**Term Project Proposal**

“Include a complete and thorough project proposal, clearly defining the problem you intend to solve and a fairly detailed description of how you intend to solve it. In particular, your proposal must list all modules/technologies you plan to use outside of Tkinter.”

**Overall View:**

The project will be a 3D Version of Mario Kart controlled by a custom made wheel/gas pedal. The Mario Kart software will be coded in Panda3D and the level of the game development will be discussed more in detail below. The wheel will be created with an accelerometer and Arduino causing a constant stream of data to the serial port (later intend on Bluetooth serial).

**Details**

* **Panda3D**
  + UI:
    - Opening page is a splash screen having like “Play” and “About” the project (maybe incorporate a sound on and off button)
    - Go into “Play” and have options for “Time Trial” and “Race” (against AI)
    - Then select course (at most 5 and at least 2 courses) and difficulty for “Race” and pick character (bring in 5 or so characters)
    - Goes to the play game mode which is in 3D
    - After the race ends (3 laps): time trial shows player’s time and score of best times overall and Race has the places of each AI and Player 🡪 then ends and goes back to select Mode page
    - Always a back button
  + Racing:
    - Player has to be in view camera at all times
    - Can only go one direction and has to be on the road (slows down off the road)
    - Try to incorporate the mystery boxes/speed up boasters
    - The player animates when turning (see if I can animate the player at other times)
    - Gravity for any ramps or jumps
    - Collisions with the road (obviously) any other player will bounce them and any obstacle will just stop them and they have to reverse
    - Have to know where to begin and how to have laps etc.
    - In the lower corner incorporate a map that shows where the user is at all times of the track.
* **Arduino Hardware**
  + Accelerometer that is used in a custom made wheel – using the left and right motion to move the character (left and right)
  + A button on the wheel that is used for go and button used for break/reverse and one button used for specialty moves
  + Custom design and 3D print/laser the case for the wheel to button the electronics in
  + Using a Bluetooth shield to give the serial commands to the Software
  + Have lights and things on the wheel for coolness and maybe program the wheel to respond to how well the player is doing (like lights up red if it’s going the wrong way or runs into something and flashing display if the player has won the game or finished the race)