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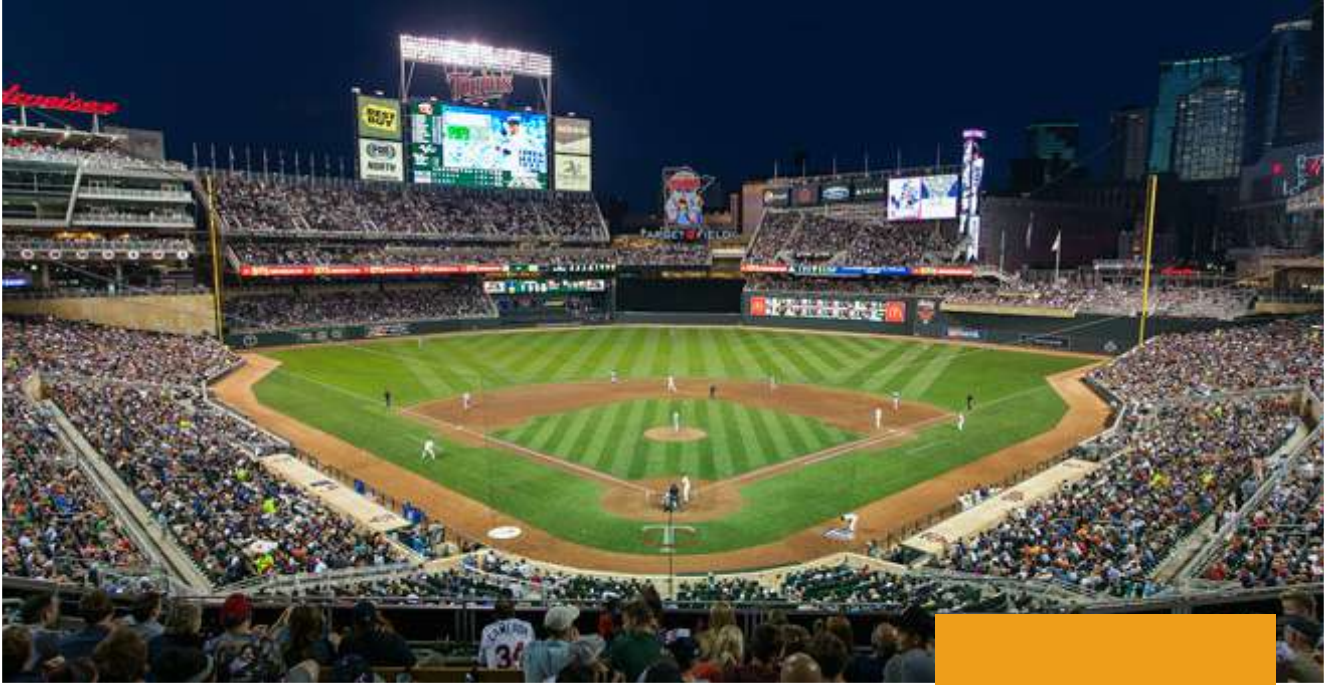


CASE STUDY

# VR Fully Immersive Baseball Game

AVRspot





**AVR SPOT**  
AR & VR experts

## The Story Behind

VR Fully Immersive Baseball Game is a virtual reality game for HTC Vive and Vive Tracker platforms that recreates the immersive experience of playing a baseball in a popular baseball stadium, providing users full control over the game. Developed for a group of baseball enthusiasts as well as for other sports fans it allows players to enjoy their best-loved game in a favorable, virtual environment.

The main purpose of the project was to create a solid gaming experience for our client who could further use it for his own purposes. To give baseball game immersive and engaging nature was a nice solution to fill the niche in a burgeoning VR games segment.



## Challenge

VR Fully Immersive Baseball Game would provide a highly realistic visualization of the baseball stadium, where the user could step into the real-size field and see the crowd cheering around. The virtual experience of the baseball game would closely resemble the real-life situation.

The batter would wear an HTC Vive headset, hold a bat and stand at "home plate" on the field. Virtual pitcher throws the ball so that the batter could hit it back to the catcher. By hitting a homerun after a homerun the batter would blow off fireworks.



## Challenge

To render as realistic experience as possible players would use the real bat. Users could use controllers to hit the ball as well. To win the game, a batter would have to throw the ball further and further until they score a homerun in given time.

The AVRspot team was challenged to make this game exciting and engaging for players via game design features and an attractive UI.



### Scope of Service

- Graphic Design;
- 3D Stadium Model Creation;
- Game Logic Development;
- UI Implementation;
- Quality Assurance.

### Tools and Technologies:

- Unity;
- Game Sparks;
- Physx 3 SDK;
- 3dx MAX;
- Substance Painter.

### Platforms:

- HTC Vive
- HTC Vive Tracker.

## Solution

AVRspot came up with an idea to implement virtual reality immersive baseball game that will allow players to play it hearing a supportive crowd and feel the game spirit. As soon as batters wear HTC Vive headset and take their bats they materialize in the Target Field stadium, get ready and hit the ball back to a virtual catcher. To count scores and control the game, our team have created a virtual baseball umpire who follows the whole game process.

Players can use both, real and virtual bat, which they can hold using a controller. To bring the real-world bat into the artificial environment, a batter should attach HTC Vive Tracker to it. If users choose the virtual bat, they will feel the vibration while hitting the ball and, therefore, experience the real power of the hit.

### How we did it

AVRspot designed a totally new user interface for the customer's VR baseball game. Thanks to the photogrammetry techniques, our 3D artist has generated the realistic 3D model of Target Field, including skybox and skyscrapers to convey the real game experience. AVRspot also created 3D models of a baseball bat, a ball, spectators, reserved players, a pitcher, a catcher and an umpire to boost the immersiveness of the game.

As soon as the UI and 3D models had been ready, AVRspot proceeded with game logic development. The path to implementing AVRspot's idea followed in such progression:

- Game structure creation;
- Binding the bat to the controller;
- Hit simulation and scoring system development;
- Judge's behavior development;
- Graphics and sound effects implementation;
- Defining bat's position and physical parameters;
- Implementing fireworks by using Particle System;
- Creating an animated reaction for the virtual players and audience;
- Developing an algorithm for a camera to follow the ball and to define hit types.
- Generating realistic ball flight trajectory and flight speed;
- Collecting data.





## Benefits

- ✓ Virtual reality baseball game provides users with a way to enjoy a game as if it were happening right where they are.
- ✓ Immersive videos and sound allow people to actually hit a ball and experience the sounds of a stadium in the middle of a match.
- ✓ Virtual reality baseball allows trying baseball for those who play it for the first time in interactive, safe and low-cost environment.



## Results

As a result, our team managed to deliver a full-blown virtual reality baseball game with an exciting gameplay.

The solution we developed can be used by baseball players as well as newcomers to have fun and develop new skills.

Seamless collaboration between developers facilitated the requirements' discussion and clarified product scope.

A market-ready product has been delivered in just two months.





## About AVRspot

AVRspot helps clients transform their businesses by providing virtual and augmented technology solutions.

We solve sophisticated issues with creative strategy and large-scale engineering. By applying design-driven prototyping approach in combination with proven project management techniques our highly qualified team delivers outstanding digital solutions and content to our clients.

Our team of experts provide AR/VR Consulting, Product Design & Implementation, and Usability Testing. Moreover, we have experience in cross-border collaboration and virtual teams.