- For stability analysis 3 constraints were iterated and finally the dimensions that gives a Static margin of 12% was selected for a stable flight.

- Final Plane Dimensions were as follows:

PLANE

span	chord	Area	Cl	Alpha	Lift(Kg)	A.R	Xcg	Xnp	SM
151	19	2869	0.7616	5	4.424687	7.947368	7.8	10.1	0.121053

HORIZONTAL TAIL

Sh	Ch	A	Leading D	Lh	Vh	C/4
50	15	750	46	42.95	0.590936	4.75

VERTICAL TAIL

Sv	Cv	A	Leading D	Lv	Vv
12	15	180	35	31.95	0.013275

- CFD analysis in Ansys Fluent is performed to demonstrate the real world physics applied on the aircraft and validate our XFLR results.

- The results show that there is a flow separation at 16.5 cm from the leading edge on the wing while at 12cm from the leading edge on the tail.

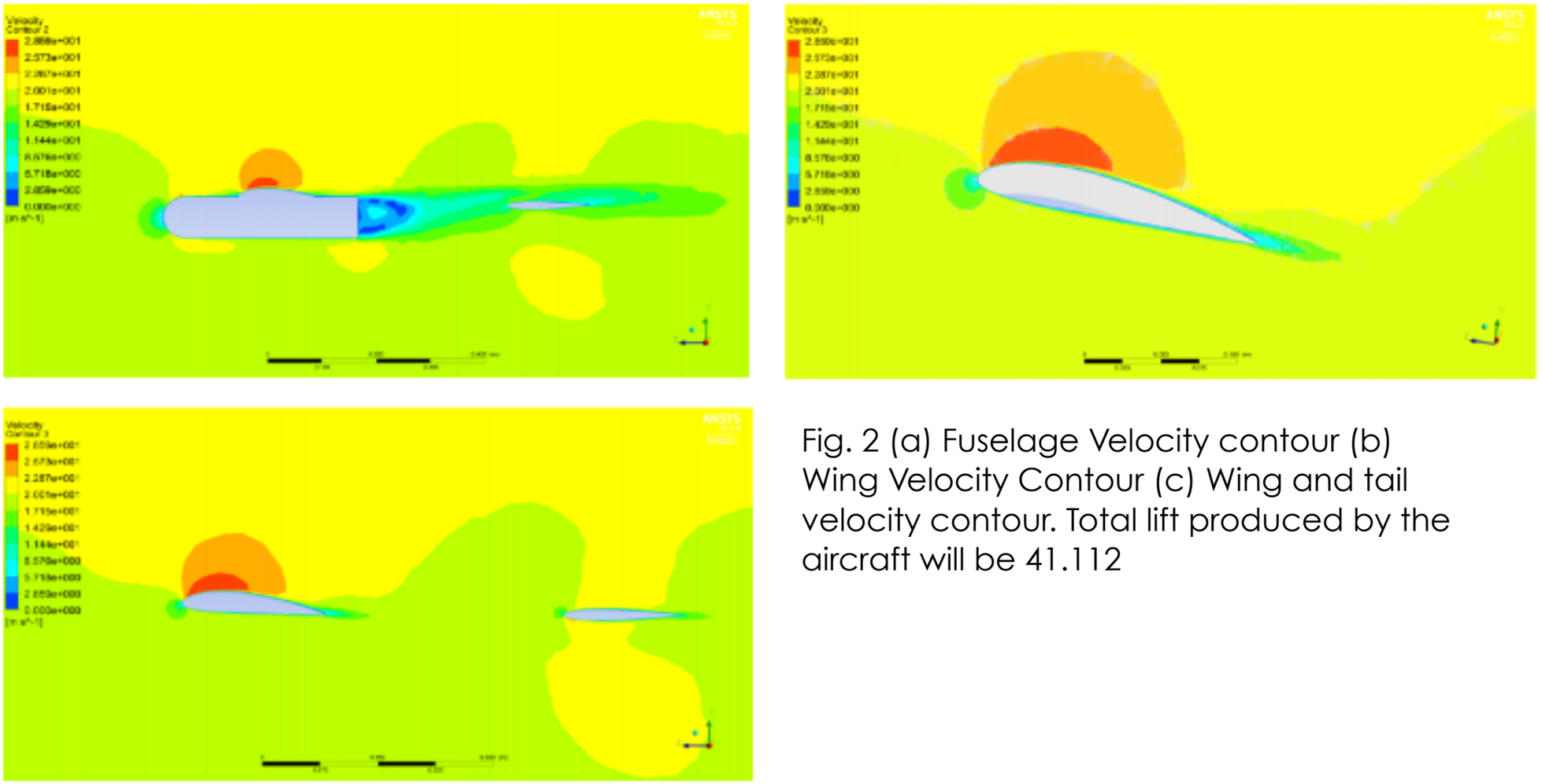

Fig. 2 (a) Fuselage Velocity contour (b) Wing Velocity Contour (c) Wing and tail velocity contour. Total lift produced by the aircraft will be 41.112