

System Description

for

FinalProjectile

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16.35 Real-Time Systems and Software

Summary

Final Projectile is a shooting game with both single-player and multi-player functionality that populates a display with either one or two user-controlled vehicles and a specified number of non-user vehicles. The user vehicles are controlled using keyboard input. The objective of the game is to shoot the non-user vehicles.

One shot causes the vehicles to follow the user vehicles, a second shot “kills” the vehicle and removes it from the display. User scores are displayed onscreen. The game ends once all non-user vehicles have been destroyed, or if 200 seconds have passed and there are still remaining non-user vehicles present.

Features

- Single-player mode
- Same-keyboard multi-player mode
- Color-coded vehicles
 - Unique color for each user
 - Color transition when the first shot changes a non-user leading vehicle to a follower
- Second shot removes non-user vehicle
- Score-keeping
 - Number of shots, hits, kills and percentage accuracy for each user

Functionality

- Expands on previous 16.35 assignments:
 - Control
 - GroundVehicle
 - VehicleController
 - LeadingController and FollowingController
 - Simulator
 - DisplayServer and DisplayClient
- Adds:
 - UserController for keyboard-controlled user vehicles
 - Projectile object which user-controlled vehicles shoot at other vehicles
 - FinalProjectile class which initializes game settings, creates vehicles and controllers, starts display and simulation
- Modifications:
 - DisplayServer displays projectiles and user scores, color and background modifications
 - Simulator handle projectiles, evaluates whether vehicles have been shot, switches vehicle controllers and removes vehicles when shot, manages scoring

Screenshots of Execution



