Applied Research Project – Progress Report 3

Time Log:

Date	Number of Hours	Description of work done
Oct 12, 2025	4	In FPS (First Person Shooter), Players respawn in seconds after their death.
Oct 13, 2025	4	Win and lose condition; add team marks on UI.
Oct 15, 2025	6	Debug weapon drop, respawn players after a battle round.
Oct 17, 2025	5	Vehicle part meshes are added into the engine; C++ with the Tank class, Player controller, Turret and Barrel.
Oct 18, 2025	7	The rotation of the turret and barrel with crosshair aiming. Turret has the rotation delay of the movement with FindDeltaAngleDegrees. Add firing system with SuggestProjectileVelocity which could give the projectile move as a parabola path.
Oct 19, 2025	5	Basic Movement with TankTrack class (used for wheel meshes for now). Basic AI follows and damages the player.
Oct 20, 2025	4	Movement physics update with correction acceleration.
Oct 22, 2025	4	Projectile rebuild with FX and lifespan and area-force; Hit damage to other actors.
Oct 24, 2025	4	Vehicle health and UI setup.
Oct 25, 2025	2	Report 3, midterm report document.

Description:

In the past two weeks, I had finished the Win and Lose in rounds for the FPS mode. Then I added the first vehicle, BP_RaiderBuggy, into our project with basic movement, aiming and shooting projectile functions.

Highlight of the Vehicle:

1. Shooting path as a parabola;
2. The Turret rotation delay with real delta time to the crosshair;
3. Basic AI movement and aiming and damage to player.

From the video report (.~\F2025_4495_071_YLi547\Implementation\GameTestVideo\GameTest20251025_WinLoseFPS_FirstVehiclePrototype), there are still a lot of bugs in the 2 mode.

1. FPS still has the on time broadcast weapon drop issue. The weapon dropped from host is working well, but looks in the air (flowing) from the client's view.
2. Another one is the physics of the vehicle: when the vehicle is in air, the resistance of CorrectionForce reduce the gravity.
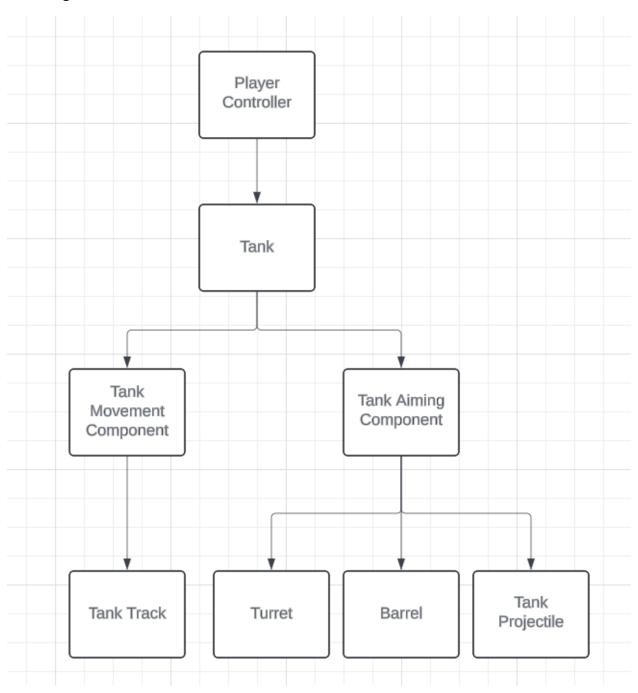
Next, to do:

1. Destroy vehicle actor when health is 0 (generate ruined vehicle mesh or change the material and FX).
2. Multi-vehicle to run (add replicate).
3. Player from FPS gamemode could drive the vehicle.
4. Fix the 2 bugs.

New C++:

Class logic link:

New test Map:

/Script/Engine.World'/Game/Map/TankTest.TankTest'

Game Test Screenshot: