In this exercise you will write a program that displays a widget of some sort that has moving parts that have moving parts. There should be both translations and rotations involved. The purpose of the assignment is to give you experience writing a program involving animation and multiple changes of frame with saving and restoring of the modeling transformation.

Some widget ideas include an animated walking robot or animal, a car with wiggly children in back sticking their arms out the window and waving, a moving car with rotating wheels and hubcap spinners, a stick figure riding a unicycle on a tightrope, or a Rube Goldberg contraption. For simplicity, feel free to keep it two-dimensional and use images for the parts of your widget.

For the final 10%, give your widget inertia and let its speed be controlled by tipping the screen one way or the other on devices with accelerometers. On devices that don’t have accelerometers, use a slider to simulate tipping to the left or the right. Moving the slider should cause the whole scene to tilt, as well as accelerate or decelerate the widget.

This is not a part of the assignment, but for fun you could make your widget into something that can be added to a normal web page, perhaps climbing over the text on the page, walking across the window you are reading, etc.

The solar system sample code is accessible from the projects page, under Example 4. To submit your program, please copy it to your public_html/352/proj4 directory so that it is accessible from the appropriate link on that page. Also fill out the top of the grading sheet on the opposite side of this page and turn it in.

On the due date we’ll view working programs in class and vote on the one that is most “humorous, entertaining, or cool.”
CS 352 Project 4: Widget
Grading Sheet

Name ____________________________________  Date turned in ________ Late? ______

Parts of the program I didn’t get to work:

Comments on this assignment:

-------------------------------------------------- For grader’s use -----------------------------------------

Basic program (80)
  • Animated widget with moving parts that have moving parts
  • Both translations and rotations are involved in the motions

Control by tilting screen or slider (10)
  • Objects have inertia: speed changes gradually
  • Acceleration controlled by tilt of screen (from accelerometer)
  • Tilt simulated by slider on devices that don’t have accelerometers. Moving the slider causes the whole scene to tilt.

Programming style, submission process (10)