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Assignment 1 – Computer Science 587 – Animation

I created this assignment using Chaikin subdivision to generate the wire(track) as described in the provided assignment pdf. To do the arc-length parameterization of this curve I used the first algorithm described in the provided pdf. To calculate the velocity of the cart, I used conservation of energy, assuming no energy was lost to things like friction in the system. To calculate the centripetal acceleration of the cart on the track I used the method described in the pdf in Figure 13. I modified this by calculating it at points other than p'i-1 and p'i+1. This helped make the curve smoother and appear more accurate. I completed the Normal calculation described in the code Dr. P supplied us with in lecture. When calculating the tangents of my track segments, took that tangent over a larger area. This helped smooth out the track more, making the different pieces of the track link more accurately.

I have also included a README.txt file in my submission. This could be a useful resource for marking. In it I also describe the controls that can be used to interact with the system.

As I describe in the read me file, I based my code off of Jeremy's tutorial code.