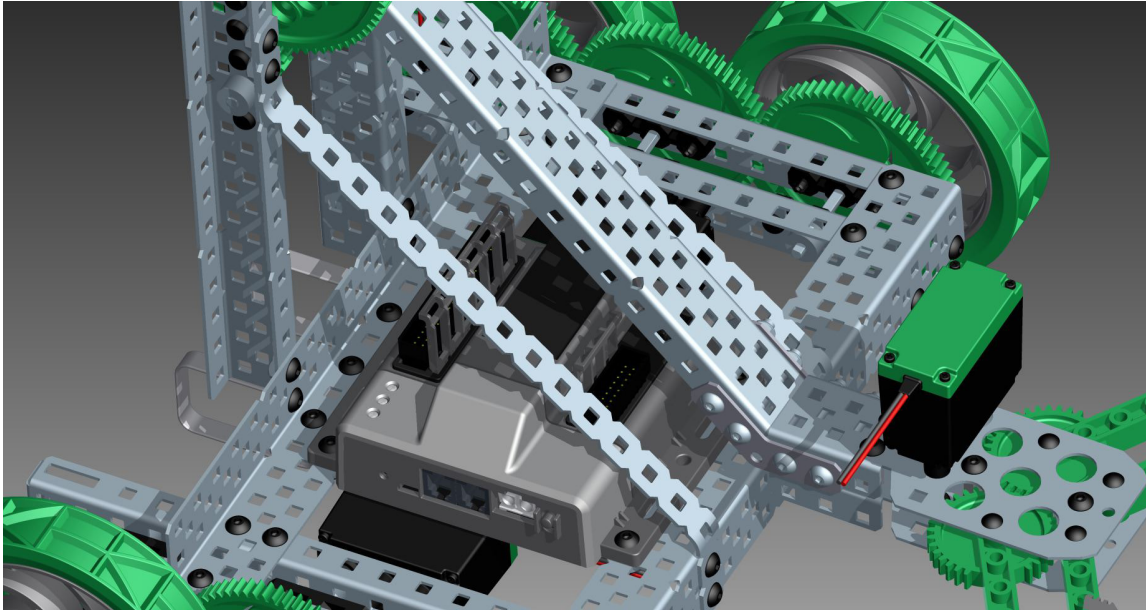


Our team followed a 5 step design process, the SPICE model. SPICE stands for situation, problem statement, investigation, construction and evaluation. Our situation was the VEX Robotics Engineering CAD Challenge. The first problem our team faced was the amount of time required to switch wires from the cortex because of unexpected problems in competition situations. The second problem our tool was designed to solve is a problem we faced during wiring. We found that when the cortex was placed in an awkward location it was hard to see the port numbers and get the wires into the correct ports.

Our team brainstormed multiple designs on paper, before building the final product. Our initial design was heavily inspired by the Q connector used in the build of computers. We drafted some initial designs which involved just the base portion of the Q connector. We innovated this design and added PWM guides. This acted as a support for the wires. In our final design we added actual PWM supports for the wires and competition wire retention arm.

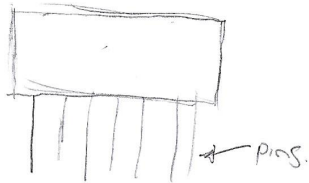
Our team concluded with the final design. The final design of the tool, which we named “Easy Connect” was constructed in CAD software for testing purposes. From here we were able to find minor errors such as PWM cables were too exposed with the current design. This error was easily fixed in CAD by adding supports around the PWM cables. This led us to our final product the “Easy Connect.”

Our team evaluated that the final design which met the criteria and were able to solve the problems stated previously. The tool is able to effectively manage cortex wires and allow for the swapping of wires between cortex's quickly and efficiently in difficult competition situations. For example during two local competitions we ran our robot without our lift because we didn't have enough time to switch the cortex because of the time constraint between matches. The exact same situation happened at the VEX World Championship where two minutes before, one of the pins in our cortex which connected to the battery was lose which made a poor connection. If we had this tool with us we would have been able to manage our wires and swap our cortex in less than a minute. This tool would've benefited other teams as we observed they faced the same cortex problems.

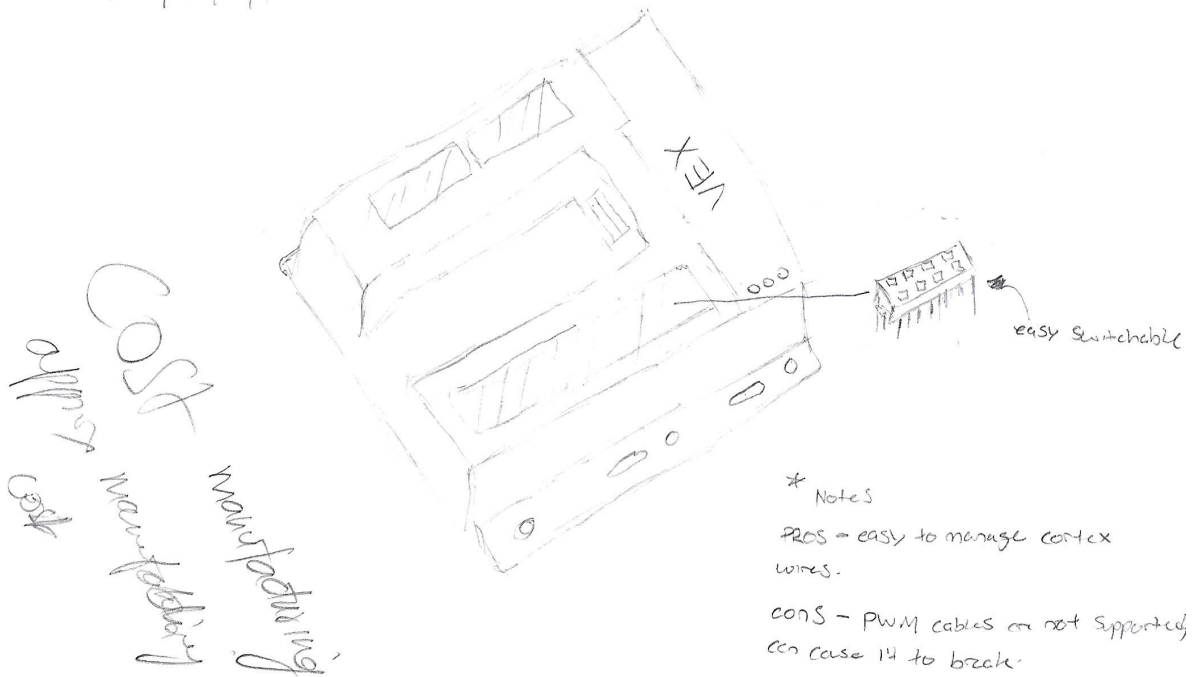


EZ Connector

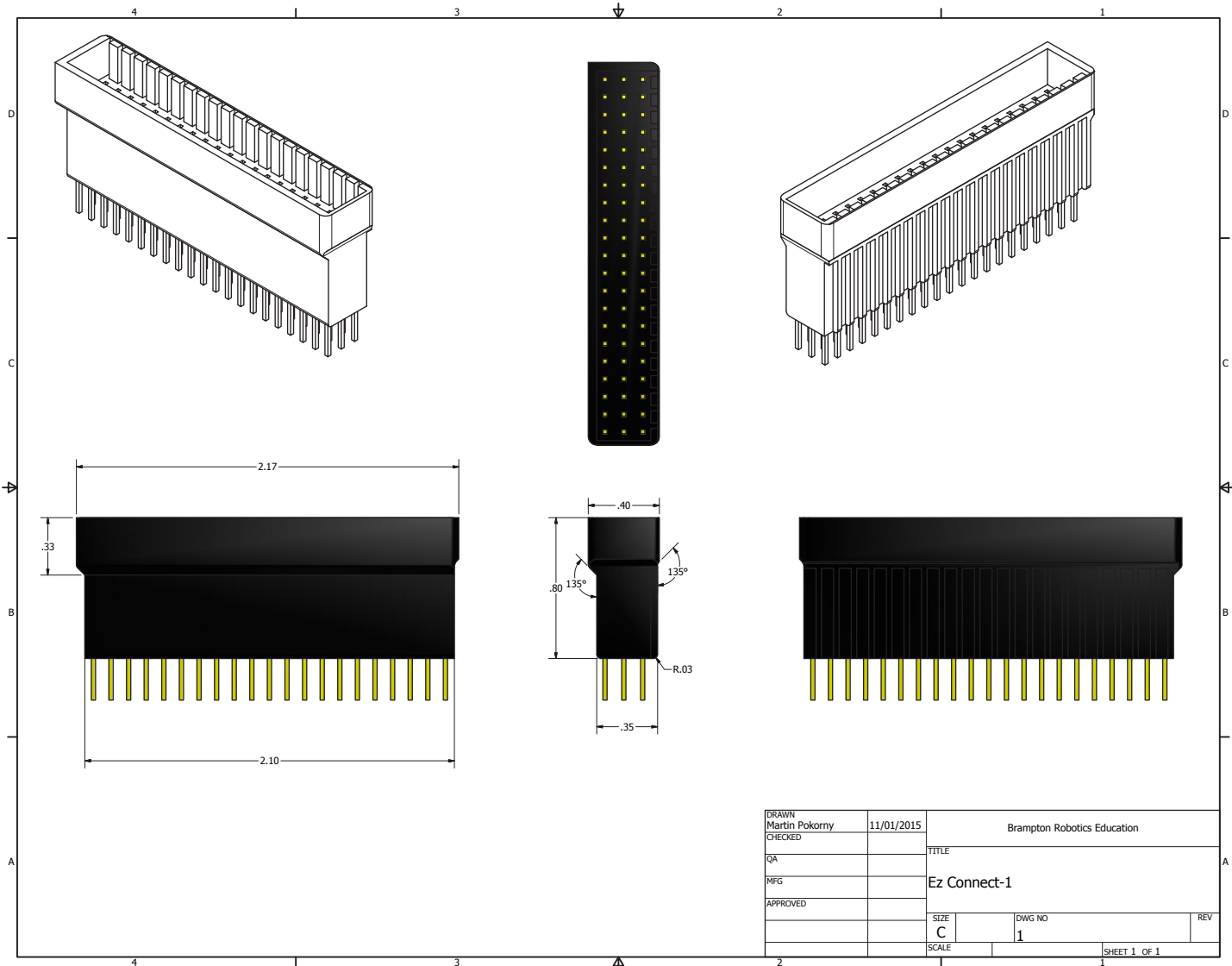
side view:



Top view:



made by: Justin Sawh



DRAWN Martin Pokorny	11/01/2015	Brampton Robotics Education	
CHECKED		TITLE	
QA		Ez Connect-1	
MFG		SIZE C	DWG NO 1
APPROVED		SCALE	REV
			1
			SHEET 1 OF 1

