

PERPUSTAKAAN UMP



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Dodge for Alive

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ABSTRACT

Kinect will fundamentally change how humans relate to games technology. It allows human to play games without using a remote controller but using body sensor. However, for the existing games that could be play on with Microsoft Kinect for Xbox, where it only allow two players to play simultaneously which lead to large actions that could cause a lot of danger situation. A prototype of a game call Dodge for Alive was created to overcome these limitations. Dodge for Alive embed the latest infrared technology of kinect v2 into game so that it can be involved for a maximum of six players to play simultaneously in a game. Methodology that been used in this project was Modified Waterfall Model. Project requirement was collected from an Expert on developing program with Microsoft kinect v2 in requirement analysis phase. Then, content flow chart and story board is used to design the prototype of the game. The prototype of the game was created by Unity3D based on the requirement collected, which be connected with kinect v2 for implementation. Testing was done with six respondents who playing the game together and the result show that the kinect devices can detect all of the six players. Expert from Microsoft also satisfied with this game that being implemented together with kinect v2 devices. The objective of this project fully fulfilled by this result. The developer hopes that this game can be as a reference for others group games.

ABSTRAK

Kinect telah mengubah penginteraksian antara manusia dengan teknologi permainan berkomputer. Ianya membenarkan manusia bermain permainan tanpa menggunakan alat kawalan jauh tetapi mengesan pergerakan badan. Walaupun begitu, permainan yang sedia ada dengan menggunakan peranti Microsoft Kinect Xbox hanya membenarkan dua orang pemain sahaja dalam satu masa. Masalah timbul jika aksi yang memerlukan ruang yang luas, ini menyebabkan bahaya kepada pemain kerana mungkin berlaku pelanggaran di antara satu sama lain. Satu prototaip yang dinamakan Dodge for Alive telah dibangunkan untuk mengatasi limitasi ini. Dodge for Alive telah menggabungkan teknologi infra-merah yang terkini dengan menggunakan alatan kinect versi kedua. Teknologi ini membenarkan seramai enam orang pemain dalam satu-satu masa. Model Uban Air Terjun telah digunakan sebagai metodologi pembangunan perisian ini. Keperluan projek telah diambil dari pakar yang biasa dengan menggunakan kinect versi kedua dalam fasa analisis. Kemudian, carta aliran kandungan dan papan cerita digunakan untuk mereka keperluan yang telah diambil dan digabungkan dengan kinect versi kedua untuk fasa pelaksanaan. Pengujian telah dijalankan ke atas enam orang pemain dan prototaip ini telah berfungsi dengan baik serta dapat mengesan enam pergerakan pemain yang mencuba permainan ini. Kesemua objektif telah dipenuhi dengan pengujian tersebut. Pembangun berharap agar prototaip ini dapat menjadi pemangkin dalam menggunakan permainan berkumpulan yang mempunyai jumlah pemain lebih dari dua orang.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

During Technological era nowadays, video games had been admitted as one of the most common entertainment in the world. Video games are predicted to become the UK's most popular form of entertainment on the year 2008. From the analysts from Verdict Research, about 4.64 billion pounds are spent by UK consumer on video games in 2008 [1].

Video and computer games had bring a lot of benefits to humans. From a growing body of university research, people who played action-based video and computer games made decisions 25% faster than others without sacrificing accuracy [1]. Other than that, peoples who are in stress and depression no matter because of work in school or office were able to vent their frustration through video games. Videos games have the effect of curing the one who suffered in mental health issue [2].

“Kinect will fundamentally change how humans relate to technology. It's a vision of the future of computing and entertainment.” Said Scott Evans, Microsoft's Group Project Manager for the sensor.[3] Signs of changes for technology in gaming area were appear when Microsoft Kinect was introducing to the world [4].

Kinect allows users to communicate with their television using voice controlling by saying "Xbox, on" to turn on the Xbox console. So, Kinect not only supports body movement sensor, but it also supports voice sensor. It upgrades technology of gaming into upper phrases where it evolves from playing games using console controller to body and voice sensor controller.

More and more Kinect games have been recognized and brought in to the technology world nowadays. Several types of Kinect games have been introduced. There is a list of 5 best types of games to play on the Xbox Kinect that has been written in an article on the internet which is Boxing, First Person Shooters, First Person RPGs, Racing Games and Sports Games [5].

1.2 PROBLEM STATEMENTS

Several limitations had been detected on the existing games on laptop and Xbox using kinect. One of the limitations is on the numbers of player that able to play in a game. Normally there are only 2 peoples able to play simultaneously in laptop and Xbox kinect games due to the limitations of space and sensor tracking. Not a great design for family of four, or using for the purpose of team work training [6].

Other than that, the availability of games that can be play on laptop and Xbox using kinect is less because that is a brand new technology [6]. Most of the games on laptop and Xbox that can be play using kinect are like mini games where those games are easily to get bored after you play for several times.

Playing Xbox games like fighting or boxing by using kinect would involve with dangerous large body movement [7] where it actually quite danger while players play until climax situations. Players need to punch as quickly as they could and it wills accidently broke the laptop, Xbox, kinect or hurt the one that are being nearby them.

1.3 OBJECTIVES

The objectives of the project are:

- i. To investigate the technique or the module of kinect v2.
- ii. To develop the prototype of the kinect games.
- iii. Test the functionality of kinect v2 by using games.

1.4 SCOPES

- i. This project is to create a group kinect game system.
- ii. This kinect game system is developing for no matter teenagers, adults, or even whole family to play together.
- iii. To create this kinect game system, software of Unity3D and MAYA had been use.
- iv. Hardware that needs to use to support this kinect game system is laptop and kinect version 2.

1.5 KINECT GAME SYSTEM AND IT'S LIMITATION

There are a lot of kinect games that can be found in the market. No matter big action kinect fighting games such as Fighter Within or small action kinect entertainment game such as Style Guitar Game would also drag player attention on technology era nowadays.

Dragon Ball Z

One of the famous kinect fighting games that able to grab player attentions is Dragon Ball Z. This is a first-person fighting game that with the theme of a Japanese manga series (Japanese comic series) or anime call "Dragon Ball Z" which illustrated by Akira Toriyama, a Japan cartoonist. Overall storyline is about how Goku, the main character of the story, together with a group of friends protect the earth from destroyed by alien with their super power.

Dragon Ball Z kinect game provides story line almost similar with manga series, with perform over than 100 moves and can be choose over 50 characters. This game is able to play in single player only because it needs a bigger space. The game has retains player to control dodging and movement with over limited technique. Player need to have fast and big body movement to perform own attack or evade from enemy attacks.

Figures below showing some scene from Dragon Ball Z kinect game play.

Figure 1.1 shows how player perform normal punch to an enemy.

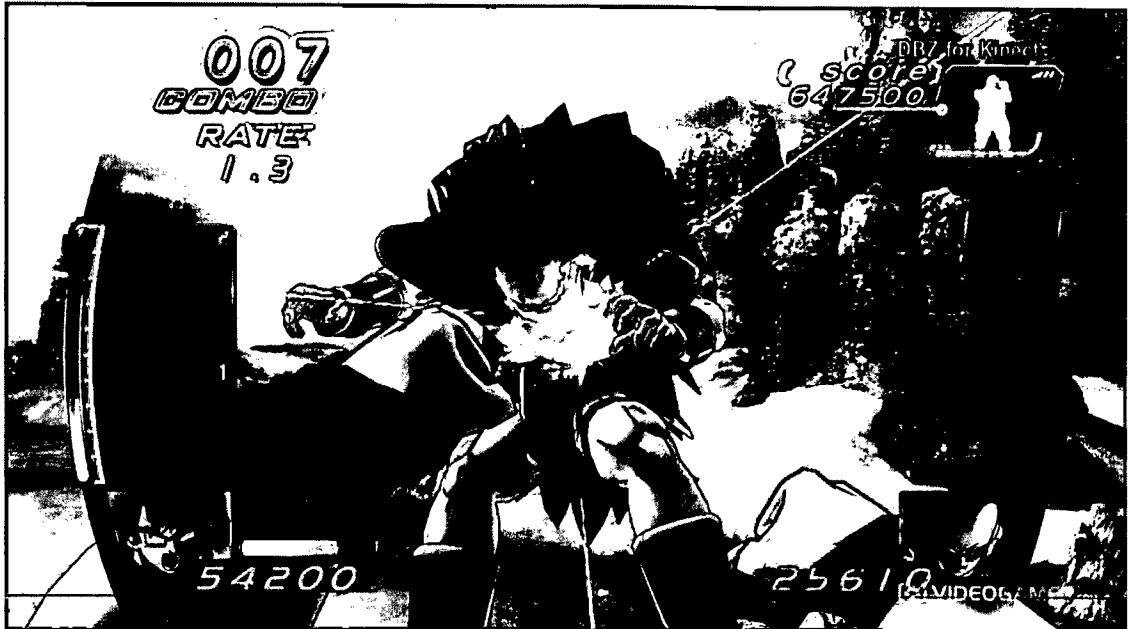


Figure 1.1: Perform normal punch

Figure 1.2 shows how player defense the attack from an enemy.



Figure 1.2: Defense attack

Figure 1.3 shows the next action that can be chosen by player.

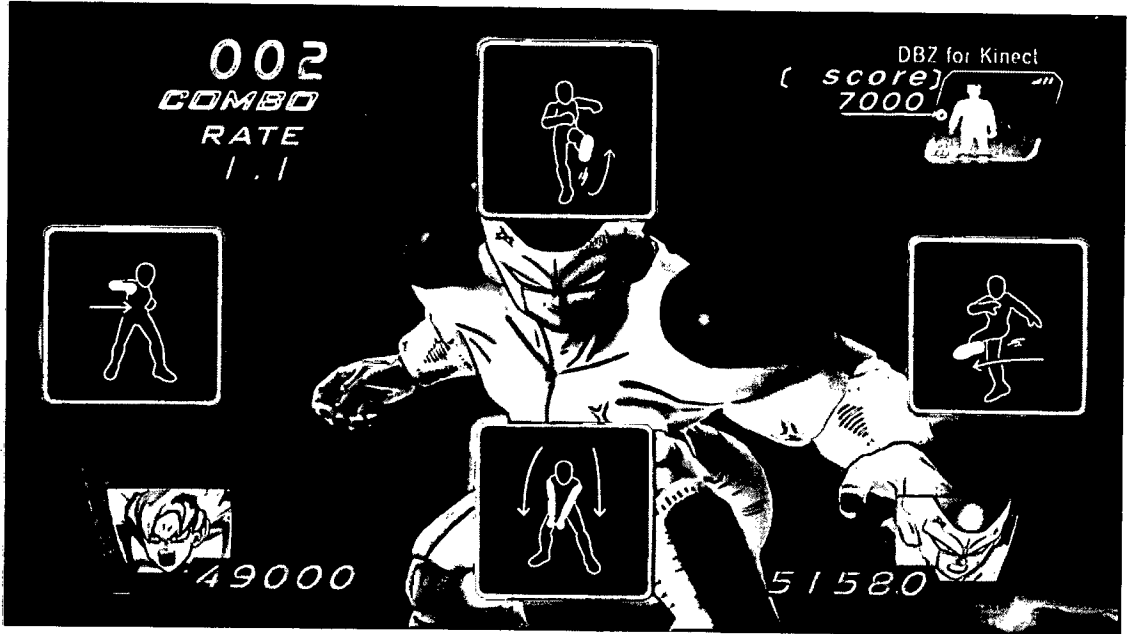


Figure 1.3: Choose next action

Figure 1.4 shows the action that need to be hold while performing super power.

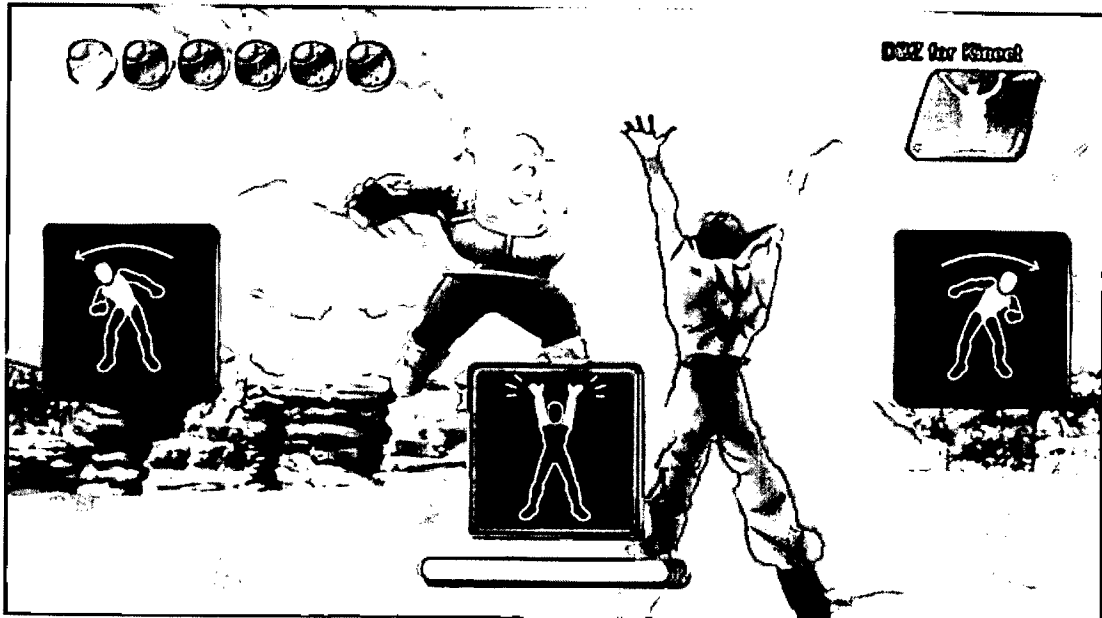


Figure 1.4: Action holds to perform super power

Fighter Within

Another kinect Xbox fighting game that bring out at early stages would be Fighter Within. Fighter Within is the first generation fighting games that are developed by Daoka and been published by Ubisoft. This game is almost completely been forgettable.

Fighter Within is a game that provides total of characters that can be choosing and performance one-on-one beat 'em-ups game play. Fighter Within follows the template of Street Fighter, but it does avoid these largely fantasy move and character. Player would stand inside the kinect detection area to perform action such as punches, ducks, kicks and dodges that could be execute by the games.

As stated, Fighter Within is an fighting game, which must be involve in larger movement and space that only can be fit in for maximum of 2 peoples in the area. But, the game rarely does a correct reading player movement while executing. From the feedback that given, player never has been tell if his or her gesture has been interpreted as throw or punches. Fighter Within had been complaining to be loses its potential due to the poor execution

Figure below showing some scene from Fighter Within kinect game play.

Figure1.5 shows character description and character choosing interface.

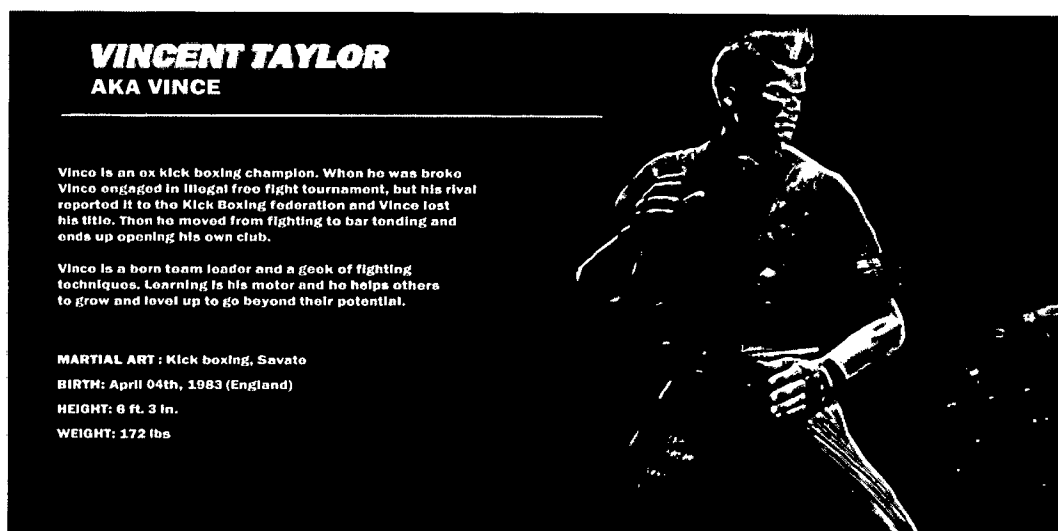


Figure 1.5: Character choosing interface

Figure 1.6 shows how player choose and perform their action such as move, swap and slam.

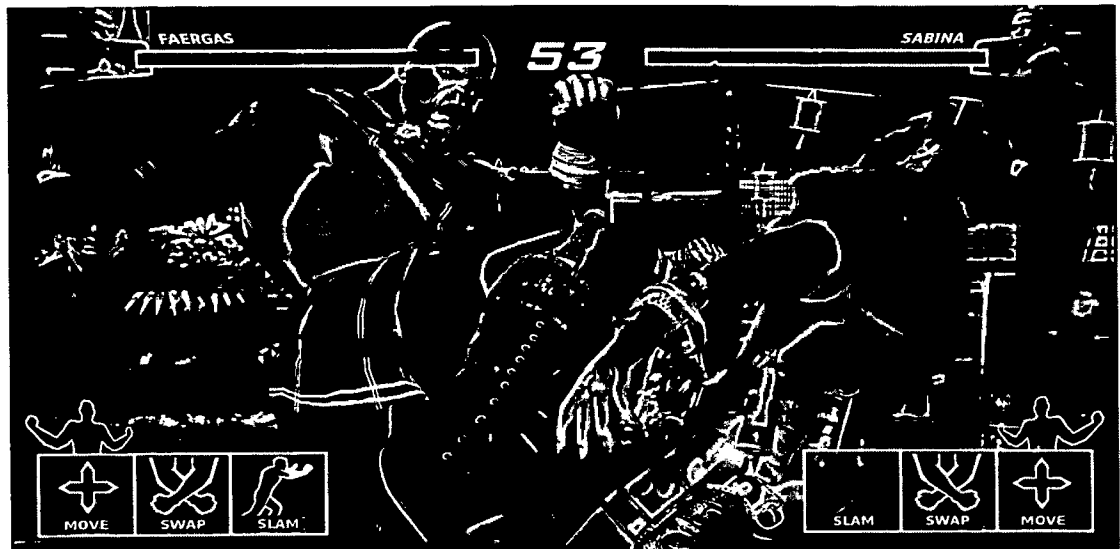


Figure 1.6: Action performing interface

Dance Central 3

Dance Central 3 is a dancing game that developed and published by Harmonix and having co-developed with Backbone Entertainment. Dance Central 3 is third series of the game, where the game play is almost similar with the previous two series where it enhance based on the story and the features in the game. Dance Central 3 provide with soundtrack featuring with more than 40 new tracks that able to be choose in the game. Players need to follow the dance step that tracked by kinect to complete the combo and collect the highest points that the player could. The more accurate the dance move can be, the higher points that the players can earn.

Dance Central 3 is also a multiplayer kinect games with party mode that would fit up to 8 players in the game but there are 2 players can be play synchronously only and other players would need to wait for the turn. Dance move that need to be perform by player require a big space in order to have most accurate dance move to earn for the highest points. However, there has a problem that always to be occurring where the moment players performing dance move, kinect cannot detect player body and suddenly will be lost from the control and the combo would be break.

Figure below shows some scene from Dance Central 3 kinect game play.

Figure 1.7 shows single player mode that player performing the dance move.

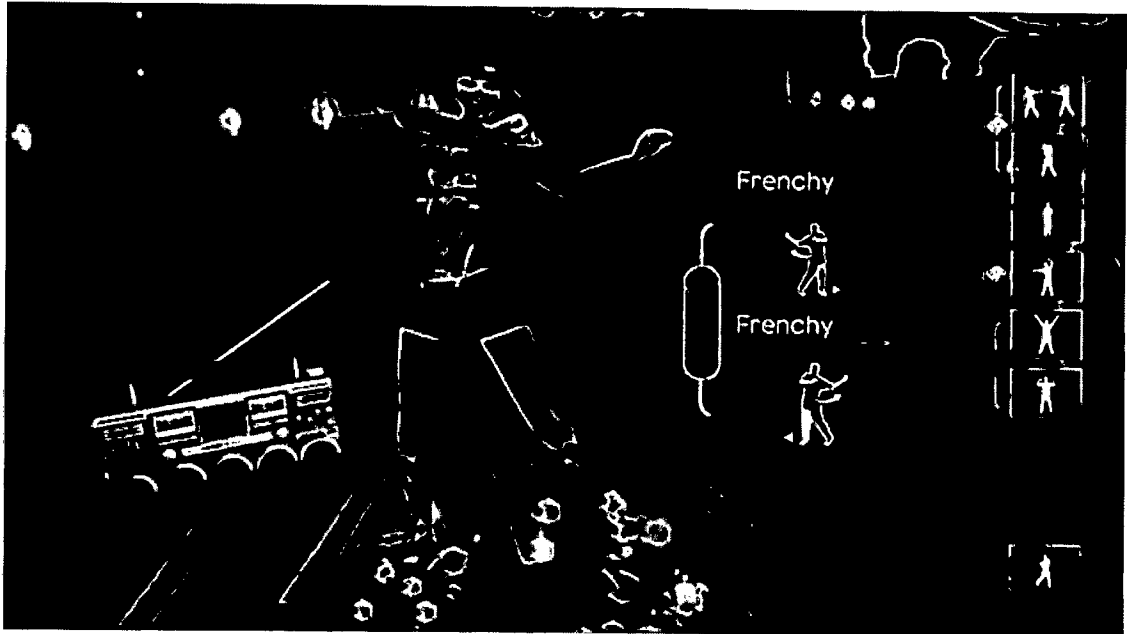


Figure 1.7: Single player mode

Figure 1.8 shows multiplayers mode that players were performing combo dance move.

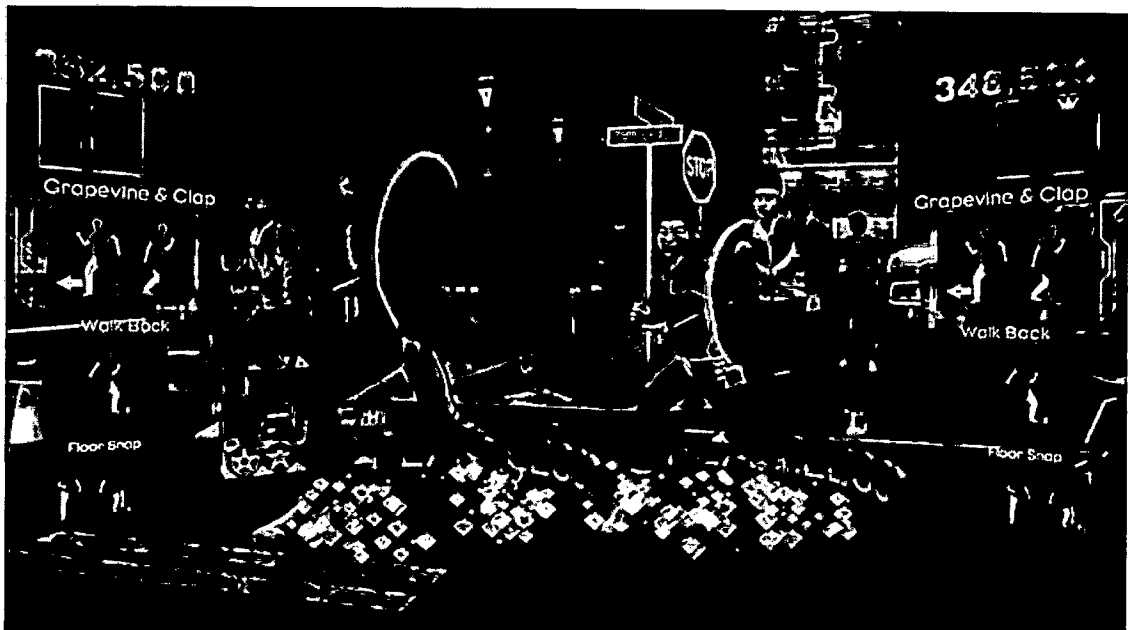


Figure 1.8: Multiplayers mode

Kinect Adventures - Reflex Ridge

Kinect Adventures is a game that been developed by Good Science Studio with a subsidiary and published by Microsoft Game Studios. There are few games types that able to be choosing in kinect adventures, where Reflex Ridge includes in one of them. The other games type except Reflex Ridge would have 20,000 Leaks, River Rush, Rally Ball and Space Pop.

Reflex Ridge is track-and-field inspired game, where the character of the games would stand on a moving platform and player need to perform jump, squat, move left or right to avoid character hitting by the obstacle. Jumping would make the platform move faster on its rail. Player collect points based on lean away from the obstacles get the coins and move as fast as possible before time up.

Every game in Kinect Adventures include Reflex Ridge could only fit with the maximum of 2 players in a games only. Reflex Ridge would require a larger space since player need to perform heavy movement like jump, squat and so on. Those actions would easily cause player injure due to the unconcern condition happen.

Figure below shows some scene from Reflex Ridge in Kinect Adventure game play.

Figure1.9 shows single player perform proper pose in order to fully collect all the coins.

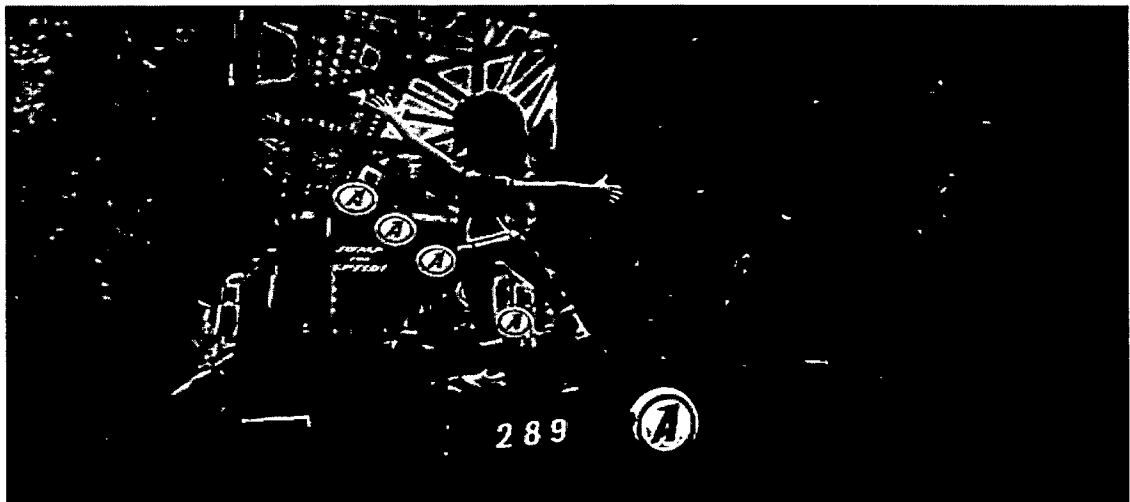


Figure 1.9: Pose to fully collect coins

Figure 1.10 shows player squat to avoid the head hit by the obstacle.

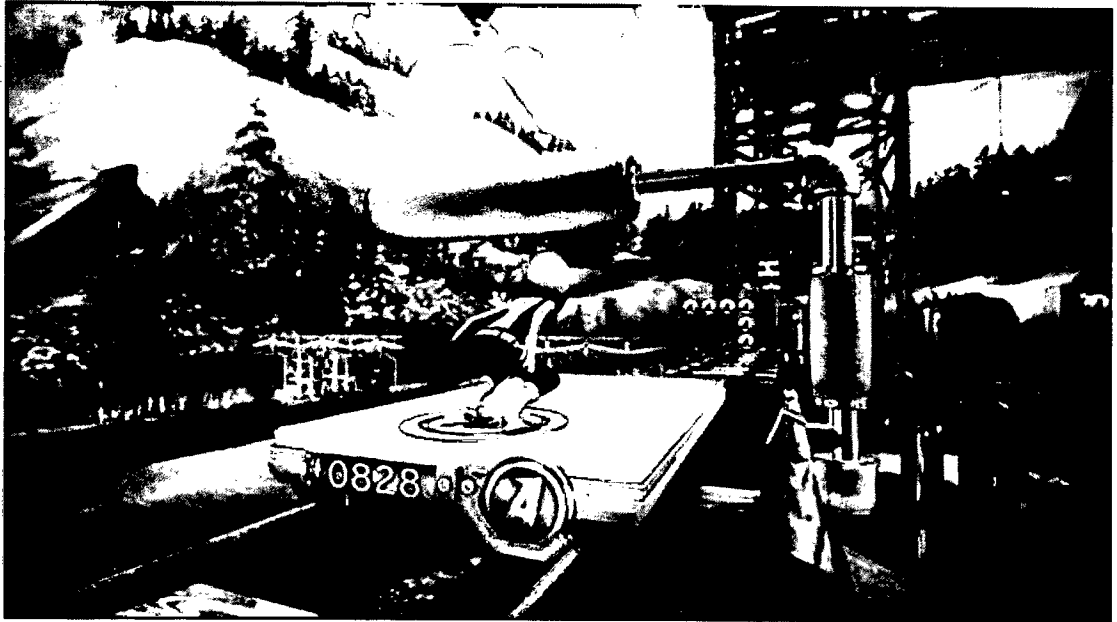


Figure 1.10: Squat to avoid obstacle

Figure 1.11 shows multiplayer that play together in a game play.

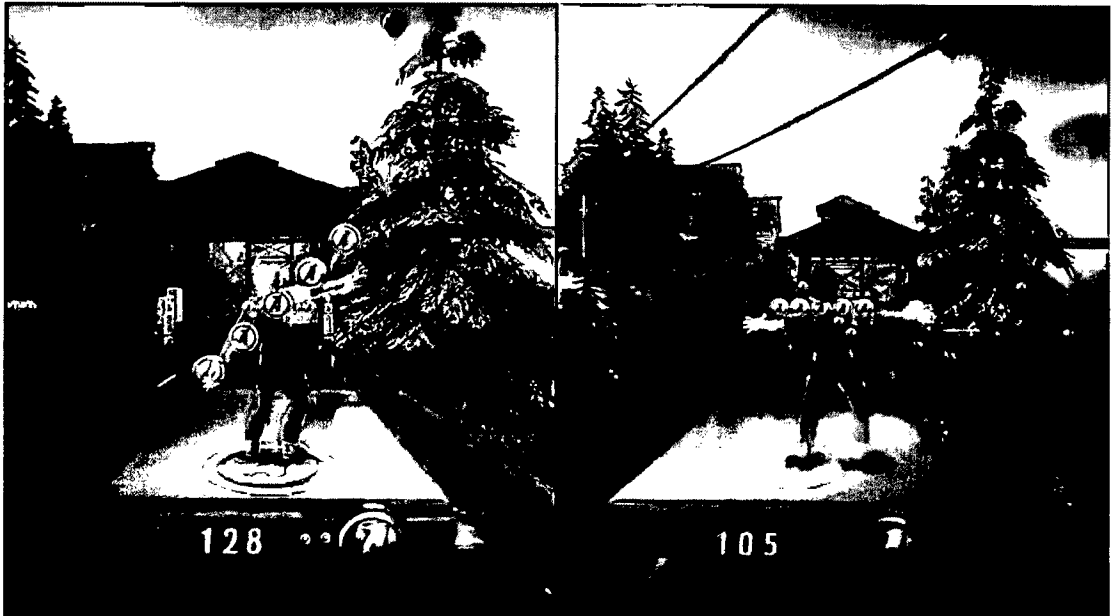


Figure 1.11: Multiplayer mode

Kinect Sports – Bowling

Kinect Sports is a sport game that developed by Rare and published by the Microsoft Game Studio. There are few types of sport game that can be choosing where bowling is one of the sports that included in the game. Other sport type that can be chosen would be Boxing, Track & Field and Table Tennis.

In order to play the bowling game, player need to lift either left or right hand to take the ball before swinging their arm to bowl. Different way of arm swinging would come out with different type of ball spin. Other than regular spin, players are able to do reverse spin, power shot, the ‘Granny’ roll and the overarm throw.

Single player mode, local multiplayer mode and online multiplayer mode are available to choose by players to start the games. Although local multiplayer mode or online multiplayer mode can be choose, maximum of 4 players are able to play in a games only. Players need to take turn to spin the ball also in a game. Players cannot bowl simultaneously because it requires larger space for player to do the spinning of the ball.

Figure below shows some scene from Bowling in Kinect Sports game play.

Figure1.12 shows player lift his hand to take the bowling ball.

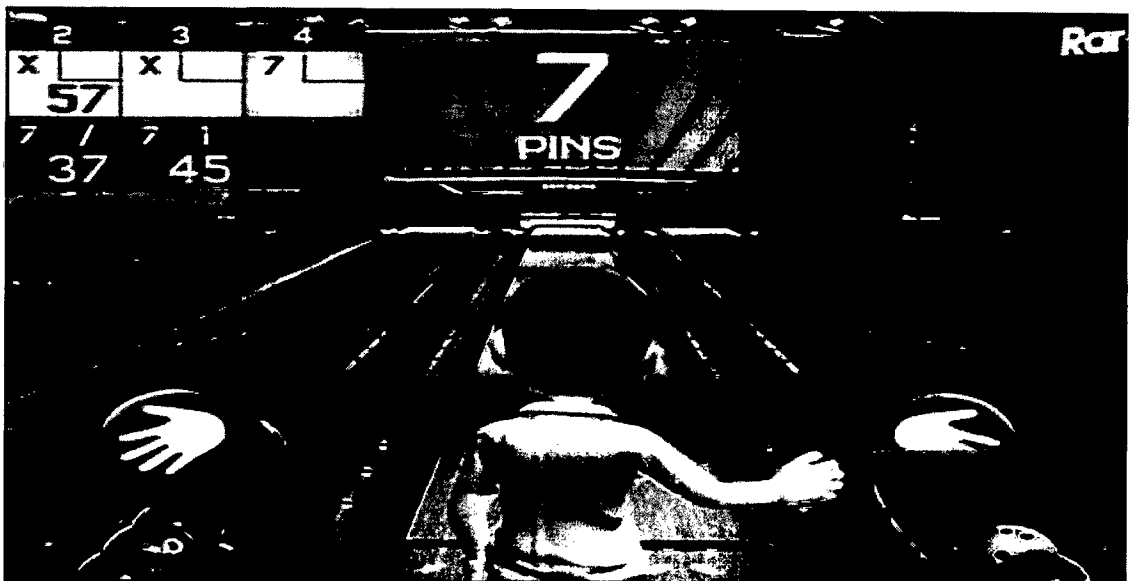


Figure 1.12: Player lifts hand and takes ball

Figure 1.13 shows the moment while player swing his arm to bowl.

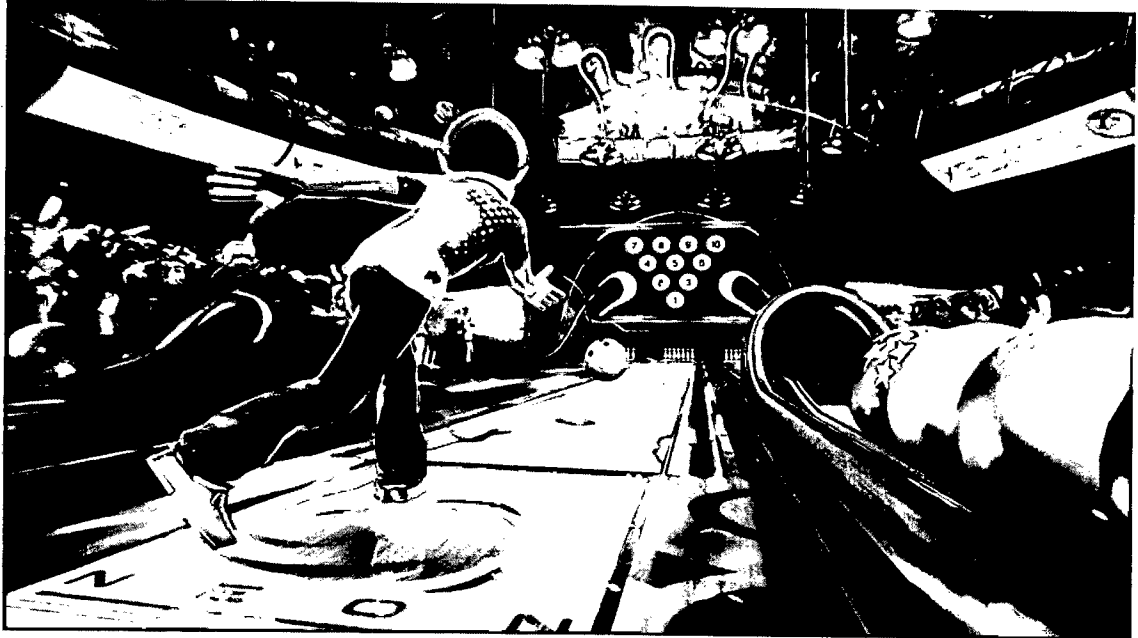


Figure 1.13: Player spins the ball

Figure 1.14 showing the number of pins that been takes down after player spin the ball.

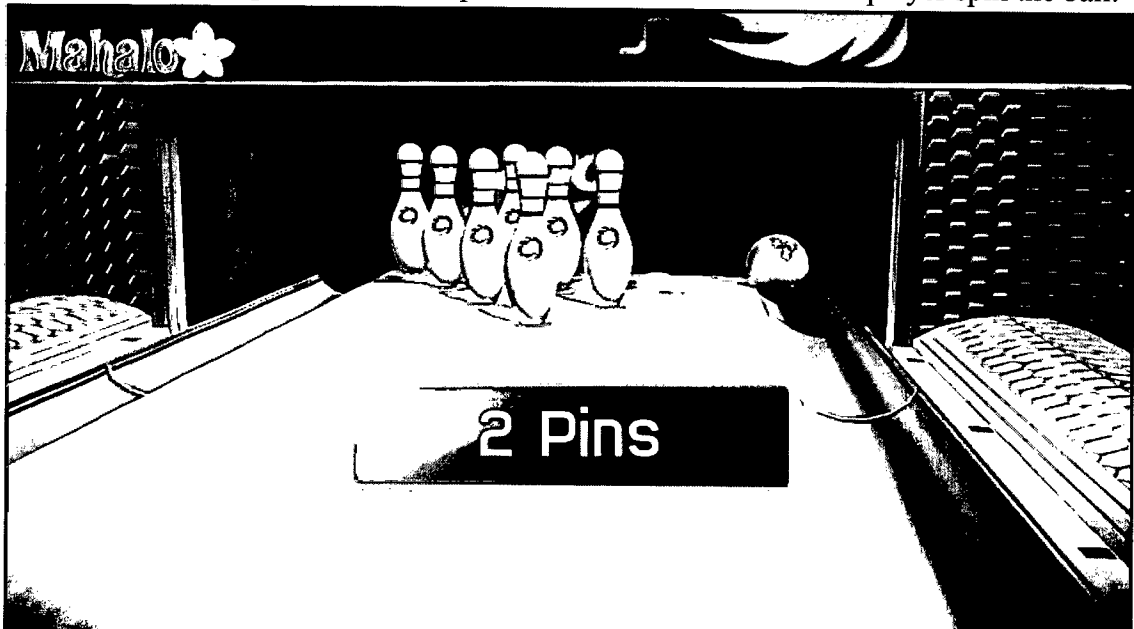


Figure 1.14: 2 Pins down

In conclusion, every game that able player to play using Microsoft kinect and Xbox was only able to fit for the maximum of 2 players simultaneously at a time. Some of the games still involve in some dangerous action such as kick and punch. So that is some limitations that appear in the existing system.

1.6 TERMINOLOGY

1. Kinect – Kinect is a device of motion sensing that developed by Microsoft for Xbox 360, Xbox One video game and Window PCs. Kinect can detect whole body movement to be a game controller and bring it in to the games or software that are support it.
2. Xbox – Xbox is a console of video game that manufactured by Microsoft and released on the year of 2001. Xbox mainly is using for entertainment purpose where most of the peoples are using it to play games .Most of the game that developed specially for Xbox would be plenty types of 3D games.
3. Collaboration – Collaboration mean a task that processes are involving all people work together and achieve the shared goals. Collaboration word can be used in game play also because some game that really need the team working from the entire player were only able to success the stage.
4. Manga – Manga is a word that had been translated from Japanese where it brings out the meaning of Japanese created comic or graphical novels. Manga can be separated into action-adventure, romantic, detective, sports and games, comedy, historical science fiction etc.
5. ‘em-ups – This is abbreviation word from beat them ups where it mean of beat or win the opponent with your own familiar technique and skill in games.

1.7 METHODOLOGY

The software development model that had been chosen and used in my project is the Modified Waterfall Model. The Modified Waterfall Model is an enhanced methodology from the Traditional Waterfall Model. The Traditional Waterfall Model could only pass through all the phases in one way where the Modified Waterfall Model is permitted to overlap if found that any mistake had been done at previous phases.

Phases for the Modified Waterfall Model are exactly the same with the Traditional Waterfall Model which it contains:

- i. Requirement Analysis Phases
- ii. Design Phases
- iii. Implementation Phases
- iv. Testing Phases
- v. Maintenance Phases

Figure 1.15 below shows the process of the Modified Waterfall Model.

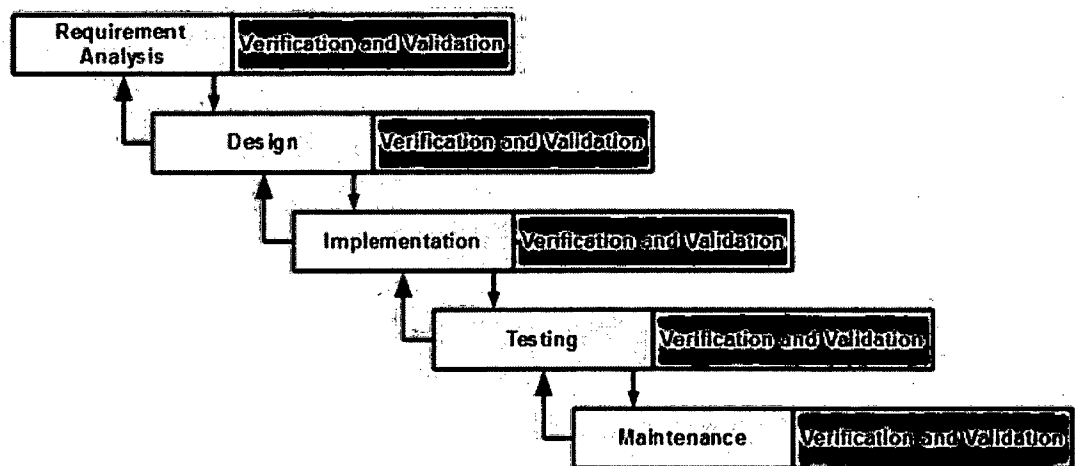


Figure 1.15: Modified Waterfall Model

Project requirements were collected from an expert on developing programs with Microsoft Kinect v2 in the requirement analysis phase.