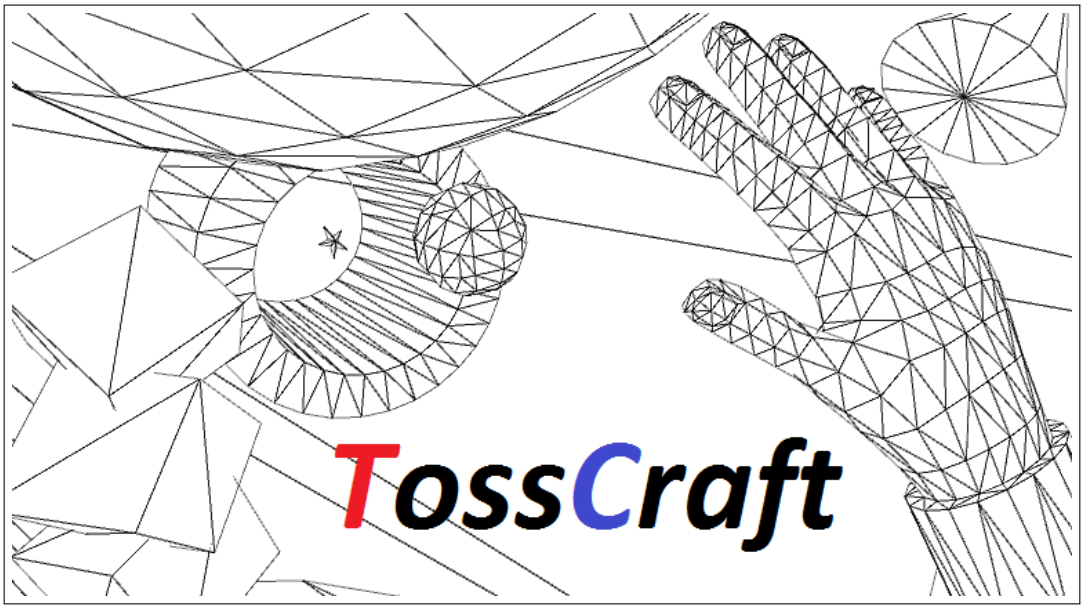
TACTILLUSION

TOSSCRAFT



Design by Martin Feick, Marek Kohn and Niko Kleer
For PC, Linux and Mac
ESRB Rating: E
Ship Date: 24.11.2016

CONTENTS

1 GAME OUTLINE 3
1.1 Game Story 3
1.2 Game Play 3

2 CHARACTER 4
2.1 Player Character 4
2.2 Player controls 4

3 GAMEPLAY 5
3.1 Genre 5
3.2 Level design 5
3.3 Player interaction 5

4 GAME WORLD 6
4.1 Design 6
4.2 Physics 6

5 GAME EXPERIENCE 8
5.1 Overall experience 8
5.2 Immersion 8
5.3 User Interface 8

6 GAMEPLAY MECHANICS 9
6.1 Variety 9
6.2 Spheres and Decision-making 9

7 ENEMIES 10
7.1 Static Constructions and Elements 10
7.2 Dynamic and Intelligent Objects 10

8 BONUS MATERIALS 12

9 MONETIZATION 14

1 GAME OUTLINE

1.1 GAME STORY

Tosscraft is a game that does not particularly have a story. It is supposed to combine Virtual Reality technology, the concept of a "Paper Toss" game and some minigolf elements.

1.2 GAME PLAY

In **Tosscraft**, the player interacts with a variety of spheres representing real world objects such as foot-, bowling- or bouncyballs. To proceed in the game, the spheres have to be physically moved into a given target by the player. In some cases, hitting a target is sufficient as well. That can be done by either throwing or punching the sphere. Reaching the target is accomplished by overcoming different challenges. As the game starts off easy, by progressing in the game, every level becomes more challenging demanding the player to be even more careful about his actions. To finish the game, the player has to solve all maps.

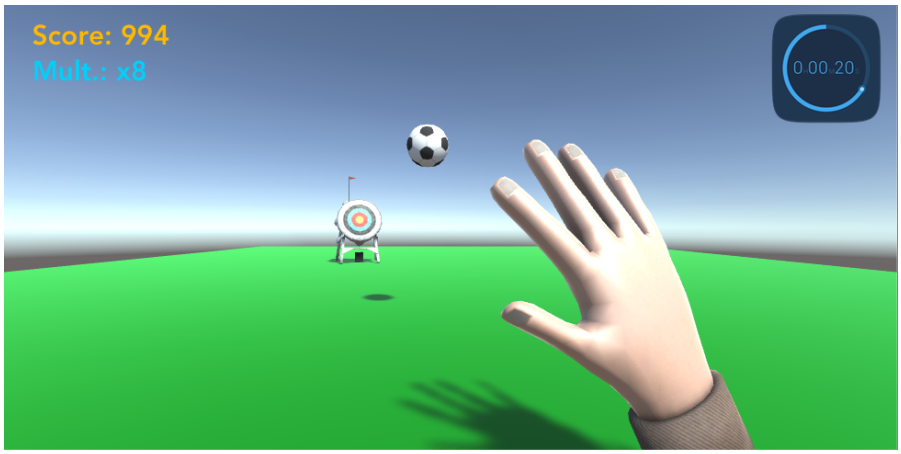


Figure 1: The principle of Tosscraft in a really basic scenario

2 CHARACTER

2.1 PLAYER CHARACTER

The main character of the game is represented by the player's hands. Once recognized by the Leap Motion device, a player's hand gets modelled as shown in Figure 2. Each of the depicted hinges can be addressed seperately so that it is possible to recognize complicated gestures.

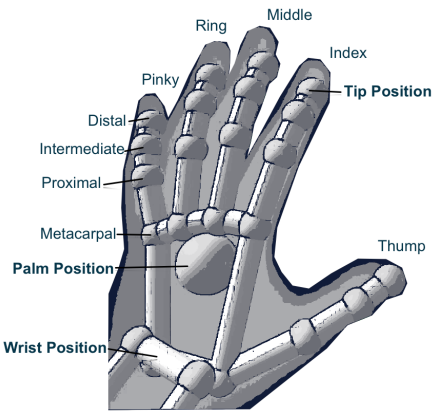


Figure 2: The controllable joints and bones of a hand recognized by the Leap Motion device

2.2 PLAYER CONTROLS

The Leap Motion is a device that recognizes gestures via multiple sensors without ever requiring hand contact or touching. As shown in Figure 3 it spans a three-dimensional coordinate system with a field of view of about 150 degrees. It is necessary to keep your hands in a range of about 25 to 600 millimeters above the device in order to get exact results.

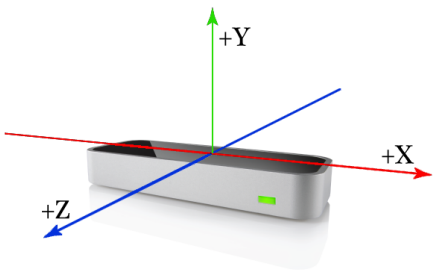


Figure 3: The Leap Motion device spans a three-dimensional coordinate systems

3 GAMEPLAY

3.1 GENRE

Though containing certain elements of a sports game or a simulation, **Tosscraft** might be considered mostly a casual game. In addition to this it extends the genre by putting it in the context of *Virtual reality*.

3.2 LEVEL DESIGN

Tosscraft is embedded in a stage-based level structure, which requires the completion of the previous stage in order to proceed with the next one. With the aim to provide a continuous challenge to the player, the degree of difficulty increases stage by stage. In addition to this several stages might be combined to represent a subcategory (*„world“*) in the level hierarchy.

A single stage is self-contained and can be completed successfully by hitting the goal with a throwable object, that can either be chosen by the player or is preset by the stage. While doing so the player can acquire a certain score depending on various influences such as time, accuracy or the number of tries. Moreover there are different variants of level design, some of which are described below. Take note that these can also exist in an interdependent form.

In the *„single throw time-based approach“* the goal is attainable within one single linear throw. Attempting this, the player is limited by a fixed amount of tries as well as a predefined time interval.

Being inspired by golf, the *„throw-and-proceed approach“* offers the possibility to accomplish the stage within multiple throws. This causes the player to respawn after each attempt. Consequently the player's position is then determined by the impact point of the preceding throw.

3.3 PLAYER INTERACTION

As will be shown later in Chapter 6, the player can interact with the environment and sometimes has to react to outer influences. Depending on the stage the player can move around objects, trigger events or solve puzzles to proceed within the stage. Furthermore it might be necessary for the player to adjust his or her real life position to obtain a certain angle.

4 GAME WORLD

4.1 DESIGN

The world of **Tosscraft** offers different kinds of environments in its maps. Every map has a different layout based on geometrical objects. Overall, the gameworld is designed quite colorful and is supposed to put the player into a nice mood.

As shown in Figure 4 the graphics are simple but convenient. Block-shaped primitives with cel-shaded, plain-colored textures provide a basis for a *Minecraft*-esque retro style. Additionally there are diverse animations such as fire, fountains or halos, which invigorate the environment by adding some dynamic aspects. When applied decently, both of the above mentioned elements are sufficient to create some nature-themed level designs, for instance grasslands, mines or deserts. Aside from these real world scenarios, there are also several fantasy maps, which pursue a *Super Mario* kind of graphic style while focussing on the game mechanics and puzzles (cf. Figure 5). As a comprehensive feature it might be possible to procedurally generate maps like these in a future release.

Special points in the map are highlighted with sound and light effects (cf. Figure 6). This especially includes the target, collectables, treasures or hazards. Conceptually, effects are designed to merge well with the rest of the map to prevent them from being intrusive.

4.2 PHYSICS

In **Tosscraft**, levels often contain certain elements that somehow react to the player's moves and actions. Regardless of whether there are obstacles you have to struggle with or items that you can collect in order to increase your score, each map offers a lot of things to discover. Figure 6 illustrates some ideas on how this affects the physics of the map design. For instance, a moving mine car tries to prevent the player from hitting the aim. Furthermore crates and barrels can and must be destroyed in order to proceed. Since they are an essential element of the map design, platforms can also have weird characteristics. Some of them might spin with a certain speed, others can obtain some super-absorbent pillow-like properties.

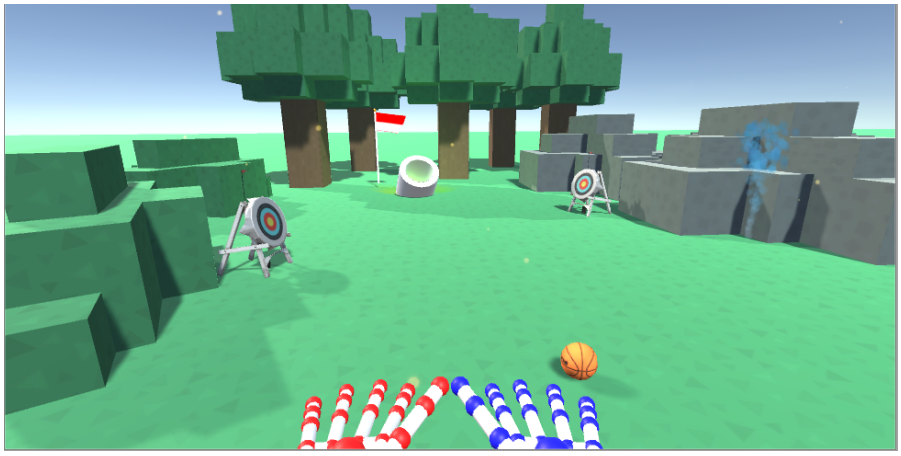


Figure 4: A simple draft of a forest-themed map

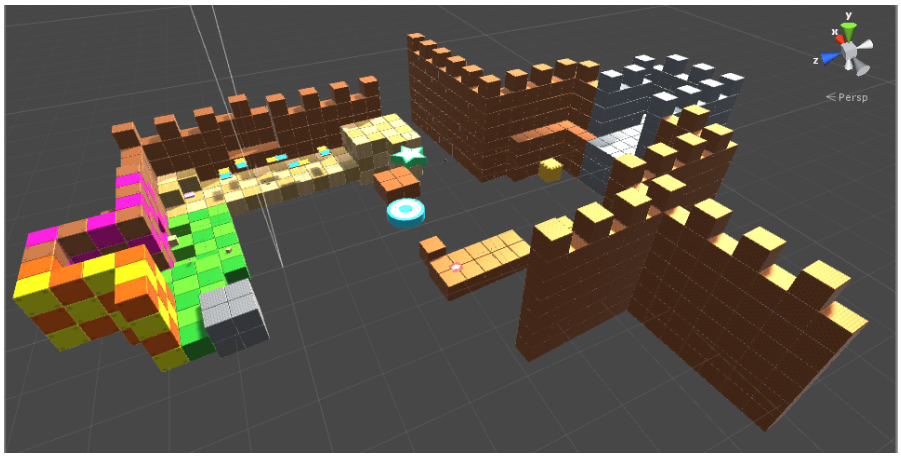


Figure 5: A minimal design which is focussing on mechanics

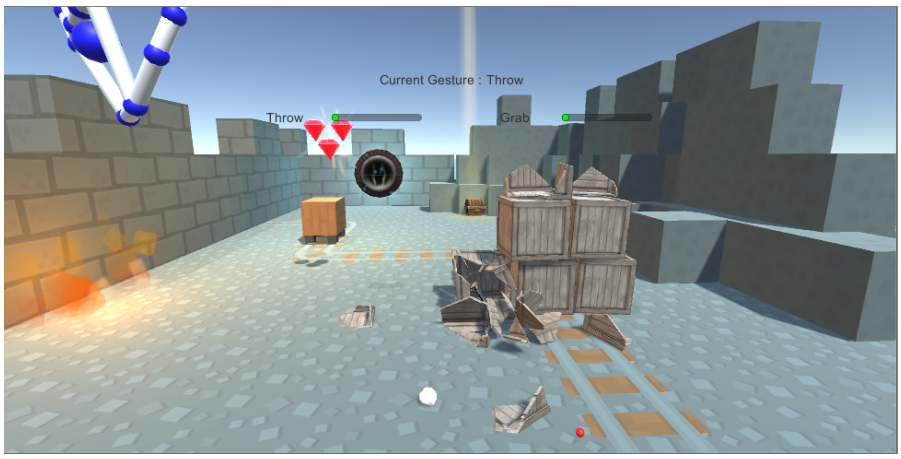


Figure 6: A mine-themed map, demonstrating some physics

5 GAME EXPERIENCE

5.1 OVERALL EXPERIENCE

While **Tosscraft** offers the player a challenging experience in the first place, it also pays special attention on creating a positive atmosphere. Apart from a vivid game world (as being described in the previous chapter), this especially includes a cheerful soundtrack, a fast and decent feedback and an incremental sense of achievement. The latter of which is accomplished by keeping the win condition simple but at the same time tempting the players to improve their score.

In addition to this **Tosscraft** contains humorous elements, such as funny spheres (ticking bomb, bouncyball, food) or objects, which can affect the game world and physics in an exaggerated way. Moreover, compelling puzzles and optional challenges are designed to keep the tension up and encourage the player to think twice.

5.2 IMMERSION

The game focuses on being as realistic as possible by applying real world gravitations to every single provided sphere. Moreover, physically interacting with the corresponding sphere needs to be done with caution as the game's realism requires the players to think about their movements and actions deferentially. Since being played in a *Virtual Reality* context and completely touchless, Tosscraft requires a certain eye-hand coordination.

5.3 USER INTERFACE

With the aim to create a really intuitive User Interface, it is necessary to navigate through menus with only your hands and gestures. Therefore the UI is implemented with the same technology as the game itself. Swiping your hand to the left or to the right lets you switch between the levels. Pointing at a certain level for a few seconds will activate that level.

6 GAMEPLAY MECHANICS

6.1 VARIETY

Tosscraft provides several gameplay mechanics that aim to make the game more lively and interesting to interact with as well as requiring the player to think about a demanded action in special situations. This includes the usage of an extensive variety of objects (mostly spheres) that are supposed to behave as realistic as possible, hitting specific objects such as buttons and solving puzzles respectively or just thinking about how to move the object at all as there is no restriction on the player's decision-making.

6.2 SPHERES AND DECISION-MAKING

In fact, an immense factor in increasing the difficulty and replayability of **Tosscraft** are the objects the player has to interact with. First off, the following table lists specifically chosen objects that are entirely different in their behavior:

Table 1: Objects and their attributes

Sphere	*Weight*	*Diameter*
Table tennis ball	`2.67g or 2.77g`	`40mm`
Golfball	`45.93g at most`	`At least 43.67mm`
Pool billiard ball	`170g`	`57.2mm`
American football	`396.9g - 435.2g`	`285.8mm (long axis)`
Soccer football	`410g - 450g`	`210mm`
Basketball	`510g - 567g (Women)`	`240mm`
	`567g - 650g (Men)`	`240mm`
Bowling ball	`Between 3Kg and 8Kg`	`218.3mm`
Bouncy ball	`Unspecified`	`Unspecified`

Note that all the above given values are official measurements. The table gives a good idea on how different sphere-sized objects can be. As situations will differ on every map, the player has to make a decision on which object to use. There might be scenarios in which an object with massive impact is needed, in other situations, a tactful approach using a smaller object could be more effective.

7 ENEMIES

This section heavily focuses on describing challenges that have to be overcome and obstacles the player has to deal with by using the objects introduced in Chapter 6.

7.1 STATIC CONSTRUCTIONS AND ELEMENTS

- In some situations, **Bridges** either have to be constructed or activated. Building a bridge could for example be done by hitting an enormous wooden plank, leading the way to an island far ahead. Since there is not always the need to do so, the player has to make a decision whether using an attempt on the building process could turn out to be worth it or not.

- **Switches** are used to activate dynamic constructions, open doors, spawn important collectibles such as a key to open a door or simply bait the player. Spotting a switch on the map does not always mean that it has to be pushed. Some switches spawn new obstacles and make the map even more difficult to accomplish.

- **Barriers** are another major obstacle in **Tosscraft**. A barrier is meant to be an obstacle that actively stops the player's progress. There are two different types of barriers, they are either destructible or not. Assuming a barrier can be destroyed, it might be worth thinking about using an object with magnificent impact. On the other hand, there is a chance that an indestructible barrier provides holes that the player can sneak through.

7.2 DYNAMIC AND INTELLIGENT OBJECTS

The world in **Tosscraft** obviously does not only include static objects. Constructions like a windmill constantly move and require the player to adapt to the pace of the map to reach the desired destination. Additionally, smaller objects move in predefined patterns trying to block the player's attempts to reach the end.
Moreover, some areas are covered by patrolling enemies waiting for the player's objects only to push them back or even off stage to make an attempt go to waste.

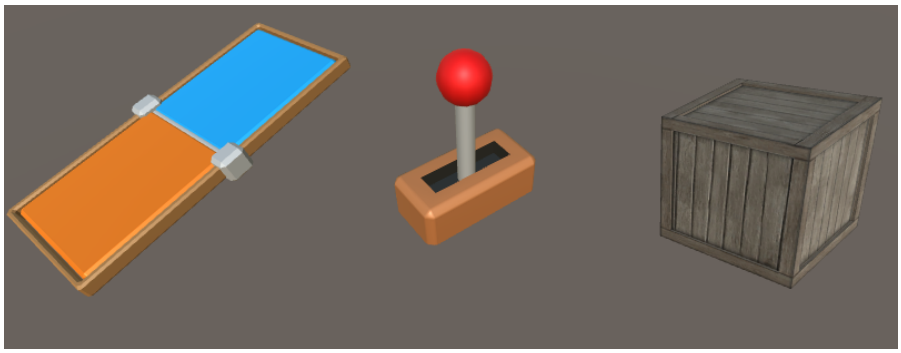


Figure 7: *FlipPads*, *Levers* and *Destroyable Boxes*: Sometimes you might need to activate or destroy them in order to proceed.

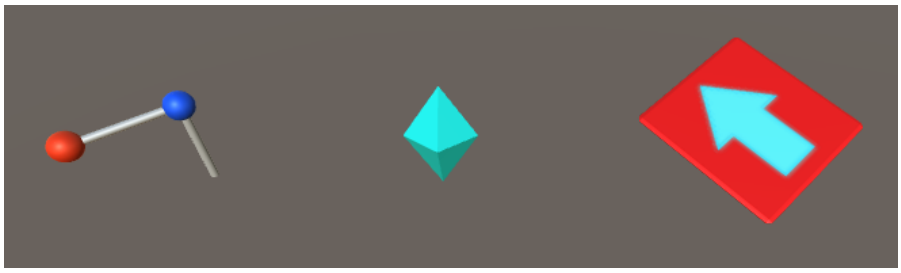


Figure 8: *Checkpoints*, *Collectables* and *SpeedPads*: Hitting one of those has a positive effect on your gameplay most of the time.

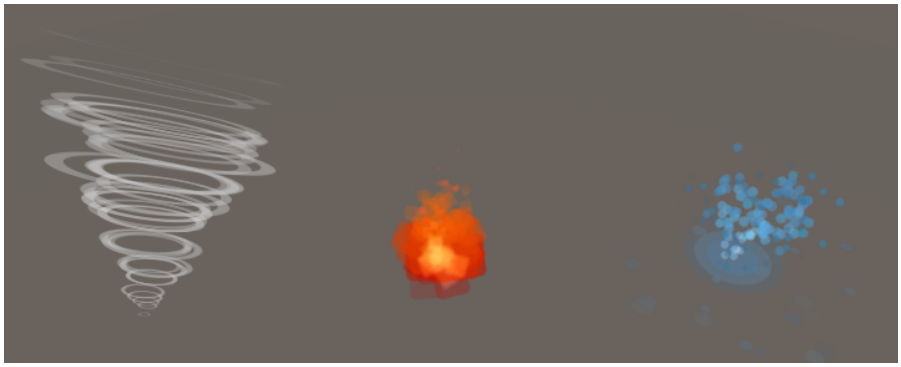


Figure 9: *Tornadoes*, *Fire*, *Water*: The elements will do their best to hinder you.

8 BONUS MATERIALS

In the following section some possible bonus materials will be shown. There is no intention on using them to make the game easier to accomplish. The purpose of bonus materials in our particular case is to use them in order to personalize the player's game experience.

Skins: Basically, we provide three different game objects, in particular a football, a bowlingball and a bouncyball. In addition to this we want to provide more different kinds of spheres (basketball, golfball, tennisball) as bonus material. Figure 10 shows a selection of spheres that are unlockable throughout the game. Furthermore there will be different skins for all of the available spheres. *Skins* are for example a variety of colours and patterns and also include several impact sounds depending on the sphere. Hence, players have the opportunity to customize their preferred sphere in terms of its visual and physical appearance. Therefore every game is unique and, considering the different physical properties of each sphere, can be more or less challenging to the player.

Another option will be the customization of the virtual animated hands. Usually, players have the standard set of hands provided by the *Leap Motion* SDK, but it is also possible to get custom skins (Figure 11). A basic example is to use different hands for men and women. But there are also event-specific skins available as described in the following section.

Events: Another category of bonus materials are events. All the year we usually provide various events. Christmas, Eastern and Halloween are typical examples for a seasonal map and skin design. In the following there are listed some planned events for all four seasons:

- Spring: "weaker" colors in the maps, no special spheres planned
- Summer: "normal" map, throwing watermelons and fruits
- Autumn: more colorful objects, throwing chestnuts
- Winter: snow all over the maps, throwing snowballs

Of course it is not a duty to use the Event-Mode. It is always possible to play the game in Standard-Mode.

Building-Mode: In addition to play the basic game it is possible for users to develop own maps by a simple drag and drop system. Those can be shared with friends and finally create new challenges.

As mentioned at the beginning of this section all of the above mentioned content does not make the game easier or faster to accomplish. It is for players who want to create their own game designed by their preferences. In combination with the Building-Mode it brings much more game experience than normal games.

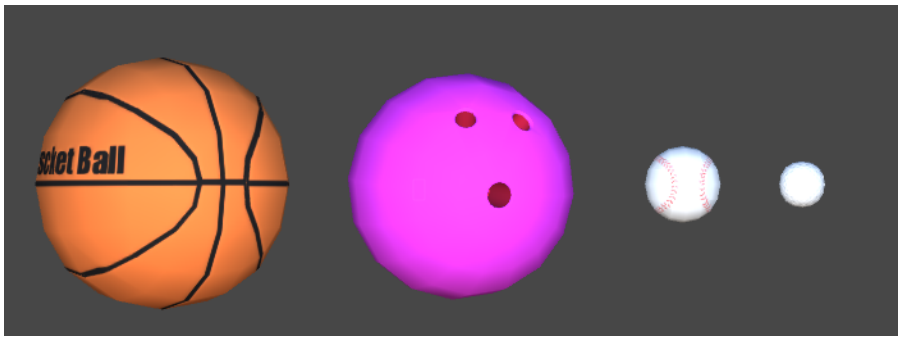


Figure 10: A selection of game objects one can use throughout the game

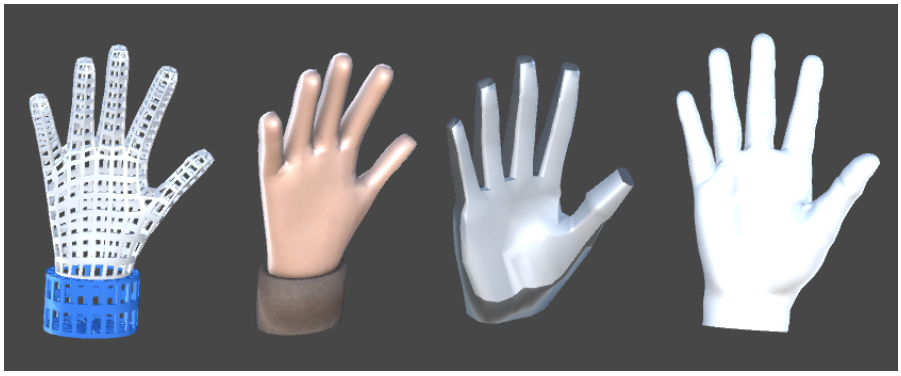


Figure 11: Some of the custom skins that can be unlocked

9 MONETIZATION

In this chapter we will take a look at the possible monetization steps. First, everything from section eight can be used to monetize our game. Various skins and hands are always available in the itemshop. Special events for example where people can buy *Star Wars* or *Marvel's The Avengers* skins is a good opportunity to make profit.

We are also looking for special maps making the game more attractiv for long time players. One option would be to increase the amount of playable maps. But as mentioned at the beginning of this document we do not want a *Pay to Win* game which is only ruled by the users who utilize the most money. That is really important for the whole developer team.