ADSA Project

SmartWing

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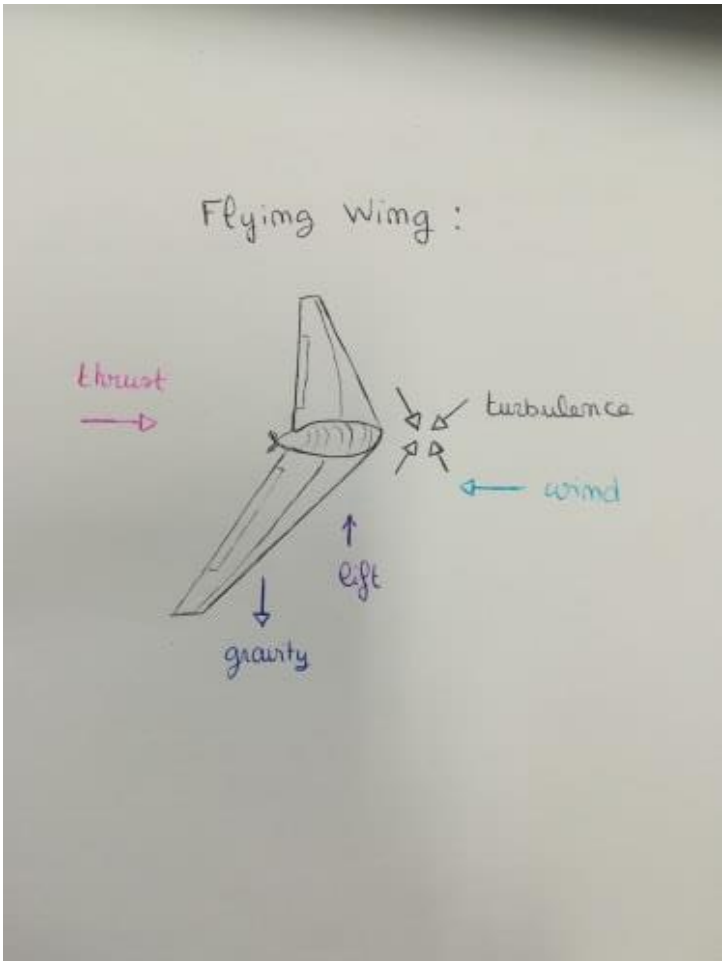
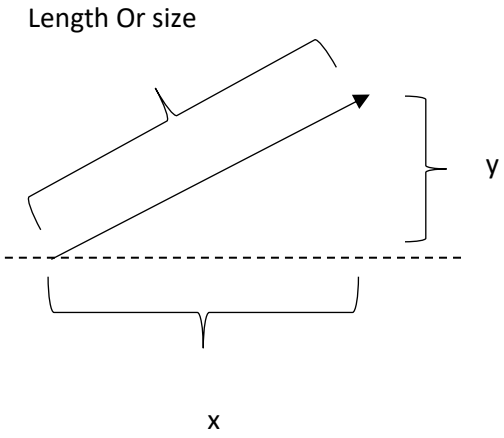
Presentation of the project:

The project consists in developing a part of the code of a smart Wing.
We are interested in the phase of acceleration, descent and circular flight around coordinates of take-off. The idea of this project is to code trajectories and to extract an image of the trajectory and a text file with the commands to be transmitted to the wing.

Part of reasoning and research:



VECTORS:



Vector (x,y)

Magnitude = speed = length or size of the vector

Norm

Velocity = change of position over time

(distance / time)

Acceleration = change of velocity over time

(distance / time / time)

Speed = distance / time = |velocity|

Velocity = displacement /time

In one dimension:

Constant speed: distance = velocity * time

Constant acceleraton : Vf = V0 + acceleration* time

Distance = 1/2 (V0 + Vf) * time

Distance = V0 * time + ½ * acceleration * time²

Xf = X0 + V0 * time + ½ * acceleration * time²

ACCELERATION:

1) Acceleration = deltaV / deltaT

DeltaV = Vf – Vi

DeltaT = Tf – Ti

Tf = ending time

Ti = starting time

Vf = final velocity

Vi = initial velocity

2) Fnet = m * a

Fnet = total force (N)

m= mass (m)

a = acceleration (m/s²)