minimises the separation of flow seen in figure 7. Turbulent flow is almost eliminated at the back of the car and fewer eddies are visible in figure 7. The car had to be made longer because the changes performed to it compromised the capacity of the car, therefore the new length of the car is 4.01 m. There are some little changes done to help the redesign such as creating new fenders. However, the new fenders due help with parting the air flow in a smooth manner underneath the car. The tyres are larger than the initial design to compensate the additional weight of the car. The top width of the car was also lightly reduced, decreasing the cross-sectional area to 2.284 m^2. Finally, any edges were chamfered just to faintly help the flow of air.

A CFD simulation was performed on the redesign using the same quality mesh and boundary condition used on the initial design. The new force acting on the redesign was 341.2 N, using this value and the new value of the cross-sectional area of the redesign the C_D for the new design is 0.685. There is 13.8% reduction of the C_D, meaning that the redesign has effective improved the initial design. In addition, the initial design had a lift of 192.4 N, where the redesign achieved a lift of 175.2 N. There is an 8.94% reduction, this provides downwards force which gives the car more traction control making it easier to handle car [5]. Still, there is not a significant reduction; this may be due to increasing the length which increases the weight of the car. The slight decrease to the width of the car is also a factor why the drag was only slightly improved. So, further improvement that could be done in the future is an increase to the area of the car and more aerodynamic designs to compensate the length of the car. Based on the CFD analysis, performed on the initial design and the redesign the results show that the use of aerodynamic design has reduced the model's coefficient of drag, making the redesign an excellent recommendation to replace the model T.

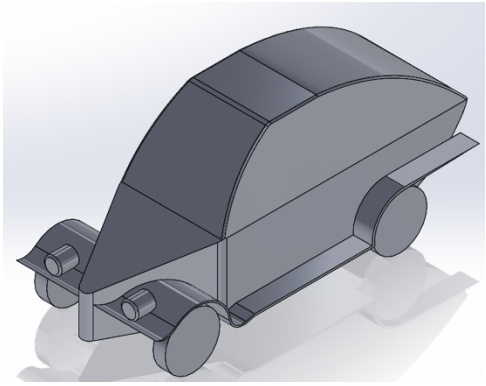

Figure 6. The redesign