

MISSION: IMPAWSIBLE^{*}

Design Document



TEAM ROCKET

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Introduction

Mission Impawsible is a multiplayer first person shooter game, where changing levels and power-ups can leave even the most skilled player at a disadvantage. The user plays as one of six animals: Rosso the mouse, Lapis the cat, Amber the squirrel, Murasaki the fox, Tangelo the rabbit or Vert the dog. Each character has different abilities and weaknesses so that playing as different characters will give different experiences.

Version History

V0.01

Includes initial GUI made and pong as main game. GUI navigates to a player selection page containing character sketches of the six players. There is a draft of the credits screen and rough images to give an initial feel for the game appearance.

V0.02

The goal of Version 0.02 was to have a crude playable game. This version included basic A.I. programming, simple character controls and game state management. It focused somewhat on testing and quality of code. Visual and audio elements of the levels and GUI were partially implemented. Networking was present in this version.

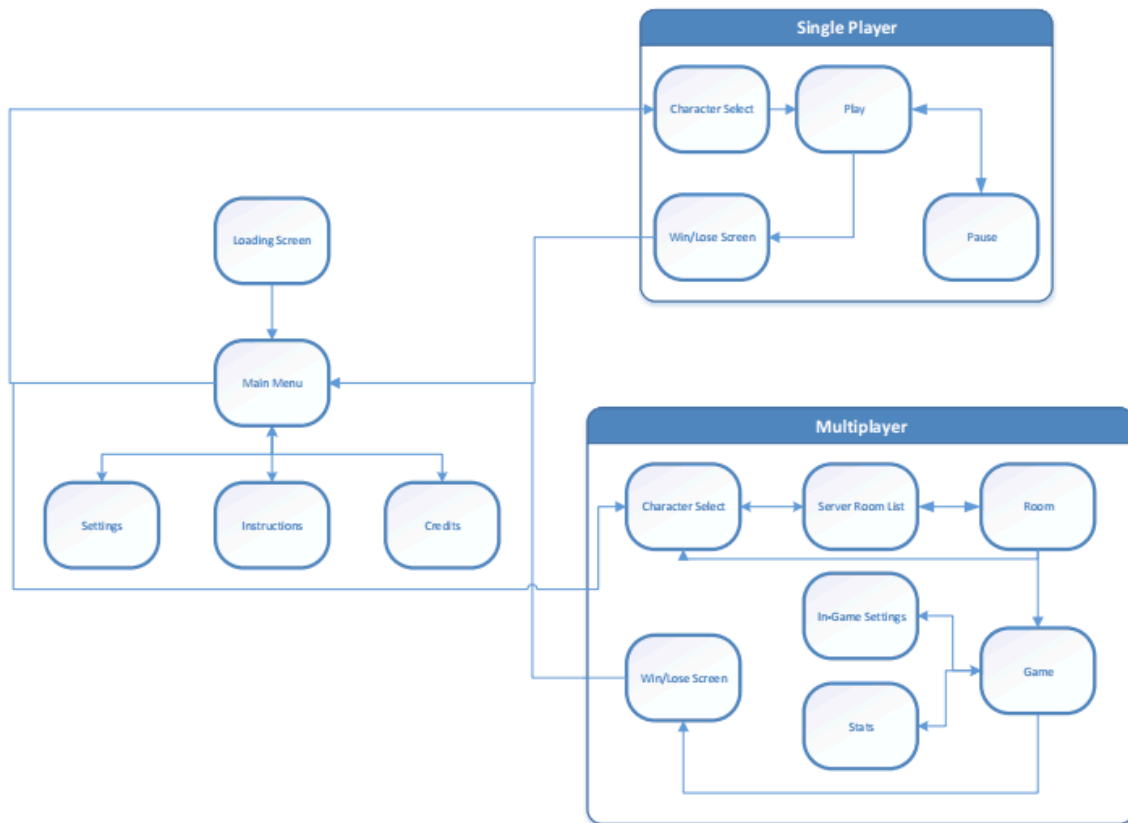
V1

Version 1 focused significantly on cleaning up folders and quality of code. Assets were added that allow the players to pick between different characters. Each character now has a running and idle animation. The GUI screens were updated and detail was added to the 'Directions' screen. A live chat was added alongside the beginnings of a stats screen. An in-game settings screen was partially implemented. Dead reckoning was added to the bullets so that every game screen displays smooth movement. Additionally, a trail runner was placed on the bullets. This makes them easier to see, allows for a faster firing rate, and appears closer to the laser look that is intended. Two pick-ups were put in the game: a heart that adds health and an energy drink which increases the speed of the player for a certain amount of time. An invisibility pick-up, represented as a ghost, is in the process of being implemented. The AI, now implemented with a NavMesh, searches for the player and fires at the player. Music continues smoothly between scenes and various sound effects have been added.

V2

Version 2 was the final version regarding work done in class. The beginnings of a single player mode were implemented, including a rough storyline and a few miniature games. Another large achievement since the last version included the addition of several levels beyond Octomap, which was previously our only hand-made level. These new levels, including Octomap, were textured with hand made textures. Functionality for the Kinect was added to the game. The menu, multiplayer and one single player mini-game (Tangelo Says) can be navigated well with the Kinect. The other single player games are too difficult for our current Kinect functionality. The character models have been completely redone in Maya so that they are more professional looking. The menu was recreated and now exists as a continuous flow of information.

Game State Diagram



Game Features Summary

Current Level Features:

- Items/Pick-ups
 - Health
 - Speed Boost
 - Shooting Energy Recharge
 - Invisibility
- Interactive Elements
 - Button Controller Barriers

- More

Current Game Features:

- Timed Mode (Multiplayer)
- Stock Mode (Multiplayer)
- Randomly Generated Obstacles (Cheese Moon)
- AI (Single Player)
- Varying Character Stats (Figure 1)
- Chat Screen (Figure 2)
- Stats Screen (Figure 3)
- More

Animal	Damage	Energy Level	Health	Size	Firing Cooldown
Dog	35	5s	120	1	.75s
Squirrel	25	7s	100	.85	.5s
Cat	30	5s	115	.95	.6s
Mouse	17	6s	85	.8	.35s
Fox	20	4s	100	1	.4s
Rabbit	23	5s	90	.9	.5s

Figure 1: Graph of character stats

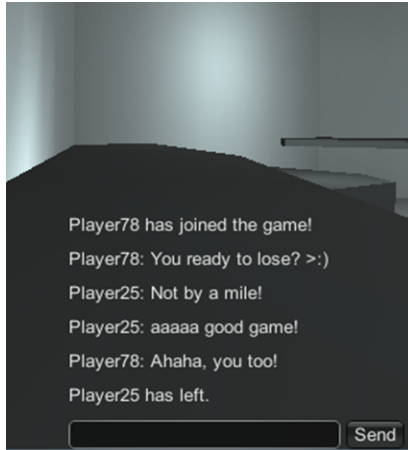


Figure 2: Chat Screen. The chat allows for 3 types of messages: player-input messages, defeat messages, and join/leave messages.



Figure 3: Stats Screen. Lists the name, kills, and deaths for each player.

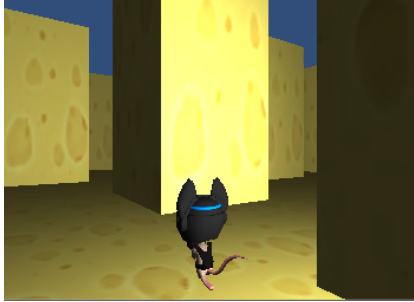
Game Modes

All Modes Single Player

1 vs 1 CAMPAIGN

Fight each of the main characters in a one on one match!

Each character has their own strength, so be careful!



Multiplayer

STOCK BATTLES

Players have a set number of lives

Players are eliminated when they run out of lives

Last player/team remaining with lives wins

TIMED BATTLES

Battles last a set time period

Players have unlimited lives

At the end, the player with the highest kills and the lowest deaths wins!

Characters

Player Characters



Amber
(squirrel)



Tangelo
(rabbit)



Vert
(dog)



Murasaki
(fox)



Rosso
(mouse)

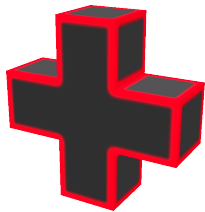


Lapis
(cat)

Items & Power-Ups

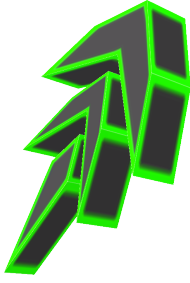
Health Pack

Restores a bit of health, allowing you to continue playing.



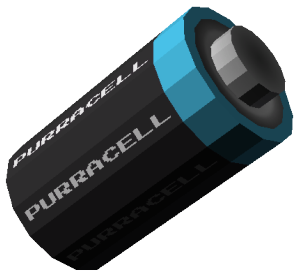
Cat Nip

Gives the character a temporary increase in speed.



Purracell Battery

This powerup recharges the player's shooting energy.



Invisibone

In a sticky situation? Get out of there fast with this! Be invisible to your opponents for a short time (about 15 seconds), enough to get away without being detected. Watch out though, enemies can still see you firing though!



Maps

Current maps include Octo-Map, Forgotten Temple, Industrial Hazards and Recycle Bin. Including these there are more and still maps in progress of being built. Some maps have interactive elements, such as buttons that create and destroy barriers.

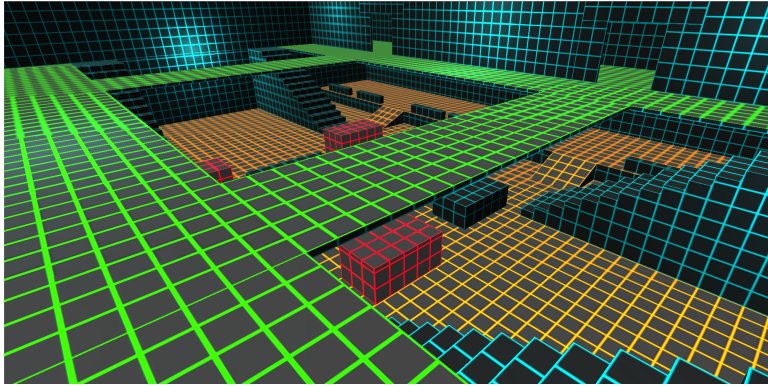


Figure 1: One of our maps construction by Ian Freshwater.

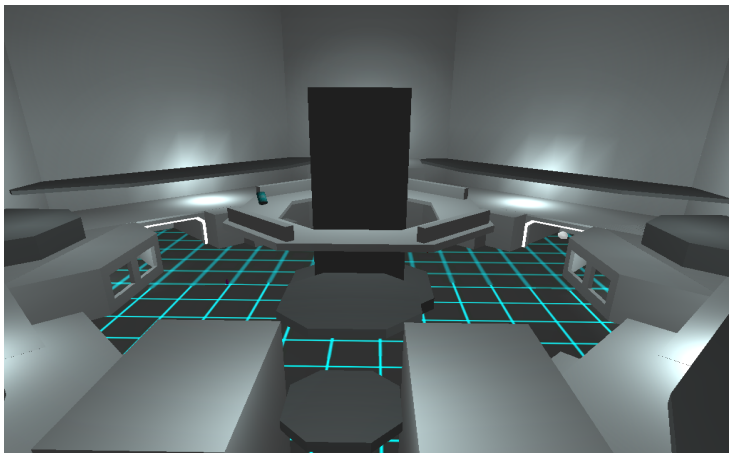


Figure 2: Octo-Map. Constructed by Ian Freshwater.

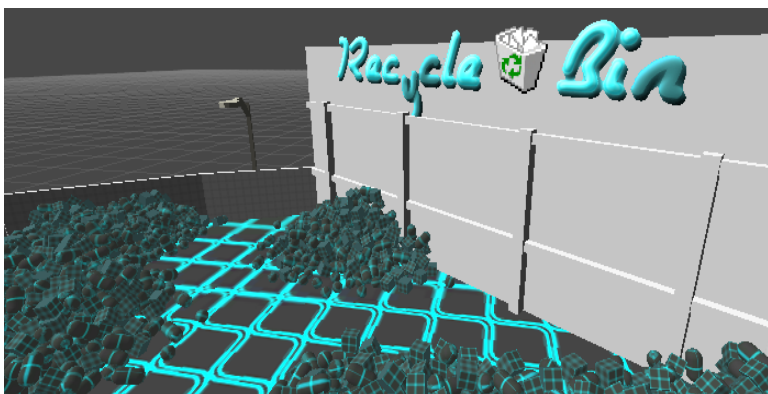


Figure 3: Recycle Bin Map

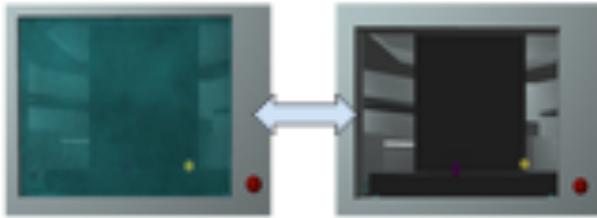


Figure 4: Interactive button from Octomap.

User Interface

Controls

KINECT CONTROLS



Right Hand: Camera/Aiming

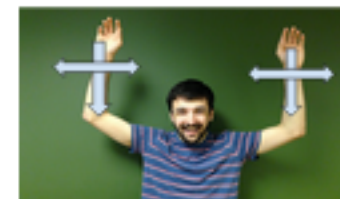
Left Hand: Movement - Left/Right Strafing

Jump: Raise Left Elbow above Shoulder.



Players move forward when the left hand is forward and move backwards when the hand is upright.

The camera moves up when the right hand is in the upright position and moves down when the hand is forward.



The commands are handled by first taking the distance between your elbow and wrist, then doing ratio checks on it to determine if your hand is forward or upright. The position in space does not matter except when checking if the elbow is higher than the shoulder. Everything else is based on ratios of the distance between two points of the body.

PLAYSTATION AND KEYBOARD CONTROLS

	Keyboard	Playstation Controller
Movement	WASD	Left Joystick
Jump	Spacebar	X button

Vision	Mouse	Right Joystick
Shoot	Left Mouse	R1
In-Game Stats	F3	Select
In-Game Settings	F2	Start
Chat	Enter + Keys	-

Credits

Art Assets

Maddy Baringtang

Character Models & Animations

Audio Assets

Trevor Richards

Sam Waldron

Team

Kim Boydston

Michael Filiater

Ian Freshwater

David Hazlett