Blackstone Valley Regional Vocational Technical High School
Student Portfolio- Project Reflection

Date	**5/11/22**
Student Name	**Om Patel**
Subject	**Engineering & Robotics**
Instructor's Name	**Mr. Rhodes**
Instructor's Signature	

In this project I was assigned to model an Automoblox car using Inventor. The first step was to carefully measure every part of the car with a dial caliper. I had to pay attention to small details like the edges of connectors, the curves of the tires, and the diameter of each axle. At first I thought the process would be straightforward but I soon realized that certain measurements could not be taken directly. This forced me to think differently about how to approach the design. Sometimes I had to break a part down into smaller pieces and measure what I could. Other times I had to make a reasonable estimate and then test whether the model looked and behaved correctly once it was assembled. These early obstacles taught me that engineering is not only about following instructions but also about using creativity and judgment to solve problems.

One of the most difficult parts of the project was modeling the tires and connectors. These pieces had small, precise details that were tough to capture in Inventor. At first my models looked rough and did not match the actual parts well. I had to go back, remeasure, and make adjustments until the digital parts aligned with the real car. Although it was frustrating at times, I gained confidence in my ability to refine a design. By practicing this patience I began to see improvement not only in the accuracy of my models but also in my mindset as a designer.

Another area where I improved was technical drawing. Before this project, dimensioned drawings were one of my weaker skills. I often struggled with deciding what views to show and how to present measurements clearly. This project required me to make a drawing for every single part of the car, which gave me a lot of practice. By the end I was able to create drawings that were clear, consistent, and professional. I realized that drawings are just as important as the 3D model itself because they are the instructions that others use to understand and build the design.

The final step was creating an exploded view of the car. This was a valuable exercise because it showed how each individual piece fit together as part of a larger system. It also helped me understand the importance of tolerances and accuracy. A small mistake in one measurement can affect how everything else comes together. Seeing the full assembly reminded me that engineering is about both the details and the bigger picture.

Looking back, this project represents one of the first times I started to think more like an engineer. It was not only about making a digital model but also about solving problems, documenting work, and learning how to communicate a design effectively. The lessons I learned from this project still apply to the larger and more advanced projects I work on now. Whether it is calculating structural loads, planning a site layout, or designing a circuit, I always return to the same ideas that began with this project. Precision matters, documentation matters, and patience matters. This experience gave me a foundation that continues to support my growth in engineering and design.

Technical competencies and academic skills demonstrated by completing this assignment.

Framework Standard	Description
2.B.01.07	**Describe the role of drawings and CAD models as vital documentation components in the engineering process**
2.D.02.06	**Create and edit a solid model using a 3-D modeling program, based upon design sketches. Utilize appropriate materials, measurements, fits, appearances, processes and functions.**
2.D.02.07	**Combine model parts into working assembly, manipulate and animate assembly using a 3-D modeling program.**
2.B.05.04	**Develop a time line for a project or product.**
Embedded Academics	**Description**
2.B.01.1.3	**Produce and analyze multi-view drawings (orthographic projections) and pictorial drawings (isometric, oblique, perspective), using various techniques.**
2.B.01.2.2	**Demonstrate methods of representing solutions to a design problem, e.g.,, sketches, orthographic projections, multiview drawings.**
2.B.09.02.GGG.2	**Apply geometric methods to solve design problems (e.g.,, designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).**
2.C.05.05	**Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (e.g.,, rulers, graduated cylinders, balances) and knowledge and appropriate use of significant digits.**