COL781 Computer Graphics

Assignment 2: Simulation of Alley Bowling - Modeling and Animation

Due Date: 18.3.2019

This assignment has two parts. The first part (A) involves modelilng and animation of a bowler and associated environment with following features.

- The modeling of a bowler needs to be represented as a hierarchical model with an articulated structure. The model can be seen as a tree.
- The primitives to model a bowler should be from OpenGL primitves.
- The models should be texture mapped.
- The hierarchical model defines a heirarchy where a transformation when applied to a node in the tree its sub tree inherits the transformation.
- The animation module will involve defining some key frames of the bowler, which may form a particular type of motion for the purpose of bowling when interpolated. The parameter of interpolation can be correlated with time.
- You can change the parameter of interpolation to perform variation in the way the motion takes place. This can be achieved by using appropriate function.
- You need to also model -- the bowl, the pins, the track, and the gutter.
- The path on the bowling track can be defined through a parametric curve.
- The camera can follow the bowl, can be at fixed locations on looking at a zone of the whole scene, and a wide angle camera enabling the view of the entire scene.
- The bowl motion should have rolling and spinning.
- The collision detection and response as a result of some reasonable law of physics such as conservation of momentum may be simulated considering projection in a plane of the track.
- The fall of a pin which is triggerd through collision may be simulated using some heuristics.
- This part may be demonstrated using a single pin.

The second part (B) will involve interactively changing some parameters such as the initial speed, the path and the camera. This part will require to have all the 9 pins.

Some Related Links
Real Bowling
Animation