

### **Scene Manager**

- Responsible for executing scene events like update and render.
- Responsible for loading and unloading scenes.
- Only one scene can be loaded at once.

### **Scene**

- Contains entities which represent the state of the scene.
- Contains scene systems which represent the behaviours of the scene.

### **Scene System**

- Provides specific behaviours by manipulating the entities in the scene.

### **Entity Registry**

- Responsible for managing access to and the allocation of entities and their components.
- Entities are stored in one large array with a bitmask to determine which entities have which components.
- Components are stored in one large array per component type.

### **Entity Group**

- Represents a group of entities contain that all required components and no excluded components.
- Mainly used to quickly get all entities matching a specific component filter.

### **Entity**

- Represents a handle that can be used to access entities in an entity registry.

### **Systems/Rendering**

SysDrawAabbs – Draws boxes in world space and in view space depending on if the entity is an overlay.

SysDrawCircles – Draws circles in world space and in view space depending on if the entity is an overlay.

SysDrawPoints – Draws points in world space and in view space depending on if the entity is an overlay.

SysDrawText – Draws text in world space and in view space depending on if the entity is an overlay.

### **Systems/Physics**

SysPhysics – Contains the physics state such as collision and trigger events.

SysPhysicsGravity – Applies gravity to physics bodies.

SysPhysicsBodyMover – Moves physics bodies by their velocities.

SysPhysicsCollisionCollector – Collects the collision and trigger events for the current update cycle.

SysPhysicsCollisionResolver – Resolves collisions by applying the appropriate forces to physics bodies.

### **Systems/Player/Rendering**

SysPlayerAimLineRenderer – Unused, renders a line in the direction the player is aiming.

SysPlayerBlinkParticles – Spawns particles behind blink projectiles.

SysPlayerParticles – Spawns particles on collisions between the player and other objects.

SysPlayerGunCooldownRenderer – Updates the UI to render the gun cooldowns.

SysPlayerScoreRenderer – Updates the UI to render the player scores.

### **Systems/Player**

SysCameraFollowPlayers – Moves the camera so that all player characters are visible.

SysPlayerBlinkController – Handles the shooting and landing of blink projectiles. Teleports players.

SysPlayerCharacterSpawner – Spawns player characters for players without characters.

SysPlayerGunController – Handles the guns and the bullets. Kills players and adds scores.

SysPlayerMovementController – Handles walking, jumping, and wall sliding.

### **Systems/Misc**

SysButtonColorizer – Colors buttons depending on if they are normal, hovered, or pressed.

SysButtonHandler – Uses the mouse to hover over, press, and release buttons.

SysCameraFree – Unused, free camera movement with gamepad controller.

SysDeathTriggerHandler – Destroys entities that trigger with entities containing CmpDeath.

SysSelfDestruct – Destroys entities containing CmpSelfDestructTime that are due to die.

SysTimedEventHandler – Executes events represented by CmpTimedEvent that are due to execute.

## **Scenes**

MenuMain – The main menu, options, and level selection.

MenuControls – The main menu controls tab.

Level1-8 – The gameplay is in these scenes. Players fight each other until the time runs out.

MenuWinner – The menu that displays the winner of a match after the match ends.