

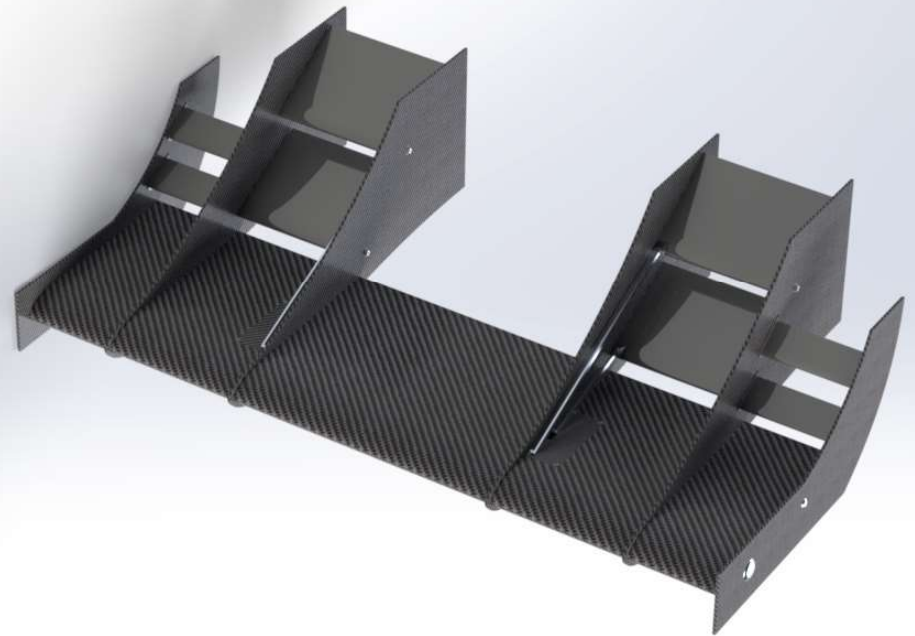
FSAE Actuating Front Wing

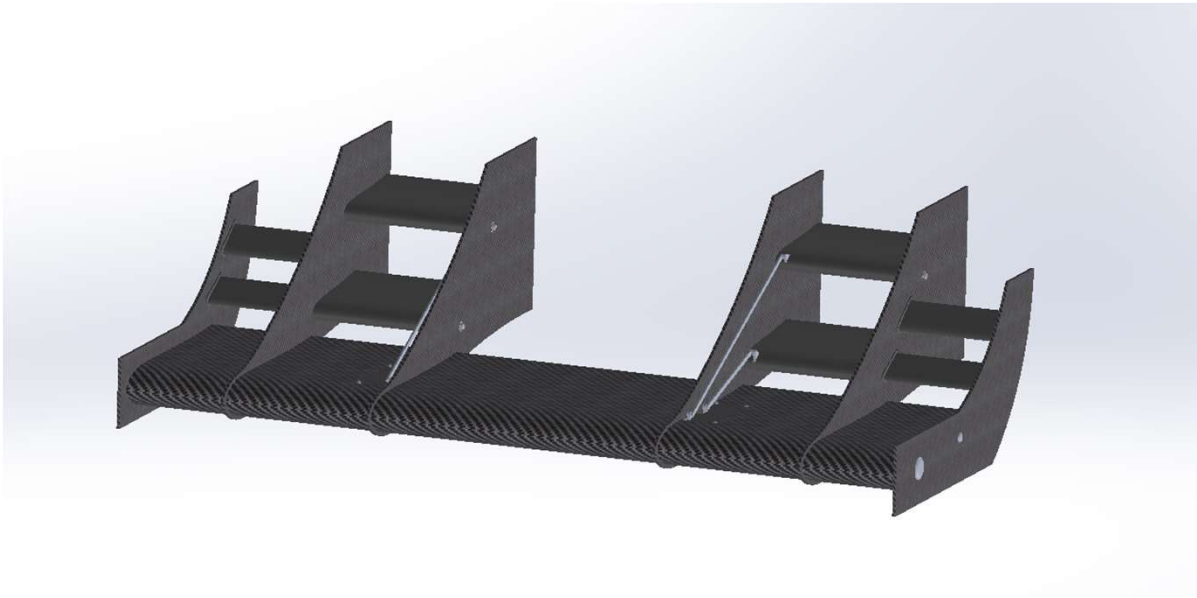
10/15/2021

Software: SOLIDWORKS 2020

Part count w/ fasteners: 82

Part count w/o fasteners: 60



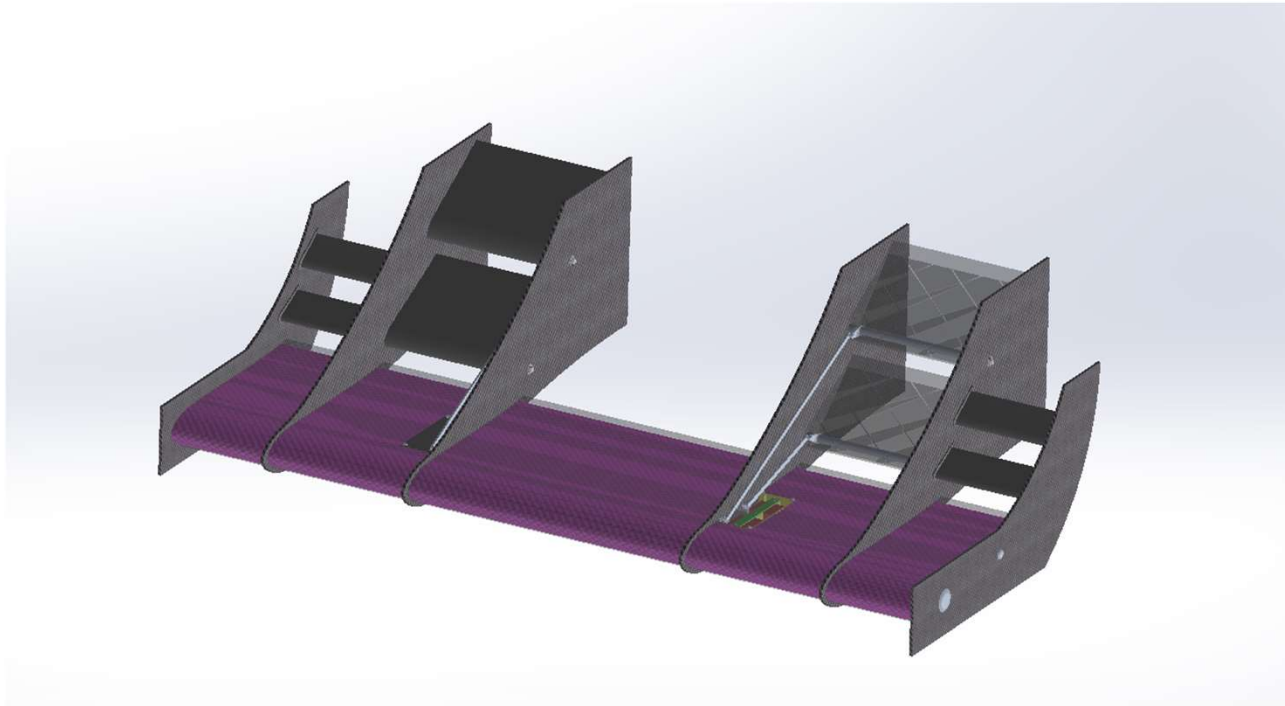


**Low downforce
configuration**



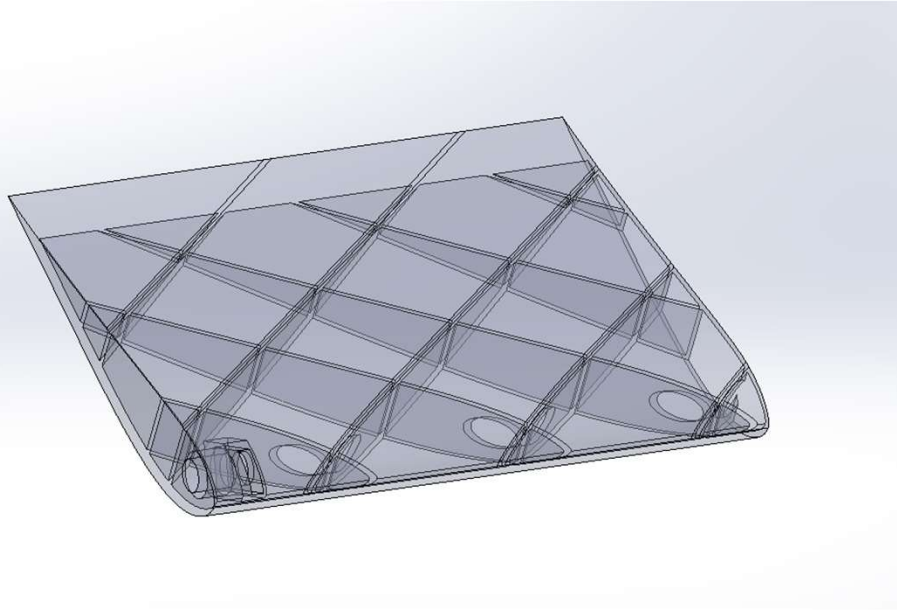
**High downforce
configuration**

Transparent View

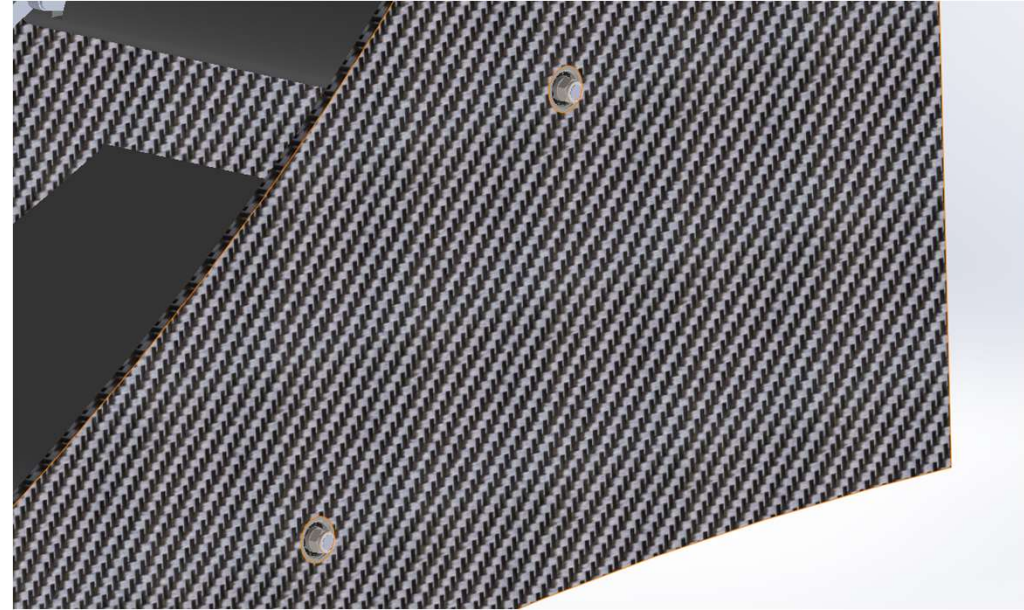


The main element wing structure is carbon sandwiched polystyrene foam with two full-span aluminum spars. The upper surfaces are fully 3D printed and actuated by electronic servos.

3D Printed Winglet with Internal Structure

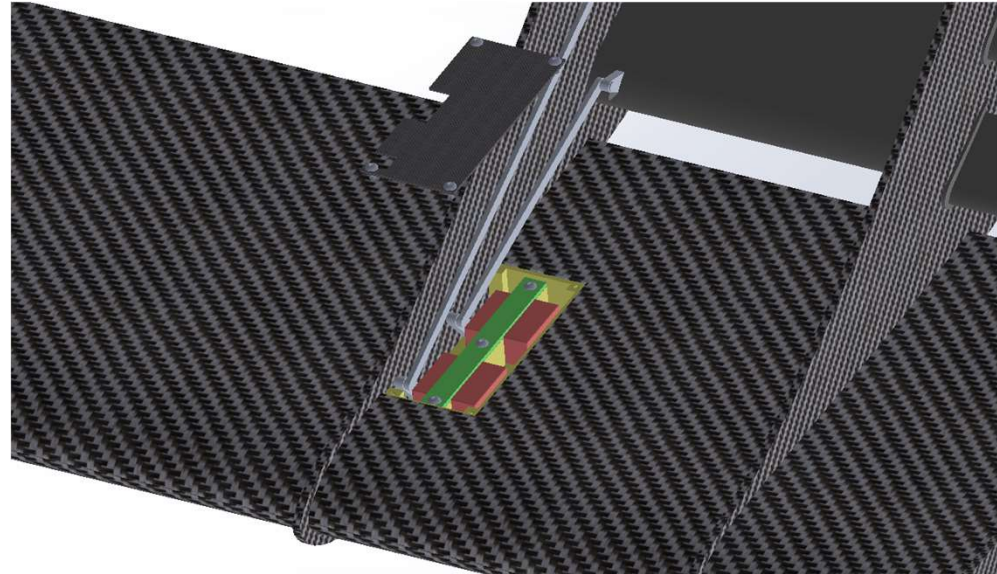
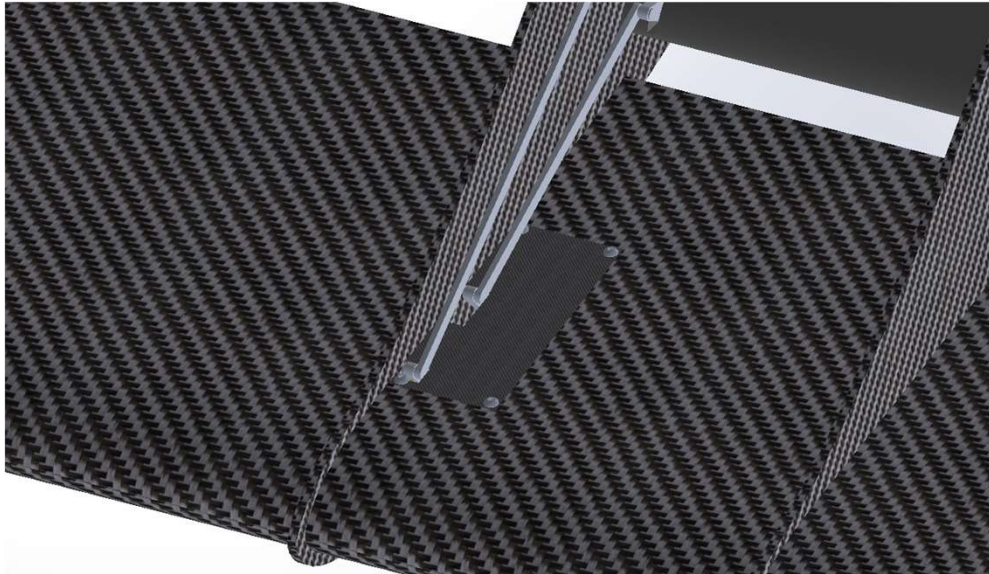


The structures in the winglet are placed at a diagonal so that the entire thing can be 3D printed on its side.



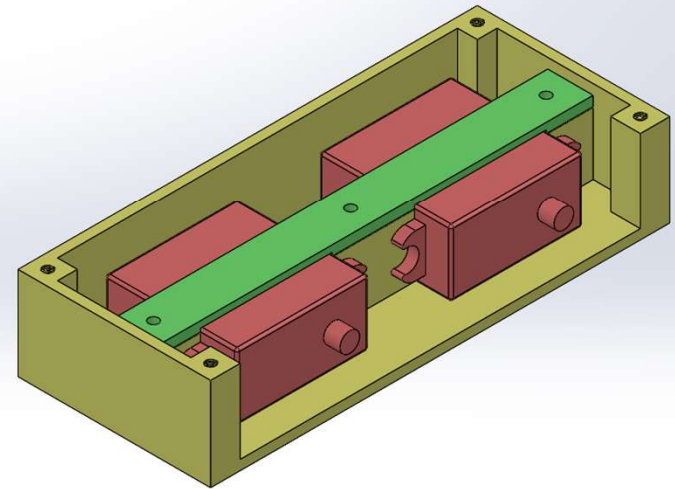
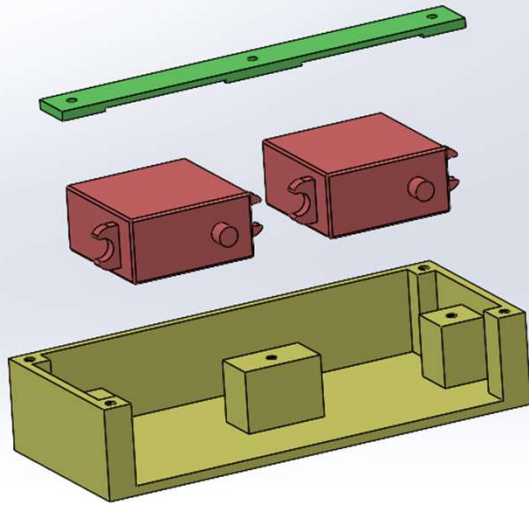
The aluminum spars are mounted on ball bearings and fastened with M5 nuts.

Servo Box



The 3D printed servo box is mounted within the main wing element.

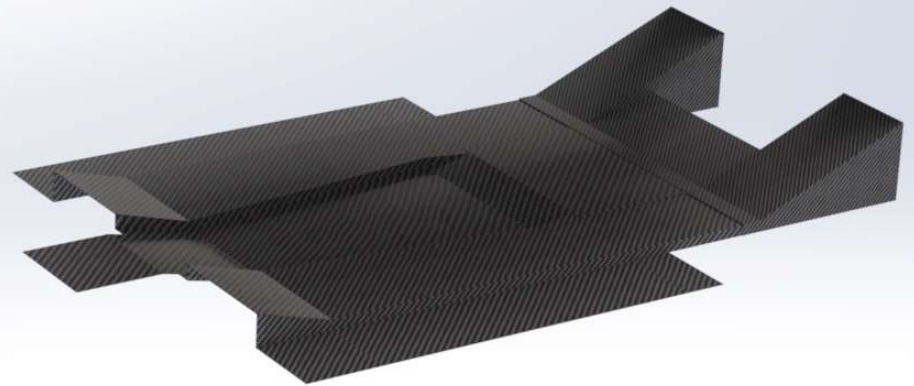
3D Printed Servo Box



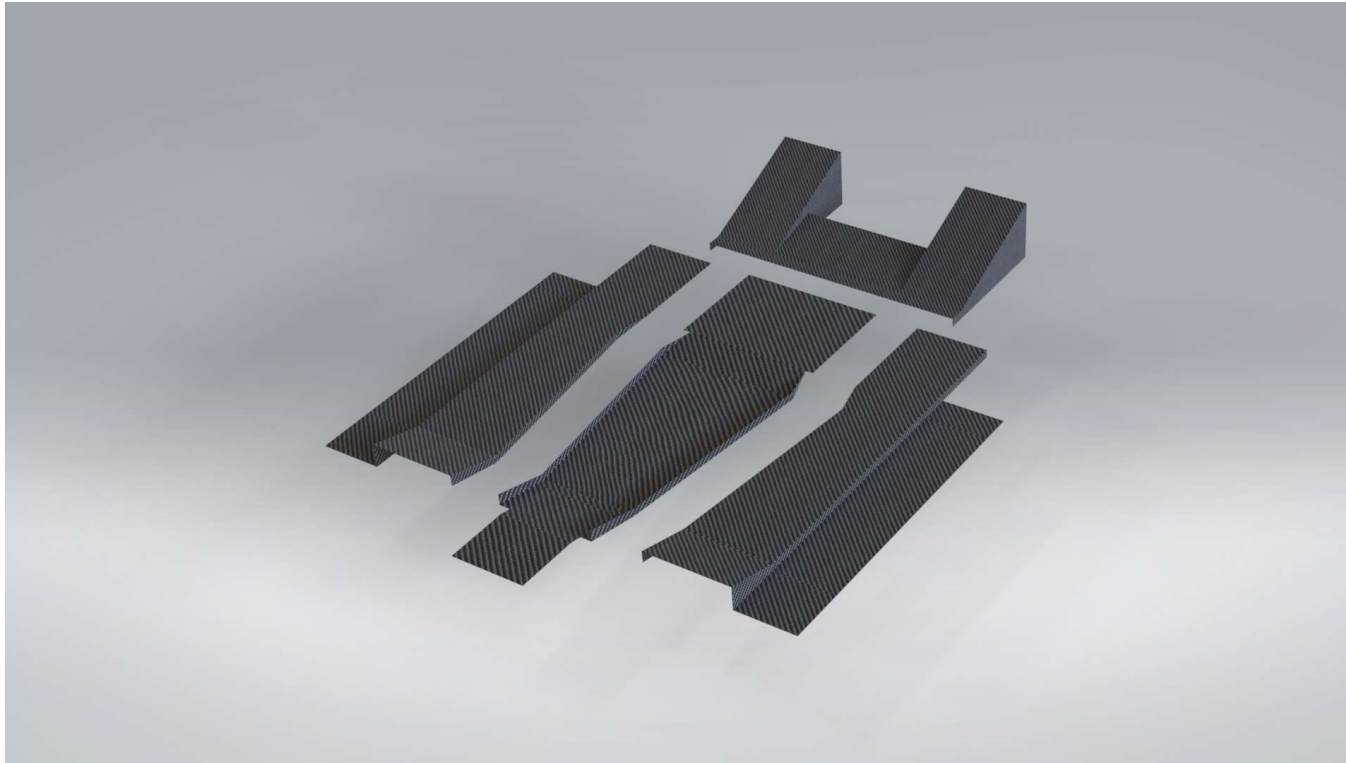
FSAE Vehicle Undertray

10/10/2021

Software: SOLIDWORKS 2020



Exploded Undertray View



The undertray was designed using SOLIDWORKS' surfaces. The assembly is made up of four large carbon fiber components. In order to decrease the manufacturing time and complexity, the undertray was designed to have zero curves.