

Pre-Production Document for Capstone Project

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1 VR Farming Simulator

The player will be set into a farming environment and will plant seeds into the ground. He will consult the botany book in order to figure out the correct proportions of fertilizer, soil and water. Various farming tools in the vicinity will be used in unique ways and combinations to achieve this. If the plants weren't taken care of properly and weren't harvested in time the crops quality may be affected. The randomized existence of rain or drought will affect the outcome. Something akin to Minecraft's farm.



Figure 1: Farm example in Minecraft

2 Features

2.1 3D Models

Using Blender, a set of 3D models shall be created.

2.1.1 Tools

A bunch of farming tools will be modeled for players' use via Blender.

- **Scythe**
- **Hoe**
- **Basket**
- **Bucket**
- **Spade**
- **Watering Pot**
- **Animal Trap**

2.1.2 Produce

Produce such as fruits and vegetables shall be modeled using Blender also.

- **Apple**, its **Apple Seed** and **Apple Tree**
- **Pear**, its **Pear Seed** and **Pear Tree**
- **Orange**, its **Orange Seed** and **Orange Tree**
- **Wheat**, its **Grain** and **Wheat Bushel**
- **Melon**, its **Melon Seed** and **Melon Growth**

2.1.3 Environment

A farm shall be modeled using Blender, alongside its pests.

- **Wooden Fence** sets boundary of the farm
- **Soil** Ploughable ground
- **Ploughed Soil** Ploughed ground
- **Skybox** Atmosphere of the farm
- **Hog** Animal acting as pestilence

2.2 Animations

- **Hog**
 - Idle: animal standing by
 - Walking: animal walking towards produce
 - Running: animal running
 - Eating: animal eats crops
 - Trapped: animal getting snared
- **Trap** animation for trap closing and opening
- **Crops** crops needs to move idly with wind or rain, and harvesting animation

2.3 Sound Effects

- Rain
- Hog
- Harvesting
- Ambiance
- Music
- Trap

3 Game Loop

1. Tutorial
 - Welcome to VR Farming Sim. To start, click here.
 - Use Left Joystick to move.
 - Look around to check your environment
 - Pickup any item by holding any Trigger
 - Water the soil
 - Harvest crops with Scythe and Basket
 - Congratulations! You have passed the tutorial!
2. Mechanics
 - Player may click "B" to choose how many seasons to 'skip'
 - Goal is to make enough produce to sell and break even or make a profit

- Resources used to farm deplete with use
- They can be bought from the market
- Produce is automatically sold on the market in Harvesting season
- Rain events are randomized and may give bonuses or penalties per plant
- Animal raids are also randomized and only incur penalties
- Rain can be mitigated by predicting weather and under-compensating water
- Animals can be fought with traps
- Farm can expand with enough money
- Player can walk around farm with Left Analog
- Camera rotation is possible with Right Analog as well as Camera Rig