Virtual Reality Game using Leap Motion and Unity

Chan Long Hei Stanley, Huang Jiaxi, Mak Wing Tao, Ngo Yu Ki
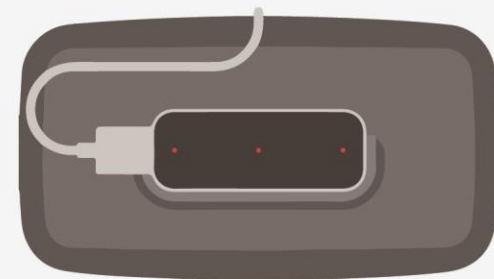Advised by Dr. Desmond Tsoi

Computer Engineering Program

Reach into virtaul reality with your bare hand

"**Return**" is tower-defense game that aims at exploring a revolutionary virtual reality game experience.

By combining technologies from Leap Motion and inertial measurement unit, players will be able to interact with game objects directly with their hands and move around the game world with body motion as if they are riding on a Segway.

The Basic Idea

Leap Motion on VR Display + Inertial Measurement Unit + unity Game Engine
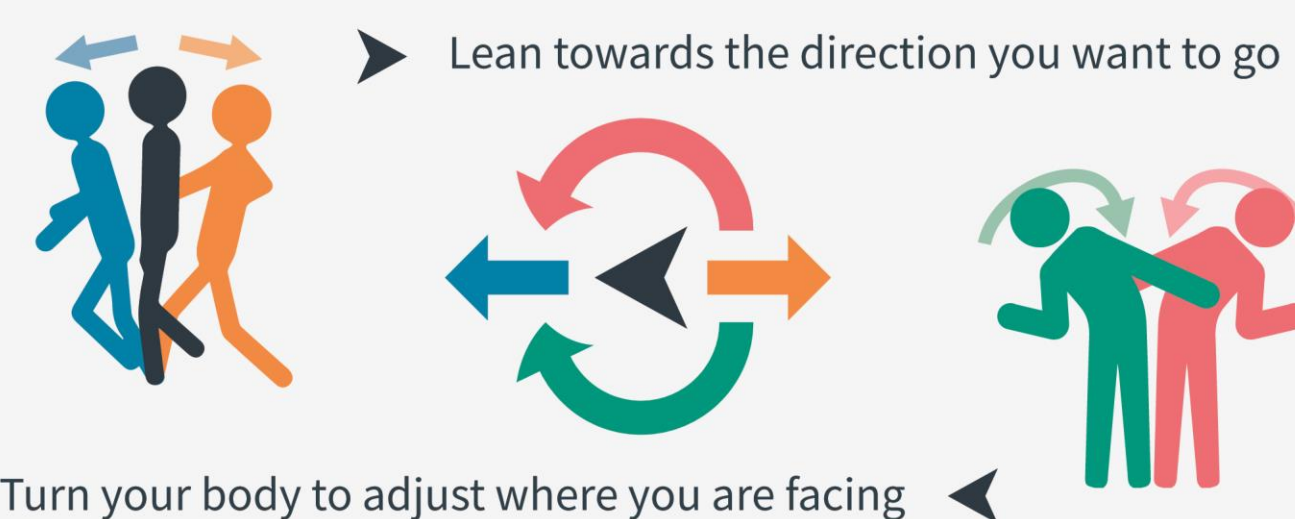
Leap Motion

Leap Motion is capable of reconstructing human hand in the virtual space by identifying structural parts such as joints and bones, and detects their motion. Hand gestures and motions can therefore be defined to trigger various commands.

Throughout the game, hand gestures act as an important role for players to interact with collectables and perform different actions.

LEAP MOTION

Inertial Measurement Unit

The Inertial Measurement Unit is capable to measure the gravity and angular rate of a player's upper body, using a combination of both accelerometer and gyroscope. By converting the measured values into the moving velocity and turning direction of the game character, player can walk around the game world with the body's motion.

> Lean towards the direction you want to go

Turn your body to adjust where you are facing ◄

The Game "Return"

The story begins with your spacecraft crash-landed on an unknown planet. To return home, you must explore the planet, collect materials to repair your spacecraft and protect yourself against hostile indigenous inhabitants.

Defense

Similar to ordinary tower defense games on your smartphone, you will need to build turrets and walls to fight against waves of enemies. Just remember, enemies may come from any direction, think twice before you build!
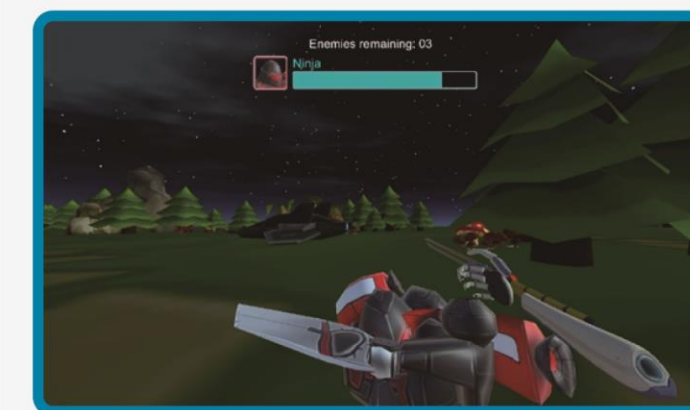
Resources

Building materials are not prepared for you on the unknown planet, if you want to build something, explore, chop down some wood or get yourself some energy crystals to fortify your base and help you survive through the night.

Design your own defense system

Sword

Hiding behind the walls and turrets built might be the best way to protect you from enemy attacks. Just in case you want to sneak behind enemies' back or reduce pressure on your defense system, have your sword ready for combat!

Magic

Low on health? No worries, the space suit that you are wearing gives you the ability to harness the power of magic. You don't need a wand, just use your hand and blast enemies with fireballs before they get any closer.

Fight with sword and magic