Project 3: Procedural Animation- Expressions
Title: Fruit Basket
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Houdini Version: Houdini FX 17.0.352

Statistics:

- Average render time : 15 - 20 mins per frame
- Resolution : 1280 × 720
- Sample Rate : 5 x 5
- Noise value : 0.01
- Min/Max rays : 12/12
- Complexity of geometry (approximate) : 7/10

Lights:

- 1 Physical Sun
        Intensity : 1
        Exposure : -0.5

- 1 Environment Light
        Intensity : 1
        Exposure : -4

Idea:

To create a wooden automaton inspired by references controlled by sin functions and bbox to control the motion.
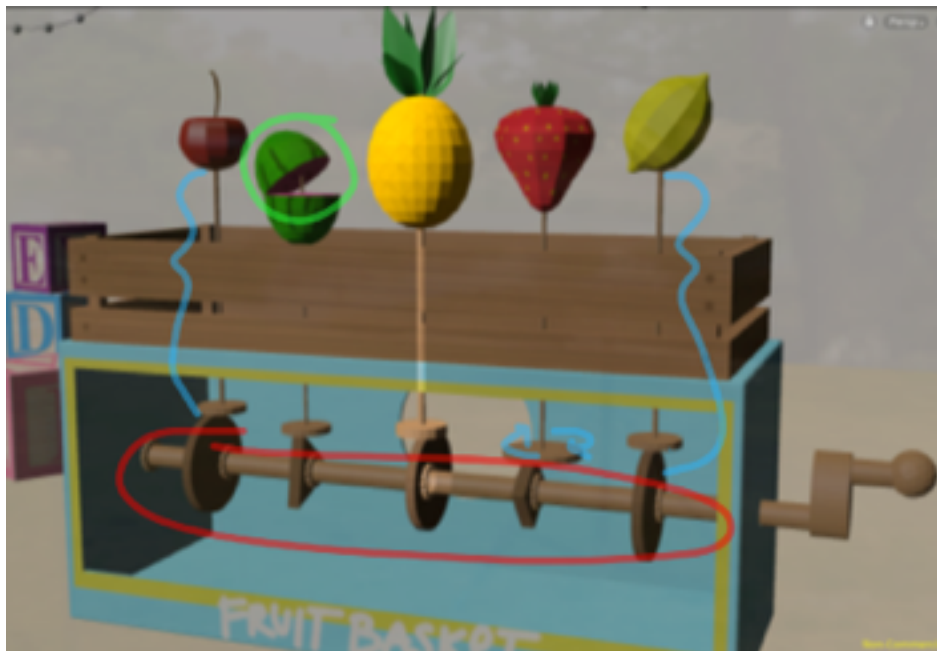
The wooden circles, triangle, and square connected to the main rotation crank are controlled by $F * 10 function (the square is controlled by $F * 10.5 because it needed to go a bit faster to match how the strawberry is suppose to rotate. As well as the crank and small flower shaped decoration on the sides of all the main rotation pieces in the box.

The flat wooden

circles and tubes on top of those objects are in motion by using a bbox function to make their position relative to the other objects position.

Ex: bbox("../rotatetransform1",D_YMAX) + 0.1

The only one that is different is the one under the strawberry which is also rotating around using -$F * 5. All of the fruits are also controlled by a bbox function making them relative to the object they are on top of.

The only difference is the movement of the watermelon's open and closing movement. This is controlled by a pointwrangle node. The vex code is referencing the points of the watermelon opening and getting the angle of how it opens. Professor Fowler helped me with this code and I only changed the some of the numbers so it would work for my objects.
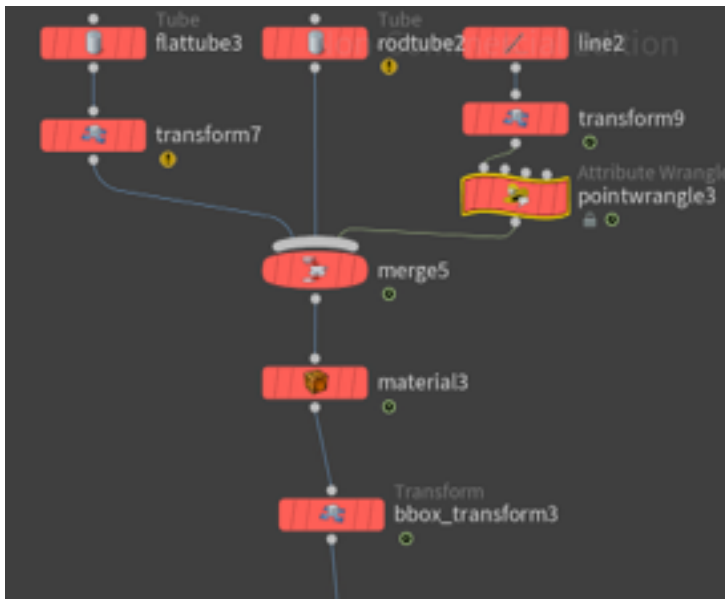

```
VEXpression
v@Pt0 = {0,0,-1};
v@Pt1 = {0,0,0};
vector min;
vector max;
getbbox(0,min,max);
float num = max.y;
v@Pt2 = {0,0,0};
v@Pt2.y = 10- num;
@rotval = degrees(atan(distance(@Pt2,@Pt1),distance(@Pt0,@Pt1)));
```

Description of problems encountered and solutions:

The main issue was with the vex expression and trying to get it to refer to my 'rodtube' instead of the line that was used only to be a reference. But every time I got rid of the line the watermelon top would be stuck completely open or closed. Finally, I just left the line and made my 'rodtube' and the line the same length which hides that the tube isn't actually moving the watermelon top.