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Project A: Butterfly Somehow Not Getting Hit By Crane

User's Guide

Goals:

I aimed to make both my assemblies dynamic and interactive in their own ways, and so each has their own animations on their own and with user input. Likewise, I wanted to have each one of my user-designed parts be exclusive to one assembly or the other.

Instructions for interaction:

The up arrow will reel in the crane's rope and the attached wrecking ball up to a very short distance to the "upper arm" of the crane, and the down arrow will lengthen the rope to within a short distance of the bottom edge of the screen. Dragging within the canvas allows you to move the butterfly wherever you want. Since animation is updated per frame, sometimes the butterfly and crane get stuck when moving back and forth when they cross the boundaries of the space in which they rotate, move, etc. In that case, please refresh.

Results

I was luckily able to achieve my goals with my two assemblies. Of course, it won't be obvious from stills, but the butterfly has three animations independent of any user interaction or other part on the screen: rotation back and forth around the y-axis, "flying" up and down a certain distance along the xy-plane, and "flapping" around the z-axis. In this assembly, the joints are all in the wing fragments.

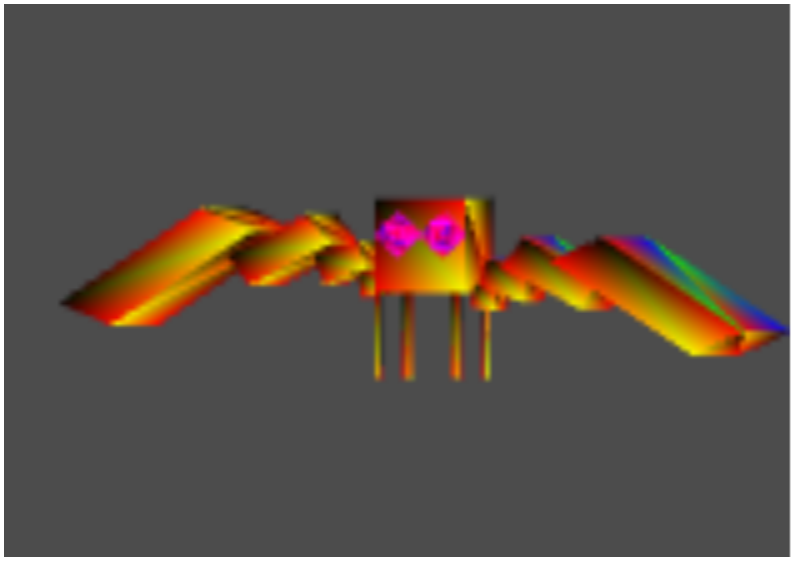


Figure 1: The butterfly with multiple wing joints mid-flap

The special user-designed parts on this assembly are the compound eyes, though they are quite tiny even in a zoomed-in picture like Figure 1.

Figure 2 isn't in my final program, but for ease of the grader, I think it should be helpful.

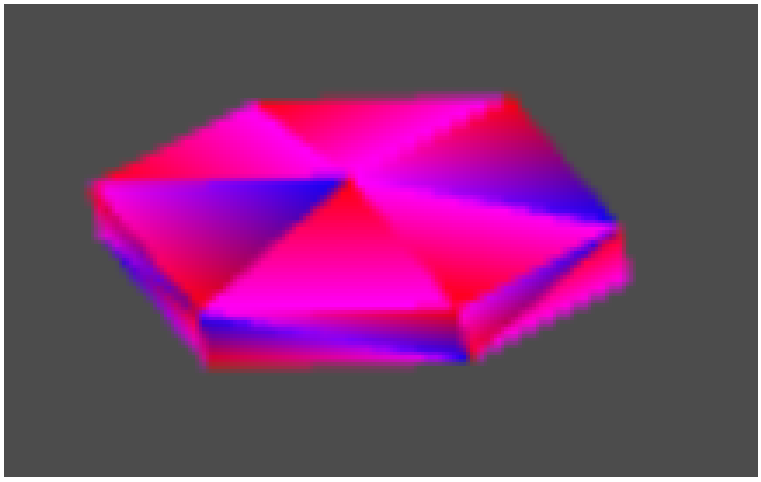


Figure 2: Big, disembodied 14-cornered compound eye (not in final program).

The second assembly is a crane with a wrecking ball. It's jointedness is "twisty," which is to say they are not flexing joints like those of the butterfly's wing fragments. The twisting is back and forth around the x-axis, and the part at the end is the wrecking ball.

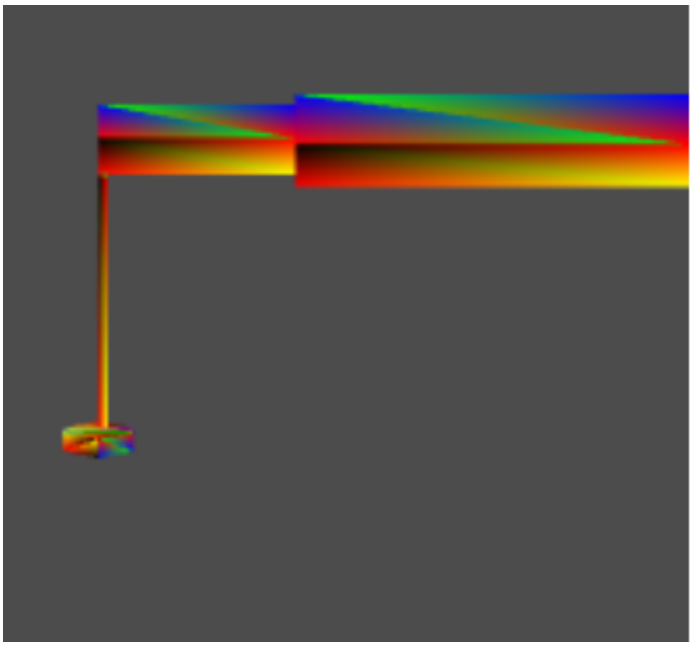


Figure 3: The crane, currently in the middle of twisting into negative z-values

The special user-designed part for this assembly is the wrecking ball, as you can see more closely in Figure 4.

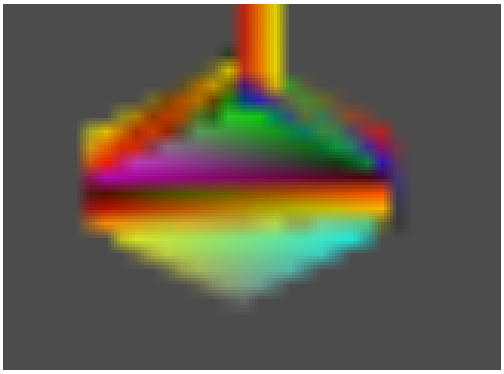
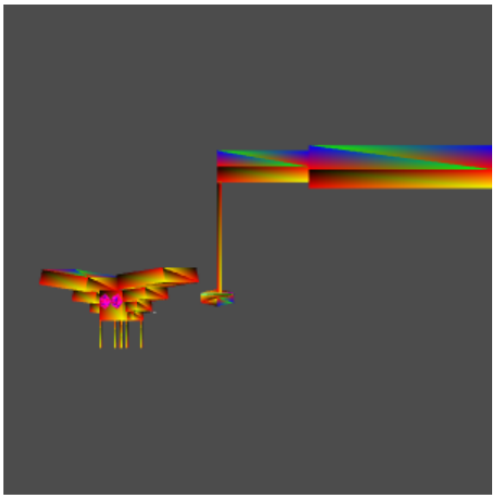


Figure 4: 12-cornered wrecking ball, made by slicing a cube in half and inserting a rectangle in between the two halves.

That's every individual part of the project; for a still of the complete project refer to Figure 5.


Press DOWN ARROW and UP ARROW to lower and raise the wrecking ball! Also, DRAG the mouse on the canvas to position the butterfly wherever you want! If any animations get stuck, please refresh...

Run/Stop

Figure 5: Picture of the canvas and my project's instructions