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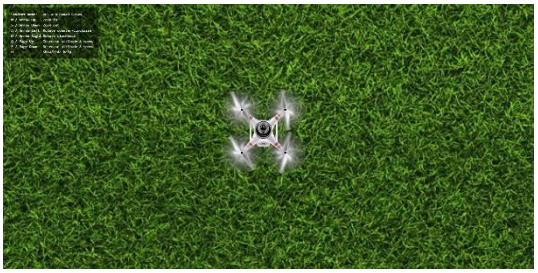
Section: CMPE_360 –SEC01
Assignment: Project 2

PROJECT 2 REPORT

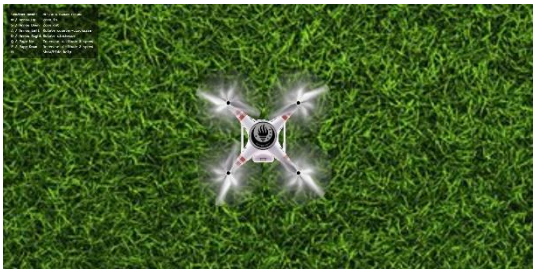
PART 1

- Save and add the image how is work all options with pressing keys. (5 points)

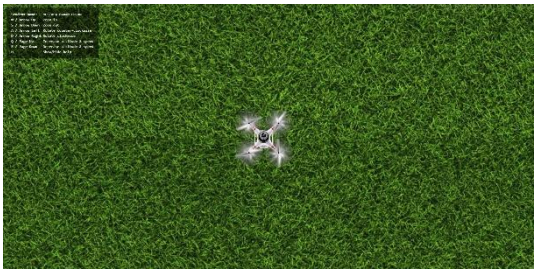
Here are pictures showing the effect for each key:



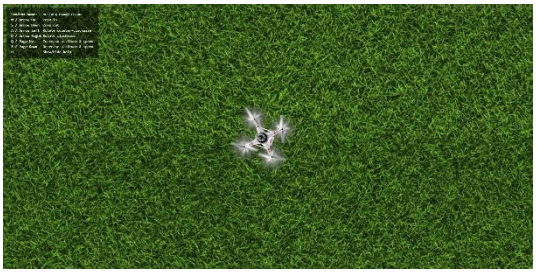
Default Drone



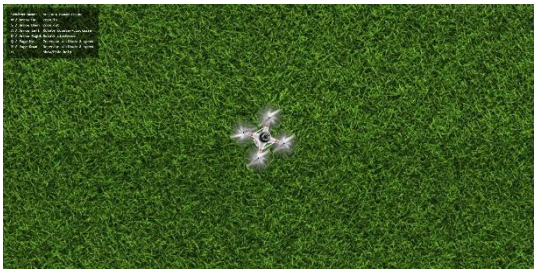
When I press “W” (Zoom in)



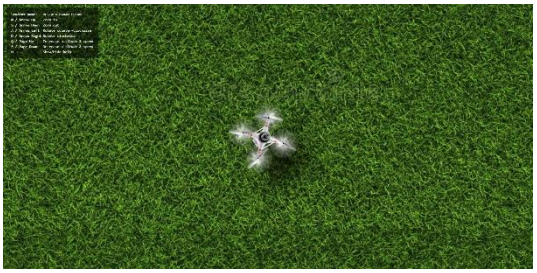
When I press “S” (Zoom out)



When I press “A” (Rotate cntr-clckws)



When I press “D”(Rotate clkwise)



When I press “Q” (Increase SPD & Altitude)

When I press “E” (Decrease SPD & Altitude)

- Please record a video the all options and copy the drive link to your report. (15 points)

  https://drive.google.com/file/d/1VXZQVkZdEnft9PWdbnNxxDRW7JDNhFY5/view?usp=sharing

PART 2

- Explain your GetTransform function in detailed. Please explain all process you wrote in detailed. (20 points)

The GetTransform function returns a transformation matrix to transform a point in 2D based on the parameters provided: positionX, positionY, rotation, and scale. First, the function creates three independent 3x3 matrices for scaling, rotation, and translation. The scaling matrix is created by inserting the scale value into the array's first and fifth elements. Then, for the rotation matrix, the rotation value is converted from degrees to radians. The cos and sin of this value are then used to fill in the elements in the rotation matrix array. After that, the translation matrix is created by assigning the positionX and positionY values to the corresponding elements in the array. Finally, the function merges these three matrices into one resultMatrix by calling the ApplyTransform method.

- Explain your ApplyTransform function in detailed. Please explain all process you wrote in detailed. (20 points)

The ApplyTransform function takes two transformation matrices as input and builds a single transformation matrix. It achieves this by simply applying matrix multiplication to them. First, the function creates an array of nine elements, all of them are set to zero initially. This array, which is structured as a 3x3 matrix in column-major format, holds the result of the matrix multiplication to return at the end. The matrix multiplication is then performed by the function using three nested for loops. These for loops iterate through each element in the output matrix, calculating its value by adding the products of corresponding elements from the input matrices. Finally, it returns the matrix with newly calculated values.

PART3

I uploaded the project1.js file into the VPL.