Player Weapon Specification

Type 1 Submachine Gun

(insert Type 1 Submachine Gun concept art)
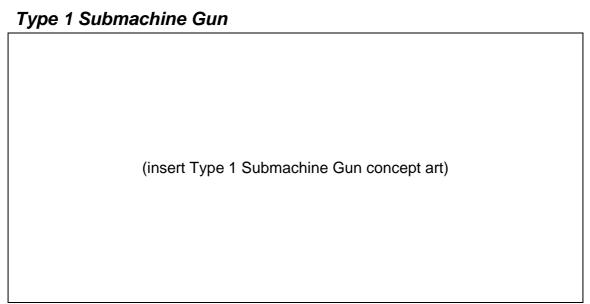
The *Type 1 Submachine Gun* is a common weapon used by the player and AI enemies.

The *Type 1 Submachine Gun* is a weapon the player has an opportunity to use early in the game. It will likely be a staple of the player's weapon inventory through most of the missions.

Core Functionality

- Weapon fires bullet projectiles at a rapid rate toward the HUD reticule or physical weapon sight (in Aim Down Sight mode). Weapon plays sound, animation, and particle effects when fired.
- Bullet projectiles damage AI targets and destructible objects in the game world. Bullet projectiles leave behind a decal when they hit AI targets, destructible objects, or static objects in the game world.
- Continual firing of weapon makes aiming more difficult (weapon rises).
- Has a magazine with limited ammunition. Player input initiates reload sequence or weapon auto-reloads when empty.
- Fired bullets have a limited range of effect.
- Weapon is capable of using Aim Down Sight feature to improve accuracy.
- Weapon functions as a part of the player's inventory system.
- Weapon plays an animation when idle.
- Certain weapon parameters are directly editable by designers for the purposes of gameplay tuning.

Assets Required

The player-used weapon *Type 1 Submachine Gun* requires the following assets:

- **ART** for weapon body, ammunition magazine, bullet projectile, shell casing. Art for weapon body should take into account normal view (HUD reticule) and Aim Down Sight view (player looking down length of weapon close-up, focused on the iron sights).
- **PARTICLE EFFECTS** for muzzle flash, bullet tracer, shell ejection, bullet impact decals.
- **ANIMATION RIG** for attachment to player hands, playback of firing/idle animations, playback of magazine reload sequence, switching to/from Aim Down Sight mode.
- **ANIMATION** for firing, idle, and magazine reload.
- **AUDIO** for weapon fire, magazine empty, magazine reload.

Usage Walkthrough

This walkthrough assumes the player has already selected the *Type 1 Submachine Gun* from their inventory.

- **WEAPON AT IDLE.** The player has equipped the *Type 1 Submachine Gun* but does not attempt to fire, reload, or aim down sight. The weapon appears in its Normal Mode (hip fire view): weapon is located in the lower right section of the screen, barrel angled toward the center HUD Reticule. The weapon plays its idle animation sequence when there is no player input.
- **PLAYER FIRES WEAPON.** The player presses the FIRE WEAPON BUTTON and the following happens until the player releases the button:
  - Weapon fires bullets based on the **Rate Of Fire** parameter toward the center of the HUD Reticule. Weapon magazine is depleted based on the **Rate Of Fire** parameter.
  - Weapon fire animation plays.
  - Muzzle flash, bullet tracer, and shell ejection particles fire.
  - Weapon fire audio plays.
  - Player controller vibrates based on **Controller Fire Vibration** parameter.
  - Weapon rises and drifts to the right slightly every time a single bullet is fired, causing a cumulative effect when lots of bullets are fired. This makes it difficult to keep the weapon trained on target when firing at full auto. The amount of rise/drift is determined by the **Weapon Rise Rate** and **Weapon Drift Rate** parameters.
  - Bullets impacts cause damage to AI targets and destructible objects in the environment based on the **Damage** parameter.
  - Bullet impacts leave behind decals on anything they hit. Maximum number of decals allowed at one time is set by the programmer, balancing engine performance with environmental effect.

- o Releasing the FIRE WEAPON BUTTON ceases: bullets firing, weapon fire animation, muzzle flash/bullet racer/shell ejection particles, weapon fire audio, weapon rise/drift. Additionally, the rise/drift is reset to center so the weapon returns to the same state as when it was first equipped. Weapon returns to idle mode.
- **PLAYER RELOADS WEAPON.** The player has not yet depleted the weapon's magazine, but decides to reload by pressing the RELOAD WEAPON BUTTON:
  - o The weapon ceases: idle animation, bullets firing, weapon fire animation, muzzle flash/bullet racer/shell ejection particles, weapon fire audio, weapon rise/drift.
  - o Weapon reload animation plays.
  - o Weapon reload audio plays.
  - o Player controller vibrates based on **Controller Reload Vibration** parameter.
  - o Weapon magazine reset up to its maximum based on **Magazine Size** as long as there is enough ammunition left in the player's inventory.
  - o Additionally, the rise/drift is reset to center so the weapon returns to the same state as when it was first equipped. Weapon returns to idle mode.
- **WEAPON AUTO-RELOADS.** If the player fires the weapon until the magazine is depleted but there is more ammunition in the players inventory:
  - o The weapon ceases: bullets firing, weapon fire animation, muzzle flash/bullet racer/shell ejection particles, weapon fire audio, weapon rise/drift.
  - o Magazine empty audio plays. THEN:
    - ▪ Weapon reload animation plays.
    - ▪ Weapon reload audio plays.
    - ▪ Player controller vibrates based on **Controller Reload Vibration** parameter.
    - ▪ Weapon magazine reset up to its maximum based on **Magazine Size** as long as there is enough ammunition left in the player's inventory.
    - ▪ Additionally, the rise/drift is reset to center so the weapon returns to the same state as when it was first equipped. Weapon returns to idle mode.
- **WEAPON OUT OF AMMUNITION.** When the player depletes the weapon's magazine and there is no ammunition left in inventory:
  - o The weapon ceases: idle animation, bullets firing, weapon fire animation, muzzle flash/bullet racer/shell ejection particles, weapon fire audio, weapon rise/drift.
  - o Magazine empty audio plays.

- o Additionally, the rise/drift is reset to center so the weapon returns to the same state as when it was first equipped. Weapon returns to idle mode.
- o If player presses FIRE WEAPON BUTTON after this point:
  - ▪ Magazine empty audio plays.
- **PLAYER AIMS DOWN SIGHT (ADS).** Aim Down Sight mode changes the position of the weapon to give the player greater accuracy against a single target by using the weapon's sights instead of the HUD Reticule. When the player holds the AIM DOWN SIGHT BUTTON:
  - o HUD Reticule vanishes.
  - o Weapon changes orientation from the lower right screen/angled toward the HUD Reticule to straight in front of the player with the weapon's physical sights lined up in the center.
  - o Releasing the AIM DOWN SIGHT BUTTON returns the weapon to Normal Mode (hip fire) and restores the HUD Reticule.
  - o There is no idle animation when the weapon is in Aim Down Sight Mode.
- **PLAYER FIRES WEAPON (ADS).** Player Fires Weapon In Aim Down Sight Mode:
  - o Weapon fires bullets based on the **Rate Of Fire** parameter toward the center of the weapon's physical sights. Weapon magazine is depleted based on the **Rate Of Fire** parameter.
  - o Weapon fire animation plays.
  - o Muzzle flash, bullet tracer, and shell ejection particles fire.
  - o Weapon fire audio plays.
  - o Player controller vibrates based on **Controller Fire Vibration** parameter.
  - o Weapon rises and drifts to the right slightly every time a single bullet is fired, causing a cumulative effect when lots of bullets are fired. This makes it difficult to keep the weapon trained on target when firing at full auto. The amount of rise/drift is determined by the **Weapon Rise Rate (ADS)** and **Weapon Drift Rate (ADS)** parameters.
  - o Bullets impacts cause damage to AI targets and destructible objects in the environment based on the **Damage** parameter.
  - o Bullet impacts leave behind decals on anything they hit. Maximum number of decals allowed at one time is set by the programmer, balancing engine performance with environmental effect.
  - o Releasing the FIRE WEAPON BUTTON ceases: bullets firing, weapon fire animation, muzzle flash/bullet racer/shell ejection particles, weapon fire audio, weapon rise/drift. Additionally, the rise/drift is reset to center so the weapon returns to the same state as when it was first equipped.
  - o There is no weapon idle animation in Aim Down Sight Mode.

Weapon Parameter Tuning

The following parameters need to be exposed for gameplay tuning purposes. At minimum, these parameters should be located in the same group in a text script file. Ideally, these parameters will be located in a dedicated gameplay tuning panel accessed through the game editor.

- **Magazine Size** – This should reflect the maximum number of bullets that the weapon can hold when fully loaded. A Magazine Size of 30 means the weapon can hold a maximum number of 30 bullets at any time.
- **Rate Of Fire** – This is how many bullets are fired per minute. A Rate Of Fire of 650 means the weapon's rate of fire is 650 rounds/minute.
- **Controller Fire Vibration** – This vibration event fires every time a bullet fires.
- **Controller Reload Vibration** – This vibration event fires every time the player reloads the weapon, specifically at the point in the animation where the fresh magazine is slapped into the weapon.
- **Weapon Rise Rate** – Every time the weapon fires a single bullet it should rise, simulating the concussive force of a real bullet making it difficult to stay on target when firing an automatic weapon. Needs to be tunable on a scale of at least 100 (1 = barely noticeable rise, 100 = extreme rise).
- **Weapon Rise Rate (ADS)** – This is a separate rise rate that is used when the weapon is in Aim Down Sight mode. Needed to tune rise rate to be less intrusive when using Aim Down Sight mode.
- **Weapon Drift Rate** – Every time the weapon fires a single bullet it should drift to the right, simulating the concussive force of a real bullet making it difficult to stay on target when firing an automatic weapon. Needs to be tunable on a scale of at least 100 (1 = barely noticeable drift, 100 = extreme drift).
- **Weapon Drift Rate (ADS)** – This is a separate drift rate that is used when the weapon is in Aim Down Sight mode. Needed to tune drift rate to be less intrusive when using Aim Down Sight mode.
- **Bullet Spread** – Bullet spread is a parameter used to fine-tune the inherent accuracy of a weapon. When fired, bullets should head in a straight line towards the HUD Reticule or the weapon sight (Aim Down Sight mode). The Bullet Spread parameter modifies the trajectory of the bullet so each bullet fired drifts a bit within a small circle around the center point (HUD Reticule or weapon sight). The Bullet Spread parameter defines the size of that circle with a minimum scale of 100 (1 = tiny circle, essentially always on center, 100 = large circle, wildly off-center).
- **Bullet Spread (ADS)** – This is a separate bullet spread value that is used when the weapon is in Aim Down Sight mode. Needed to tune bullet spread to be more accurate when using Aim Down Sight mode.
- **Bullet Damage** – Single number, amount of damage a single bullet causes (1, 10, 25, etc.).

- **Bullet Damage (ADS)** – This is a separate damage value that is used when the weapon is in Aim Down Sight mode. Needed to tune damage to be more effective when using Aim Down Sight mode.
- **Maximum Range** – This is the maximum range that the weapon bullets will do damage in meters (100m, 250m, 30m, etc.). Once a bullet passes this range it should no longer cause damage and can be deleted.