



Wes Chamberlain's VR Batting Cage





GAME DESIGN DOCUMENT

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1 General Overview

Wes Chamberlain's Major League Batting Cage (working title) is a VR batting cage game, set in a slightly stylized, yet realistic physics-based world. MLBC challenges players with realistic controls and physics. Players will enjoy a variety of game modes, mini-games, and robust asynchronous multiplayer.

MLBC is targeting "T" (ESRB) and above with content generally suitable for ages 13 and up with simulated gambling in the *Standard Edition*. The *Pro Edition* is targeting "A" (ESRB) with content suitable only for adults ages 18 and up due to gambling with real currency. The games' primary platform will be Steam. The current publishing target is Q1 2018.

The primary demographic will be males 13 and up in the following markets:

- USA
- Japan
- Central America
- South America

2 Key Features (hooks)

- Fully immersive virtual reality
- Realistic ball physics
- Authentic batting mechanics
- Robust game modes
- Online leaderboards and achievements
- Tremendous replay ability

3 Story

There are currently no plans to support any narrative elements in MLBC.

3.1 Characters

No characters will appear in-game, but there could possibly be visual elements like a batting coach that come up to help the player with batting mechanics. If that is determined to be important, Wes Chamberlain will be represented.

3.1.1 Batting Coach





Name: Wes Chamberlain

Experience: 6 seasons (MLB), 1 season (JPL), 7 seasons (NL)

4 Gameplay

MLBC provides players with hours of engaging and challenging batting gameplay. Players will enjoy being fully immersed in both virtual reality and realistic batting dynamics. Additionally, authentic control systems complete the experience and provide the next best thing to being in an actual batting cage! Players will be engaged for hours as they master the fun and nuanced controls of our highly accurate batting dynamics.

4.1 Mechanics

MLBC features authentic batting and handling game mechanics. Both modes will also support haptic feedback.

4.1.1 Batting

Hitting is the core game mechanic in MLBC. There are many variables that go into a hit, broken down as the following:

- Pitch speed: how fast the ball is travelling
- Bat axis: the angles of how the player is holding the bat in relation to the ball during contact:
 - Pitch
 - Yaw
 - Roll
- Bat speed: how fast the bat is swung when contact is made
- Ball impact zone: the area on the ball that struck

All of these variables must be accurately calculated and be represented with authentic ball and bat physics by the game engine to replicate an authentic experience.

4.1.2 Handling

In trick mode, the player has the ability to toss and catch both the baseball and bat. Hand speed, location, and grabbing are all variables we must track.

4.2 Control Actions

Control actions in MLBC are fairly basic:

- Select: used to make a selection (click) in-game



- Grip: used to select bat
- Trackpad DOWN: used to start a pitch (depends on mode)

4.3 Goals

Some goals we provide players:

- Beat a mode's requirements (to unlock the next mode)
 - Modes can be bypassed via an in-app purchase
- Achieve high scores
- Wager cryptocurrency
- Place higher on leaderboards
- Become better at batting

4.4 Modes

There are several modes in MLBC, unlocked progressively in descending order:

4.4.1 Training



Players learn the primary gameplay mechanics through a tutorial. Pitches leave a trail and have a hit zone indicator. Players will have a chance to play through a few different pitch types like fastball, slider, and changeup. Once the player has demonstrated that he can hit three pitches in each type, the tutorial will be considered over. The player will then be notified that Batting Cage mode has been unlocked. The following choices will appear:

- Proceed to the batting cage
- Continue training
- Exit

Visual Feedback

- Pitch speed
- Pitch type



- Bat speed
- Ball strike area
- Ball trajectory

Unlock Criteria: finish the tutorial.

4.4.2 Batting Cage



Players attempt to hit balls from pitching machines. The player can choose the following pitching options:

Ball Type

- Wiffle
- Baseball
- Softball
- Basketball
- Beachball

Pitch Speed




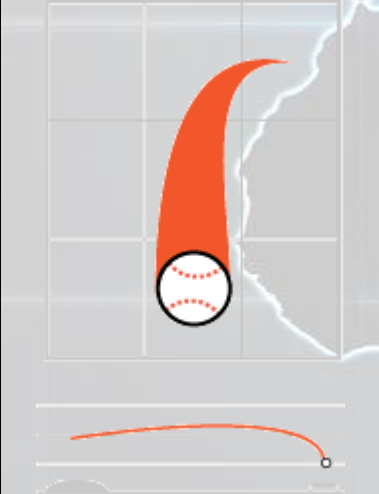
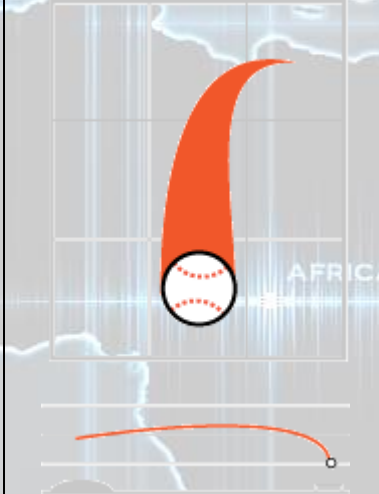
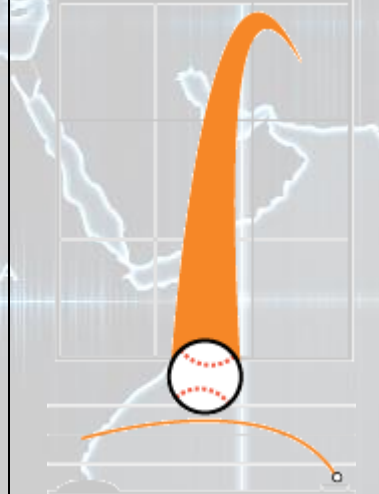
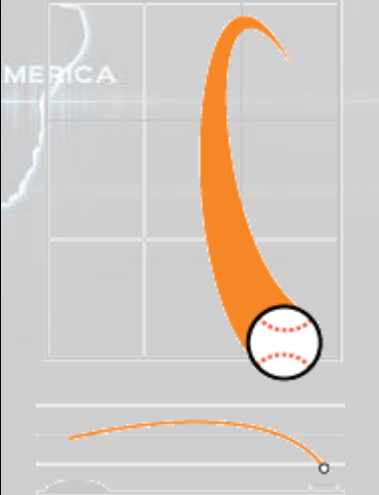
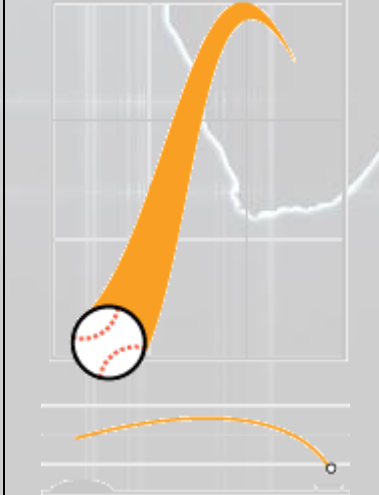
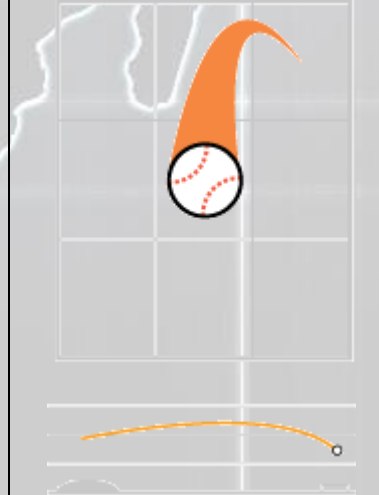
- 10-39 - Newbie
- 40-70 – Minor League
- 70-99 – Major League
- 100+ - Extreme

* A selectable slider can dial up or down the pitch speed within each category.

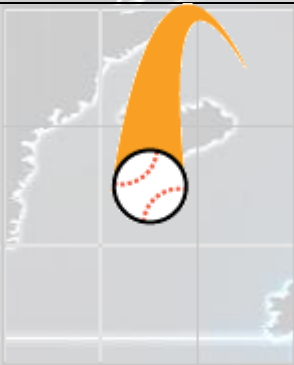


Pitch Style

Game Design Document



 <p>A diagram of a four-seam fastball. The top part shows a baseball with a red seam pattern and a red swoosh indicating a slight downward and forward curve. The bottom part shows a side view of the ball with a red line indicating a slight downward curve.</p>	 <p>A diagram of a two-seam fastball. The top part shows a baseball with a red seam pattern and a red swoosh indicating a more pronounced downward and forward curve. The bottom part shows a side view of the ball with a red line indicating a more pronounced downward curve.</p>	 <p>A diagram of a cutter. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve to the right. The bottom part shows a side view of the ball with a red line indicating a sharp curve to the right.</p>
Four-seam Fastball	Two-seam Fastball	Cutter
 <p>A diagram of a splitter. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve downward. The bottom part shows a side view of the ball with a red line indicating a sharp curve downward.</p>	 <p>A diagram of a forkball. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve downward. The bottom part shows a side view of the ball with a red line indicating a sharp curve downward.</p>	 <p>A diagram of a curveball. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve to the right. The bottom part shows a side view of the ball with a red line indicating a sharp curve to the right.</p>
Splitter	Forkball	Curveball
 <p>A diagram of a slurve. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve to the right. The bottom part shows a side view of the ball with a red line indicating a sharp curve to the right.</p>	 <p>A diagram of a screwball. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve to the left. The bottom part shows a side view of the ball with a red line indicating a sharp curve to the left.</p>	 <p>A diagram of a changeup. The top part shows a baseball with a red seam pattern and a red swoosh indicating a sharp, late-breaking curve to the right. The bottom part shows a side view of the ball with a red line indicating a sharp curve to the right.</p>
Slurve	Screwball	Changeup



		
Palmball	Circle Changeup	Random

Unlock Criteria: score X points in freeplay.

4.4.3 Home Run Derby



This is a fairly straightforward mode. Just as it sounds, the player will attempt to hit “home runs”. Home run zones are designated by a wall in the back part of the cage. Any hit that clears the wall will be considered a home run. Note: the camera will track the ball to its destination point in this mode, then return back to the player.

Freeplay (default)

This sub-mode allows players to practice hitting home runs. High scores are calculated by distance travelled.

Timed

Players have 4 minute to achieve a high score. The timer starts with the release of the first pitch.

Unlock Criteria: produce a homerun that scores at least X.



4.4.4 Shooting Gallery



Players attempt to hit targets at different locations in the cage. Scores are weighted by the difficulty of the target's placement. Sub-modes:

Video reference: <https://www.youtube.com/watch?v=I64HrR1r8EQ>

Freeplay (default)

This sub-mode allows players to practice hitting specific locations. Some targets will also move along rails. Players have an unlimited time to rack up a score.

Hoops

Instead of objects, players will attempt to hit the ball through rotating targets that resemble hoops or rings. These will be spread out and multiple locations like above. Score will be factored by the location and spin rate of the rings.

Unlock Criteria: score X points in freeplay.

4.4.5 Bat Tricks





This mode allows players to practice fun bat tricks like flips, twirls, and spins. The ball is placed on top of a tee but players are not required to hit it. Sub-modes:

Video reference: <http://www.justbatreviews.com/best-bat-tricks/>

Freeplay (default)

This sub-mode allows players to practice bat ball tricks. Tricks will be scored but be reset to zero after the turn is over.

Chain

Players will score points for bat acrobats until either the bat becomes stationary or the ball is hit.

Timed

Players have one minute to achieve a high score. Bats can be picked up off the ground should they be dropped.

Unlock Criteria: score X points in freeplay.

4.5 Rules

These rules apply across the *entire* game in freeplay modes:

1. The player can initiate a pitch with a button
 - a. If the pitch is already in motion, it will reset
2. Bats must be held by constant pressure on the bat input.

4.5.1 Scoring

Scoring is mode specific, please see above.

4.5.2 Winning

Completion of mode objectives or variables in a satisfactory manner will complete the mode and the player will have a choice to continue playing the same mode or move on.

4.5.3 Failing

The following scenarios will end the game (in non-freeplay modes):

- Not meeting the mode's score requirements.
- Not meeting the mode's timer requirements.
- Failing to beat someone's wager time or score

4.5.4 Levels Overview

All modes could be playable from single environment. However, should we want unique environments for each mode, this is how they would be broken up:



- Level 01: Training
- Level 02: Batting Cage
- Level 03: Home Run Derby
- Level 04: Shooting Gallery
- Level 05: Bat Tricks

4.6 Progression

MLBC is a skill-based game where progression will depend primarily on the player's mastery and experience. However, we could reward the player with items/unlocks:

- Bats:
 - Alloy
 - Composite
 - Hybrid
- Balls:
 - Golf
 - Tennis
 - Racquet
 - Cricket
 - Soccer
 - Volleyball

4.6.1 Level Reset

The level will reset if any of the following conditions are met:

- The timer reaches zero
- The players exits to the main menu

4.6.2 Level Boundaries

There will be an invisible collision boundary that surrounds the batting cage to prevent balls from escaping the level.



4.7 Controls



HTC Vive Controller



Oculus Touch Controller

4.8 Obstacles

There are several obstacles in the batting cage could affect the ball's path:

- Screens
- Fence
- Barrier
- Pitching machine
- Etc.

4.9 AI

Currently there aren't any plans to support AI.



4.10 Power-ups

Since MBLC is skewed toward a more realistic batting cage experience, power-up design and development will not be pursued at this time.

4.11 Unlocks

Players should be rewarded for completing challenges, levels, or achievements. When a requirement is met rewards will be given. Please refer to player progression above.

4.12 Collectibles

Collectibles are items that we pre-populate in the environments for the player to find that extends normal gameplay. If the player's hit strikes one of these objects, the collectible (purely meta/cosmetic) will unlock. Examples:

- Pitching machine
- Advertising sign
- Bird
- Special target
- Photograph
- Hole

4.13 Cameras

The primary in-game camera is first-person, virtual reality.



4.14 Achievements

Below is a list of 10 examples of in-game achievements:

ID	DESCRIPTION
BC_ACH_00001	Successfully hit your first home run.
BC_ACH_00002	Swung and missed the ball three times in a row.
BC_ACH_00003	Completed your first bat flip.
BC_ACH_00004	Successfully hit the ball through a ring.
BC_ACH_00005	Hit a ball back to the pitching machine.
BC_ACH_00006	Hit an 80 mile an hour fastball.
BC_ACH_00007	Hit a 100 mile an hour fastball.
BC_ACH_00008	Hit a pop fly with 5 seconds of hang time.
BC_ACH_00009	Hit 5 targets in a row.
BC_ACH_00010	Hit 3 home runs in a row.





4.15 Leaderboards

Leaderboards incentivize engagement and enhance replayability.



Arcade Sage leaderboards (PCVR)

The leaderboards screen should have the following features:

- Your score
- Your highest score
- Your ranking
 - Against friends
 - Globally
- Your best times
- Talk Smack
 - Send beat-down messages
 - Challenges to friends
 - Wager bets
- Usability Options:
 - Replay
 - Exit
 - Home

4.16 Platform

MLBC will be distributed via Steam, the largest digital distribution platform in the world. Steam supports the following features:



- Automatic patching
- Automatic data verification
- Leaderboards
- Anti-piracy
- Encryption
- Auto-updating
- Real-time sales data
- Key-based authentication
- Etc.

4.17 Betting

One of the design pillars of the game is to facilitate online wagers using cryptocurrency. Rather than dedicating a specific mode to this, bets can be placed in every mode (except training) and related to context. In an example scenario, the player is in the shooting gallery and generates a high score. He can then press a button to bring up the betting menu. This menu supports the following items:

- Minimum bet (cryptocurrency)
- Maximum bet (cryptocurrency)
- Opponent (select from list – or invite)
- Send

Note: The first time a player makes a wager, they must input their cryptocurrency credentials and information.

Another example. A player is in home run derby mode and hits a home run 480 feet. He can challenge someone to beat that distance. Wager settings in this context should allow some specificity (e.g. # of swings allowed, time duration, etc.).



5 UI/UX

5.1 Screens

5.1.1 Splash



5.1.2 Main Menu



Options:

- Play
- Settings
- Steam



5.1.3 Settings



Options:

- Sound ON/OFF
- Music ON/OFF
- How to play (tutorial / directions)

5.2 In-game Menus



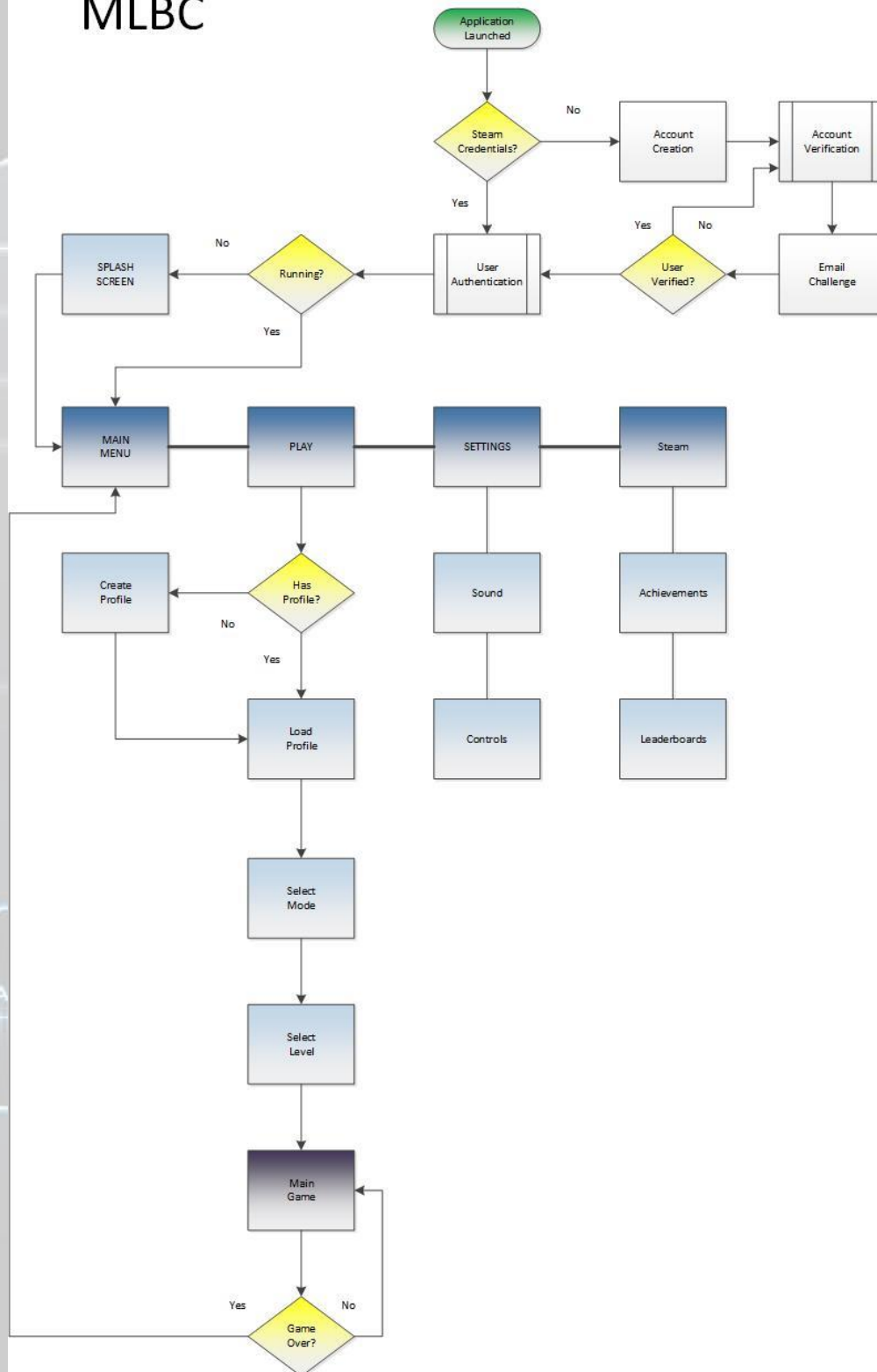
The in-game menu to control mode options should be in a place where players can access it readily, but not so much that it hinders movement or visuals. I recommend placing it behind the player as not to obscure the plate. This menu is contextual to the mode that is currently being played.

Note: To avoid unintended collisions with the menu during normal gameplay, we should disable it's collision unless the player is facing directly at it.



5.3 Flow

MLBC





5.4 HUD

MLBC will contain no HUD elements. All feedback will come from within the game. We will support the following feedback:

- Score
- Timer
- Ball travel distance
- Home runs
- Trick multiplier
- Wager feedback

5.5 Style

MLBC aims for a realistic, yet slightly stylized art style that stays in-line with other products in the arcade and sport simulation genre.



VR Baseball (PCVR) style example

6 Art

6.1 Concepts

This area is reserved for level concept art.

6.2 Levels

MLBC will ship with at least one level, which will serve as the base for all primary game modes. Although the game takes place inside a batting cage, our will be much more expansive to accommodate home run derby on other long ball actions. Additional mode-specific examples are provided for consideration.

Game Design Document



An example default location. Contains the following:

- Batters plate
- Fencing
- Netting
- Pitching machine
- Advertising signs
- Poles
- Lighting



An example batting cage with elements.



6.2.1 Training



This is a paired down batting cage specifically designed for training mode. It would include the following:

- Netting
- Pitching machine
- Bucket of balls
- Pitch curtain protector
- Overhead lights
- Batting area

6.2.2 Home Run Derby



Home run derby would take place inside an actual baseball stadium. The goal would be to replicate the thrill of hitting a ball deep into the crowds. It would have the following attributes:

- Stadium
- Field
- Foul poles



- Overhead lights
- Advertising signs
- Scoreboard
- Batting plate/area

6.2.3 Shooting Gallery



The shooting gallery allows us to place tons of different objects in the level. Each object would have its own physics properties like mass, restitution, etc. Things that would appear in this level:

- Baseball field
- Fences
- Scoreboard
- Poles
- Objects
 - Solids (rings, pins, etc.)
 - Destructibles (plates, windows, fruit, etc.)
 - Holders (scaffolding, shelves, etc.)



6.2.4 Bat Tricks



The bat trick area could essentially be a paired down batting cage with enough space to perform actions. It would have the following attributes:

- Netting
- Trick area
- Small field
- Batting tee
- Ball
- Advertising signs

6.3 Animations

The following animations are needed:

- Pitching machine
 - Hopper
 - Loader
 - Pitch mechanism
 - Lights (incoming pitch indicator)

6.4 Particle Effects (PFX)

Particles will be needed for the following:

- Balls
 - Bat contact
 - Surface contact
 - Trajectory
 - Impact
- Pitching machine
 - Dust



- Vibration
- Advertising signs
 - Insects
 - Dust
- Destructibles

7 Sound

7.1 SFX

Sound effects will be needed to add depth, immersion, and realism to gameplay.

- Batting
 - Contact
 - Swing
- Collision
 - Ball
 - Bat
 - Surface
 - Object
- Pitching machine
 - Loading
 - Pitching
 - Incoming pitch
- Home run
- High score
- Hitting feedback
- Incoming challenge

Note: Sounds can be disabled from the SETTINGS menu.

7.2 Ambient

Ambient sound effects add immersion and overall game polish.

- Level background noise
 - Training area
 - Batting cage
 - Baseball stadium
 - Open baseball field
 - Small batting cage

7.3 Music

TBD



8 Engine

MLBC will be developed on the Unity platform.

9 Monetization

We see opportunities to monetize in the following areas:

9.1 Premium

The customer pays upfront. All content is unlocked and ads are disabled. Starting price is set softly at \$9.99 (USD)

9.2 Freemium

A few basic game modes are unlocked and ads are prevalent.

Advertising Types

- 10-30 second, full 360 experience. Example: [VirtualSky](#)
- In-game, contextual. [Immersv](#)

* External, click-thru and player actions like tweets, video consumption, etc. could also be explored.

9.3 DLC

Downloadable content is not currently planned but could be another way to generate future revenue. See section 13 for more details.

9.4 Cryptocurrency

We will take a % (TBD) of all in-game wagers that are based on current cryptocurrency.

10 Technical Specifications

10.1 VR Hardware

Both the HTC Vive and Oculus Rift will be supported.





Minimum Hardware Specifications

- OS: Windows
- CPU: Intel Core i5-4590 or AMD FX 8350
- GPU: NVIDIA GTX 1060 or AMD RX 480
- RAM: 4GB
- Video Output: 1x HDMI or DisplayPort
- USB: 1 USB 2.0

10.2 Software

MLBC will be available for download via Steam.

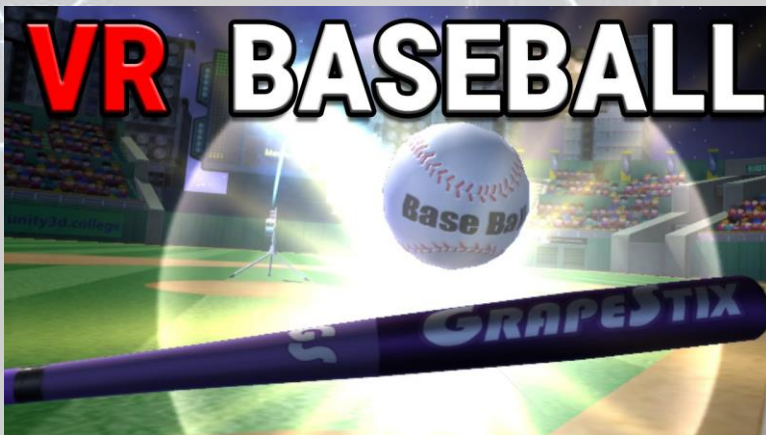
11 Influences & Sources

11.1 Games



PITCH-HIT: BASEBALL (PC)

http://store.steampowered.com/app/527580/PITCHHIT_BASEBALL/



VR Baseball (PC)

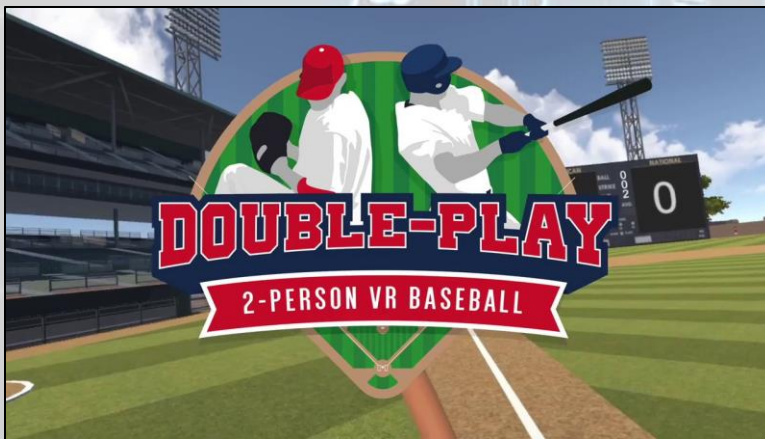


http://store.steampowered.com/app/458370/VR_Baseball/



Big Hit VR Baseball (PC)

http://store.steampowered.com/app/620800/Big_Hit_VR_Baseball/



Double-Play: 2-Player VR Baseball (PC)

http://store.steampowered.com/app/651690/Double_Play_2Player_VR_Baseball/

11.2 Videos

- <https://www.youtube.com/watch?v=pPGCtSqVUIc>
- <https://www.youtube.com/watch?v=PHTE6RCiKg0>