# Rendering

1. Models for the Cars, power ups, track, misc. **(February 13)**
2. Shaders, frame buffer effects. **(February 1)**
3. Shadow. **(March 5)**
   1. Mapping vs. volumes
4. Texture Loading **(January 30)**
5. Multi Viewports **(January 30)**
6. Drawing cars, power up, track, etc **(March 5)**
   1. Red brick model and plane **(January 23)**
7. GUI **(February 10)**
   1. HUD during the racing
   2. Main menu display.

# AI

1. Controller Input
   1. Gathering input from the controller **(Milestone #1 – Jan.23 - Kent)**
   2. Providing an API / Integrating input into the rest of the program
      1. Direct API to use **(Milestone #2 – Jan 30. - Kent)**
      2. Use though event system **(Milestone #2 – Jan27- Kent)**
   3. Tuning input mapping to control the cars. **(Milestone # 2 - Feb 1. - Kent)**
2. AI Driving / Control of Cars
   1. Creating Framework to control cars (so that it is the same for human players and computer players) **(Milestone # 2 – Feb 5 - Kent)**
   2. Creating waypoint following / path finding for AI players.
      1. Maybe done by example, (person plays, AI tries to follow), or manual waypoints. **(Milestone #3 – Feb 17- Kent)**
      2. Possible ways of AI to cheat / make so the AI is actually a challenge **(Milestone #4 – Mar. 15- Kent)**
      3. Varying Difficulties **(Final – April 1- Kent)**
   3. AI collision detection / handling when AI gets stuck (off road etc.)
      1. Resetting the car when stuck. **(Milestone #3 – Mar 1. - Kent)**
3. Control of Camera behind the car.
   1. Implementation and integration of Camera into the game. **(Milestone 2 – Feb 10- Kent)**
   2. Introduction of slight delay / fixing camera “feel” of a “real” car. **(Milestone 3 – Feb 28- Kent)**
   3. Allow player to vary camera position slightly **(Milestone 3 – Feb 28- Kent)**
   4. Try to make a smart camera (rotates if needed, or makes objects transparent if needed) **(Final – April 5- Kent)**
4. Power-Ups
   1. Path finding when being shot. **(Milestone #3 – Mar 3. - Kent)**
5. Car Interplay with Dangerous Objects on the Track
   1. If car is damaged, etc. **(Milestone #4 – Mar. 20th – Kent)**

# Physics

1. Modeling of the maps – March 9
   1. Physics representation, and interaction.
2. Power Ups – March 30
   1. Collision detection on the power-ups
3. Spring Implementation – Feb 3
   1. Calculations Done
   2. Collision between springs and the floor (map)
      1. Detection if off ground
   3. Applied to the car (Holding up box)
   4. Tuning
4. Collisions – Feb 3
   1. Collision detection.
   2. Ability to set up collision boxes.
   3. Notifying the rest of the program / Integration
5. Integration with graphics / rendering - Ongoing

# Sound

1. Able to load and play sound files. (And acquiring sound files) – **January 30**
2. Integration into the game.
   1. General Game music playing (main menu, during game etc.) **– Feb 16**
   2. Car noises while driving (engine, braking) **– Feb 22**
   3. Specialized Sounds Occur when event occurs (e.g. crashing) **– Feb 27**
3. Increase speed or volume of music as the player’s speed increases. **– Mar 10**

# Game play

1. Implementation of Game Rules
   1. Implementation of timing of each car. **– Feb 20**
   2. Keeping track of each lap and the number of laps completed. **– Feb 20**
   3. Number of power-ups for each car. **– Apr 1**
2. Designing Track **– Feb 3**
3. Tuning Vehicle mechanics.
   1. Vehicle Prototype **– Feb 8**
   2. Playable Vehicle **– Mar 1**
4. Testing **– Before each milestone**