Case Study

Other Ocean Interactive Speeds Up Video Game Development with GIS

esri Canada

CityEngine increases game developer's productivity on environment creation by 400%, reducing labour costs and time to market

Based in St. John's, Newfoundland and Labrador, Other Ocean Interactive is a fast-growing company that is succeeding in the gaming industry's newest frontier: virtual reality. Its latest video game, *Giant Cop: Justice Above All*, puts video gamers in the uniform of a police officer who patrols the virtual Micro City.

In early 2016, the company was introduced to CityEngine's powerful capabilities at an international game developer conference. Since then, it has used CityEngine to efficiently produce virtual cities, quickly create game features and integrate various systems. Ultimately, these benefits have enhanced *Giant Cop's* visual quality and user experience, while streamlining the development process and reducing labour costs.
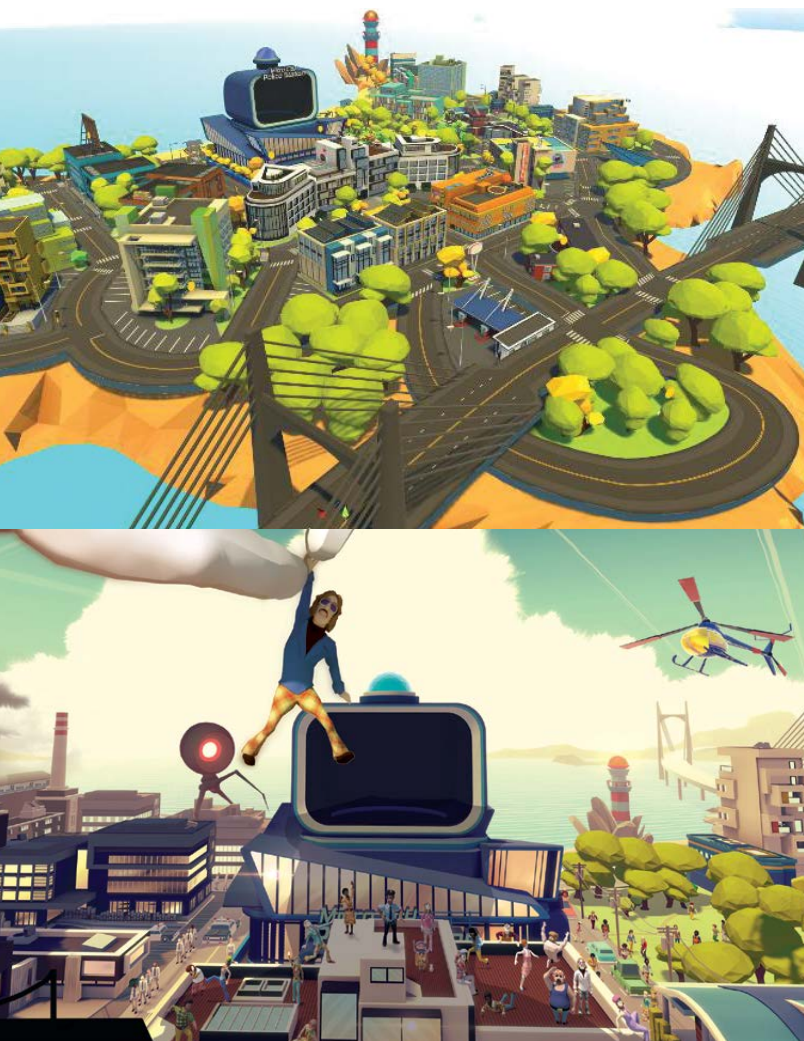
Challenge

In *Giant Cop*: *Justice Above All*, a video gamer becomes a 200-foot-tall police officer patrolling Micro City. The officer is responsible for enacting justice by scooping up citizens who dare to misbehave in ways such as starting fights or vandalizing property. These lawbreakers are thrown in jail – in the game's case, a state-of-the-art trash bin.

In September 2015, Other Ocean Interactive presented a mouse-and-keyboard prototype of *Giant Cop* at EGX, the largest games event in the UK. While the prototype was well received by critics and the public alike, Other Ocean Interactive thought the game could be further improved by adding virtual reality.

While developing for virtual reality, the company had to make several iterations to optimize the game. In video game design, this process can be time-consuming and costly, taking a team of at least 3-4 staff members months to make significant changes. For *Giant Cop*, the team had to make these iterations by hand.

For example, Jon Lambe, the company's lead artist, worked on one of the game's residential districts where a road needed to be added and another removed. He had to hand cut out the existing road, fix the spot where the road was removed, create a new road and then place the road into the city. This prompted him to find a solution that could make the iteration process more efficient.

Features such as streets, crosswalks and cars can be created in only a few clicks, significantly reducing game development time.
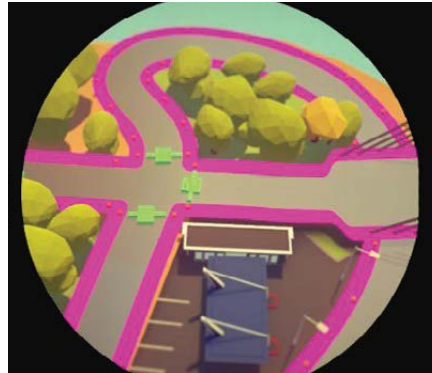
Using CityEngine, Other Ocean Interactive quickly generated roads by placing and connecting nodes.

"To develop the video game at our current speed, we would need at least one or two additional people working for several more months. CityEngine has increased our productivity on our environment creation by 400%."

Jon Lambe
Lead Artist
Other Ocean Interactive

Solution

In spring 2016, Jon attended the Game Developers Conference in San Francisco where he saw some of the latest next-generation gaming technologies, including a demonstration of CityEngine. What caught his eye was how easy it was to create roads using Esri's 3D modelling software. This process usually took him weeks to do, but it only took a few clicks to complete with CityEngine.

The solution uses procedural rules to generate massive 3D urban environments that can be easily modified and shared. CityEngine also enables the creation of initial 3D mock-ups of any location in the world within minutes.

After purchasing CityEngine, Chris Zerebecki, *Giant Cop's* lead programmer, exported the graph network and shape data from CityEngine to build lanes for *Giant Cop* by placing nodes and connecting them. He also added a crosswalk that would notify pedestrians to stop. At the same time, this feature directed cars to stop at the crosswalk when pedestrians were present.

Through procedural modelling, they were able to make rapid iterations to the game's entire environment without remodelling individual districts.

Prior to purchasing CityEngine, Jon and Chris had no experience with the program. It only took a few tutorials for them to begin to master it. They found CityEngine easy to use because it configured its layout to their current 3D animation software – taking something they were familiar with and setting the layouts to mirror that.

Benefits

Using CityEngine, Other Ocean Interactive has built *Giant Cop's* environment four times faster than scheduled. This 400% increase in productivity can be attributed to significant efficiencies in the production of virtual cities, feature creation and system integration.

First, CityEngine generates a test city easily. This test city became the model for the four Micro City districts. Because CityEngine enabled early and more iterations, the game's visual quality was significantly enhanced. During demo tours, video gamers from LA to Tokyo commended the company on *Giant Cop's* 3D animation.

Second, CityEngine enables quicker feature development. By hand, a street usually takes two weeks to create. Now, a street can be created in a few clicks.

Third, features created with CityEngine are compatible with other game development systems. This seamless integration significantly optimizes the game and improves the user experience. Previously, adding 40 to 50 cars would cause the game to crash. With CityEngine, adding up to 250 cars barely affects performance.

As a result of these time savings, Other Ocean Interactive has reduced labour costs, as well as their time to market.

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