

Unreal Engine - Terminal Ballistics

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Unreal Engine - Terminal Ballistics:

Introducing a robust and user-friendly ballistic simulation system designed for seamless integration into any project, regardless of your expertise level. Whether you prefer simple blueprint nodes or in-depth functions, this plugin caters to everyone, from beginners to experts.

Bullet Penetration and Impact:

- In the realm of terminal ballistics, our plugin excels by prioritizing bullet penetration. Achieving realism and simplicity, Terminal Ballistics employs a material science-based approach, utilizing unique material properties to determine penetration likelihood, material failure, and energy loss. Enjoy complex collisions, penetrations, and ricochets with minimal setup – just assign a physical material to your mesh and you're good to go, eliminating the need for tedious calculations.

Projectile Dynamics:

- Experience accurate simulation of projectile forces during flight, with customizable complexity levels. From basic drag calculations to comprehensive 3D drag and wind simulation, our system factors in environmental conditions like temperature, humidity, and air pressure. The aerodynamic performance of each bullet is grounded in real-world data, ensuring authenticity in every detail.

Efficient Multithreading:

- Our unique multithreaded system eliminates the need to worry about simulating thousands of actors or components simultaneously. Forget about spawning, replicating, and destroying – all handled seamlessly with minimal impact on the game thread. You can even leverage the system for simulating individual grenade shrapnel, adding a touch of realism to environmental interactions.

Customization at Your Fingertips:

- Tailor the plugin to your project's needs with an extensive array of settings. Adjust drag complexities, simulation tick rates, projectile lifetimes, material properties, collision channels, and more. The flexibility offered ensures you can fine-tune the simulation to meet the specific requirements of your project.

Comprehensive In-Flight Simulation:

- Simulate projectiles in flight with customizable levels of complexity.
- Compute drag with flexibility tailored to your project's needs.

Precise Bullet Penetration and Ricochet:

- Perform per-surface calculations for bullet penetration and ricochet.
- Achieve realism with accurate outcomes based on material properties.

Efficient Multi-Threaded Framework:

- Implement a multi-threaded simulation framework, minimizing the workload on the game thread.
- Eliminate overhead associated with actors or components for smoother performance.

Blueprint Exposure:



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- Expose most functionality through blueprints for easy integration into your project.
- Provide a user-friendly experience for both beginners and experienced developers.

Out-of-the-Box Simplicity:

- Simple to use without sacrificing advanced capabilities.
- Enjoy a seamless setup and implementation process.

Interdisciplinary Mathematics:

- Incorporate mathematical principles from material science, ballistics, aerodynamics, fluid dynamics, and impact mechanics.
- Ensure a robust foundation for realistic and accurate simulations.

C++ Performance:

- Written in C++ with a focus on performance, delivering efficiency and speed.
- Benefit from optimized code for a smooth and responsive experience.

Data-Driven Design:

- Utilize a data-driven approach for bullets, projectiles, and materials.
- Easily customize and tailor elements to meet the unique requirements of your project.

Fully Customizable Elements:

- Customize bullets and projectiles according to your project's specifications.
- Enjoy advanced versions of core functions for added versatility.

Advanced Functionality:

- Access advanced versions of many core functions, providing a high level of control and sophistication in your simulations.



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