

Applied Research Project – Progress Report 4

Time Log:

Date	Number of Hours	Description of work done
Oct 26, 2025	5	Fixed the bug: not synchronized the dropping weapon. Startup the multi-vehicle running.
Oct 27, 2025	5	Tried to synchronized turret rotation, and the firing synchronized. The turret rotation was always shaking on the client side...
Oct 29, 2025	6	Update the synchronized firing system (the firing position was always in the last fired barrel's socket position). Currently, on the client side, the turret's rotation cannot synchronize. Get working for both sides (server and client) for the health bar widget.
Oct 31, 2025	5	Troopers can drive into the vehicle and out of the vehicle, by using "Possess". But not finished the replicate for the client (when a client gets into a vehicle, the controller is on the server side).
Nov 1, 2025	4	Fixed the controller issue. Trooper's player controller and Tank's controller cannot run in the same time, but now can replicate, so that it can be synchronized if one of players drive into a vehicle.
Nov 2, 2025	7	Team wins decision, after a vehicle shoots down the other players, the driver needs to get out of the vehicle to let the Gamemode calculate the alive and death of the two camps. Nod tanks setup based on the main tank class.
Nov 3, 2025	7	GDI tanks setup based on the main tank class. Tried to fix the tank UI (It works well in server but in client the ammo is correct but the health bar is not correct). Then tried to fix the aiming and firing in tick event (it always nodding barrels with no reason. It sometimes works well in only 1 player. Then I tried to fix the mesh collision but it seems not led by it).

Nov 5, 2025	6	<p>Tank Gamemode tries to save the data prepared for output data, such as vehicle name.</p> <p>Polished the tick event in the tank base blueprint. I moved the function from tick to only dead event happening for a player, then try to find vehicles which are driving in the same camp. Because tick is too expensive for multiplayer to find the special class in each frame.</p>
Nov 7, 2025	8	<p>Team wins debug, it was broken when I relocated the function from tick.</p> <p>Hard code some users in table, for teammates to use the txt to do machine learning.</p> <p>Then in the camp chosen widget, players have to input their user's name first.</p> <p>Took a long time on the data transfer from input and found each player start time and dead time and what vehicle they used into PlayController then to the Gamemode.</p> <p>Output the txt.</p> <p>https://www.youtube.com/watch?v=uZPzTN5Debc&t=829s</p>

In the past two weeks, it was a huge process in my game: Players could drive a vehicle and all the vehicles were set up. Then fixed the new win condition matched with vehicles. Finally, write out of logs.

In the next two weeks, I need to take a rest for one day, then:

1. Add other kinds of artillery shell for tanks;
2. Output all the data for Machine Learning;
3. Fix the bugs of UI and barrel shaking issue;
4. Level design;
5. Widget & UI polish as publish level.

Video for current process:

<https://youtu.be/sVZ9pi65Btl>