
Early 1990s: Wireframes to 2.5D worlds and textures

Games of this generation are often regarded as Doom clones. They were not capable of full 3D rendering, but used ray casting 2.5D techniques to draw the environment and sprites to draw enemies instead of 3D models. However these games began to use textures to render the environment instead of simple wire-frame models or solid colors.

Hovertank 3D, from id Software, was the first to use this technique in 1990, but was still not using textures, a capability which was added shortly after on Catacomb 3D (1991), then with the Wolfenstein 3D engine which was later used for several other games. Catacomb 3D was also the first game to show the player's hand on-screen, furthering the implication of the player into the character's role.

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Wolfenstein 3D engine was still very primitive. It did not apply textures to the floor and ceiling, and the ray casting restricted walls to a fixed height, and levels were all on the same plane.

Even though it was still not using true 3D, id Tech 1, first used in Doom (1993) and again from id Software, removed these limitations. It also first introduced the concept of binary space partitioning (BSP). Another breakthrough was the introduction of multiplayer abilities in the engine. However, because it was still using 2.5D, it was impossible to look up and down properly in Doom, and all Doom levels were actually two-dimensional. Due to the lack of a z-axis, the engine did not allow for room-over-room support.

Doom's success spawned several games using the same engine or similar techniques, giving them the name Doom clones. The Build engine, used in Duke Nukem 3D (1996), later removed some of the limitations of id Tech 1, such as the Build engine being able to have support for room-over-room by stacking sectors on top of sectors, however the techniques used remained the same.