

Modular Architecture for Computer Game Design

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Abstract

Common current game architectures limit program flexibility and modularity. With the advent of middleware and the increasing complexity of games, this is no longer acceptable. In this project I will attempt to design and implement a highly modular, Data-centered architecture based on the "System of Systems" approach. The final implementation need not have any significant complexity within each system (e.g. graphics, AI, etc.) but rather must demonstrate the successful interaction of independent systems.

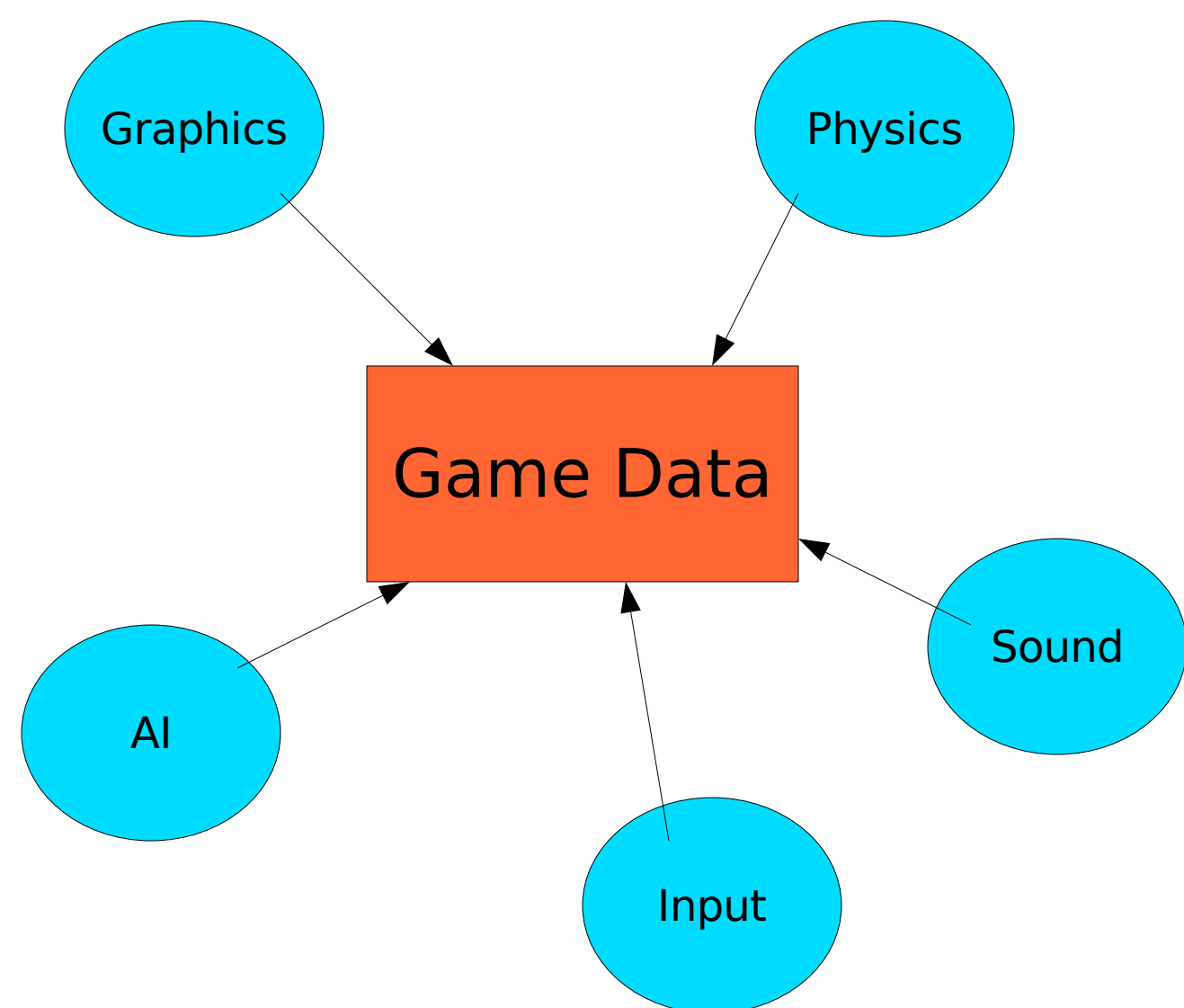


Figure 1: The System-of-Systems design model. Each system is as independent as possible from the others, and each operates on a central set of game data.

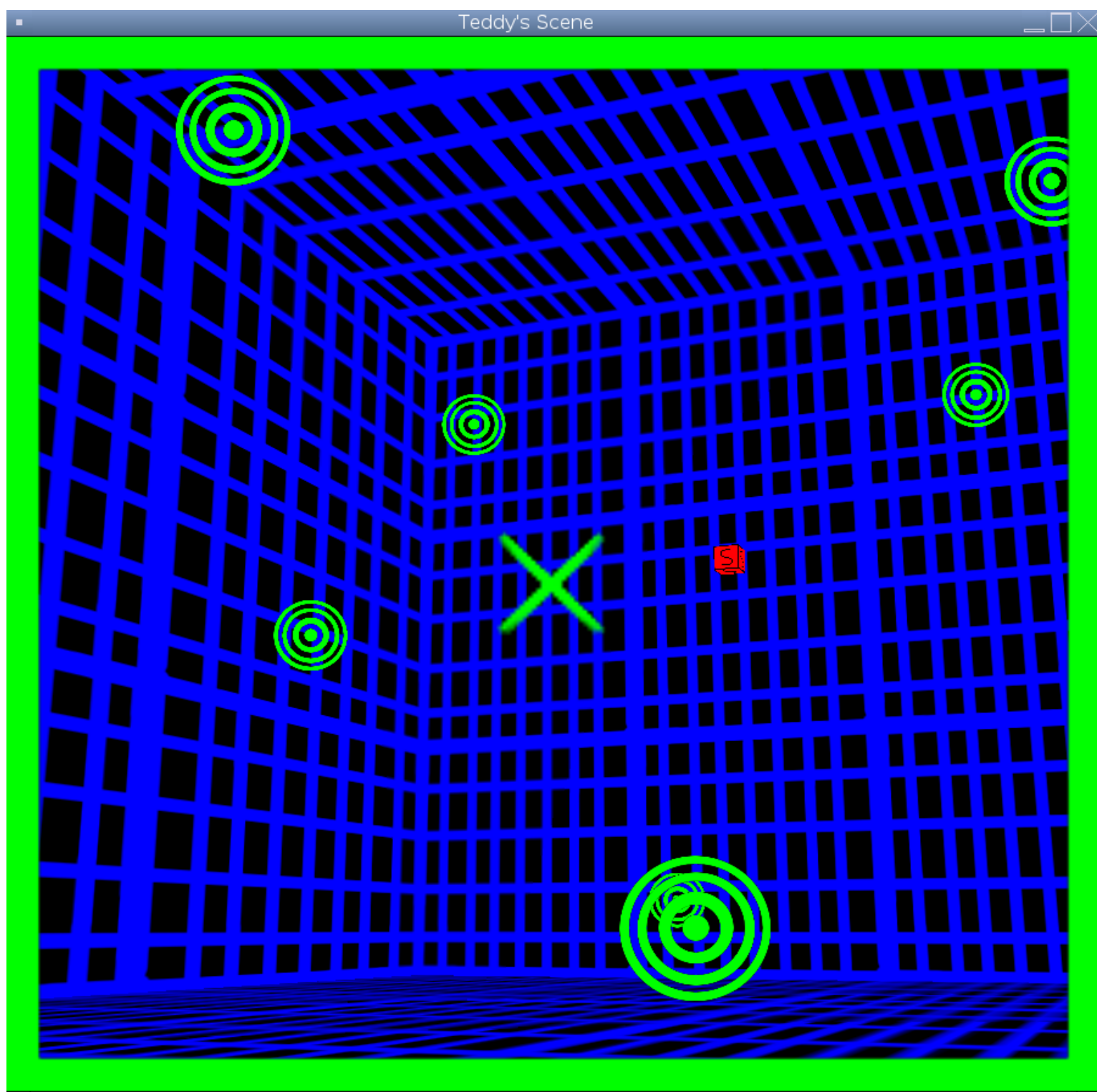


Figure 2: A screenshot from the current game prototype. The targets are billboarded quads (squares that always turn to face the camera) with partially transparent textures mapped to them. A projectile is shown in red.

Larger Purpose

The development of a flexible and modular architecture promises to improve the amount of time and money required to make a large computer or video game. Also, by emphasizing the use of middleware, middleware can become increasingly specified and advanced.

Expected Results

While the research has not yet been completed, it is expected that it will yield a skeletal, but functional, System-of-Systems game.