

“Space Race” Progress Report 2.0

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Overview

Brief

Multiple refactors and additions have been added to the current build of Space Race. The big few namely being the additional of physics based movement and collision (with regards to momentum), an updated map rendering function and the addition of two visible game entities with varying behaviors. With the new compressed schedule we are making our best effort to adding in most of our planned elements but may be constrained due to other events and assignments outside of our control.

Implemented Features/Completed Tasks

- Physics based movement and collision
 - > Momentum adjusts velocity/acceleration of objects
 - > Was a very large refactor and took a sizeable amount of time but movement through momentum and collision resolution has resulted in more satisfying game play
- Movement through transformations
 - > Rendered objects are spawned via mat4s in OpenGL
 - > This was done in the base code already provided
- Hierarchical transformation
 - > Turret that rotates independently of the actual ship (rotates according to mouse position on the screen)
- Finite State Machine; alongside multiple game states
 - > Very rudimentary menu/title screen image before rendering the actual game
 - > Base AI state completed with a number of flags in reference to the track and the player which changes the enemy's movement as appropriate.
- Multiple game entities with seperate behaviors
 - > We have an asteroid class which is currently just stationary but will have a slow moving velocity randomly
 - > There is an enemy ship that will either chase or avoid the player while making its way to the finish line (see above with Finite State machines)
- (Pseudo) implementation of multiple terrain effects
 - > An asteroid field is currently the only terrain effect at the moment, but for the most part all ships will have to navigate the field unless they want to collide and be sent back
- Gameworld larger than screen
 - > Updated rendering function will now constantly render the (very simple) map instead of it disappearing in the last prototype build

Unimplemented features

- Particle effects
 - > Issues with rendering (particle effects prevented any other normal rendering for some reason)
- Out of race activities (shop)
 - > This is probably one of the biggest features that will permanently affect gameplay so we plan to spend a large amount of time getting this working properly (hence why it is the last feature to be implemented on the updated calendar.
- Expected race features
 - > Place, checkerboard finish, full maps

Updates regarding Meetings

At the moment our current meeting schedule has been once per week for in person/pair programming with a sizeable amounts of programming being done on our own time individually. We have found our greatest success and productivity when dedicating a single day in the week to spend on the project. At the moment we will try to attempt the same work ethic we have as this is our best accomodation of both COMP 2501 and other class constraints.

Updated Road plan to End Project

We understand that we are still behind schedule for many features but we have managed to hit many of the technical requirements at a rudimentary level. We plan to delegate planned/important features such as the out of race shop menu with upgrades in addition to functional shooting which damages enemies (and maybe to a degree, asteroids)

Updated Calendar

March

Sunday	Monday	Tuesday	Wed.	Thursday	Friday	Saturday
25ⁿ Finish remaining prototype tasks	26ⁿ Extra terrain type added	27ⁿ Map given more variety	28ⁿ Enemy Types fully fleshed	29ⁿ Platforms and Pads. Out-of race activities.	30ⁿ *FINISH CODING*	31ⁿ *PREP 4 PRES.

April

Sunday	Monday	Tuesday	Wed.	Thursday	Friday	Saturday
1ⁿ *FEATURE FREEZE*	2ⁿ IN-CLASS PRES.	3ⁿ	4ⁿ	5ⁿ CLEAN CODE	6ⁿ	7ⁿ FINISH REPORT
8ⁿ FINISH COMMENTING	9ⁿ	10ⁿ	11ⁿ GAME & REPORT			