




Individual Project Meeting Record

Project Title	Design and manufacture of an aerodynamic undertray for Formula Student		
Supervisor	Dr. Rob Watson	Student	Dennise Zefanya Tohpati
Date and time	MEETING 11 – 11th December 2020	Location	MS TEAM [ONLINE]
<p><u>Review of actions from previous meeting</u></p> <ul style="list-style-type: none">• 2D-openflow with exact 3D cross-section dimensions with various inlet and outlet angle analyses has been computed and analysed.• Another prototype of 3D undertray design has been created, minor changes were made with further comments and analysis required. <p><u>Discussion, decisions, assignments</u></p> <ul style="list-style-type: none">• It was found that the lift and drag trend of 2D open-flow is very similar with all previous 2D analyses with different bluff body dimensions. Supervisor and student have concluded that 2D analyses cannot be compared with 3D analyses on the diffuser region due to the vortex formed on the diffuser area which are not visible on 2D analyses.• Discussed regarding convergence of the analyses using ANSYS Fluent. With y^+ value > 30 and < 1000, it was suggested that the standard k-epsilon with scalable wall function is used for initial calculation which then will be continued using k-w SST which improve the flow accuracy around the boundary layer.• 3D design of the undertray was designed. It is suggested to create bluff body for the undertray which represent the car shape to create a similar flow behaviour in the analysis. <p><u>Agreed actions and completion dates</u></p> <ul style="list-style-type: none">• Continue on 3D open flow analyses and investigate the cause of failure in convergence on the analyses. Analyse the results for various inlet and outlet variables, and compare it with all previous analyses.• Create a work plan for Christmas break which then will be discussed with supervisor on the next meeting.			
Date and time of next meeting	Friday 18th December 2020 [LAST For Semester 1]	Location of next meeting	MS TEAM [ONLINE]
Supervisor signature		Student signature	Dennise Tohpati