

A Survey on Handheld Gaming Console

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Abstract – Nowadays students are fascinated by computer and console video games. Computer game-based learning has gained increasing acceptance and has been applied as an option to classroom lecturing. The creation of games needs plenty of knowledge data and skill. These days there exists plenty of frameworks that permits developers to make the games in quicker and easiest method. This work presents the approach of making screen scrolling 2D game while not victimization existing platforms (box2d, unity2d). The essential plan is to however to create game level with Tile Map and the way to implement physics like jumping, free falling and running. This paper is focused on creating the gaming engine for embedded devices with collision detection and 2D graphics. To create a game on a handheld device, a game engine will be developed for handheld devices/embedded systems. This game engine will be flexible enough to build any kind of 2D game on a handheld device.

Key Words: collision detection, embedded system, game engine.

1. INTRODUCTION

Nowadays, game is one of the entertainment media that has become a trend. Currently, game is not solely used as a medium of diversion; even some are made for the purpose of learning media with high effectiveness. Two-dimensional games were most frequently developed within the early years of video games with the main reason for this being that the technical limitations of game hardware prevented the ease of creating three-dimensional graphics. When technology developed sufficiently to allow easier and more practical use of 3D graphics there was a temporary decline in 2D gaming. Many researchers have discussed the possible benefits for using games in education and we believe they may be particularly helpful in improving computer science education. Games provide a way to create and share educational content while also making students feel their computing education is more relevant. The purpose of those notes is to gift and build in a logical progression the abilities needed to create a second game and specifically a platform game in Java.

1.1 GAME ENGINE

A game engine is a software development environment designed for people to build video games. Developers use them to create games for consoles, mobile devices, and personal computers. The core functionality typically provided by a game engine includes a rendering engine

renderer for 2D graphics, a physics engine or collision detection and collision response, sound, scripting, animation, artificial intelligence, networking, streaming, memory management, scene management, and may include video support for cinematics [1].

The process of game development is often economized, in large part, by reusing/adapting the same game engine to create different games or to make it easier to port games to multiple platforms.

Components of game engine are as follows,

- 1)Input Manager
- 2)Game Object Component
- 3)Sound Manager
- 4)Physics Manager
- 5)Scene Manager

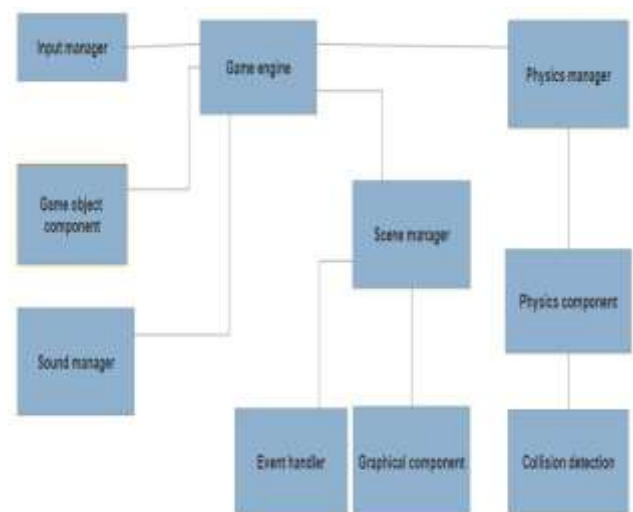


Fig 1. Block diagram of game engine

1.2 Handheld Consoles

A hand-held game console, or just hand-held console, is a small, transportable self-contained computer game console with a integral screen, game controls, and speakers. The origins of hand-held game consoles area unit found in hand-held and work surface electronic game devices of the 1970s and early 80s. These electronic devices area unit capable of enjoying solely one game, they slot in the palm of the hand or

on a work surface, and that they could create use of a range of video displays like LED, VFD, or LCD [2].

In 1978, hand-held electronic games were delineated by well-liked physics magazine as "nonvideo electronic games" and "non-TV games" as distinct from devices that needed use of a tv screen. Handheld consoles provide a less expensive and faster route for package development than television-based consoles. Consequently, a big variety of corporations are established that make package for these machines (as development prices are of a smaller magnitude as those for television-based consoles). The various types of Handheld gaming consoles are:

1. Game Boy- Nintendo released the Game Boy on April 21, 1989 (September 1990 for the UK). The design team headed by Gunpei Yokoi had conjointly been chargeable for the sport & Watch system, similarly because the Nintendo amusement System games Metroid and child Icarus [3].

2. Atari Lynx- In 1987, Epyx created the Handy Game; a tool that will turn out to be the Atari wildcat in 1989. It is the primary color hand-held console ever created, similarly because the 1st with a backlit screen. It additionally options networking support with up to seventeen different players, and advanced hardware that enables the zooming and scaling of sprites.

3. Bitcorp Gamate - The Bitcorp Gamate is that the one in all the primary hand-held game systems created in response to the Nintendo Game Boy. It was free in Asia in 1990 and distributed worldwide by 1991. Like the Sega Game Gear, it had been horizontal in orientation and just like the Game Boy, needed four AA batteries. Gamate games were designed for stereo sound, however the console is barely equipped with a mono speaker.

2. Gaming Industry

Console devices are usually stated as video games. The player interacts with the sport by employing a special controller or joystick. Sound and video are created from the tv. Samples of numerous fashionable consoles are: Sony Playstation, Nintendo Wii U and Xbox One. Each console manufacturer have their own established on-line markets, which may be accessed mistreatment the particular console, wherever customers should purchase digital copies of games. Usually these markets provide special deals for a few games and have summer sales etc, where several game costs are lowered. drawback with these markets are that they don't take in thought the age of the sport, which by the time the sport is a pair of months recent from its original unharnessed date, the desirability and worth has slashed as an example you can buy the toy Marvel super heroes game from Play station on-line for fifty nine, 90€ although the sport was free in Gregorian calendar month 2013 for the Play station 4. Retail worth of the game is 20€ during a finish brick and mortar game store VPD.

2.1 Industry History & Development

To get to the purpose of the way to evaluate the console games market, one needs to perceive how the actual hardware market has developed. Earlier console generations for example had few games that were sold-out together with the console and there weren't a great deal of choices for buying new games. Also since console manufacturers pretty much introduced digital marketing solely throughout the 7th generation, one needs to begin from the start to understand how games were sold and distributed at first.

The console market continued growing steady from generation to generation with few big players dominating the market. The biggest players from the third generation to fifth were Nintendo and Sega, that competed with sales of consoles in addition as their most known brands, Mario vs. Sonic. Introduction of the fifth generation meant there have been new players who entered the market. For example Sony, a globally familiar company with well established brand recognition. At this point other companies were pushed out of the market and 3 companies (Sony, Nintendo and Sega) remained to dominate the market.

Sony Playstation 2, released few years later became the most sold console of all time with over 155 million consoles sold (Nichols 2014: 40). The same year introduced one more major player, Microsoft. The market these days may be a tug of war between Sony and Microsoft as Nintendo has backed bent on totally different section since they're currently a lot of centered on casual gaming and handheld devices. The market revenue in hardware and software sales has grown by \$18 billion from 2012 to 2015 [4].

The next chart shows how the the sales volume of consoles has increased since the first generation.

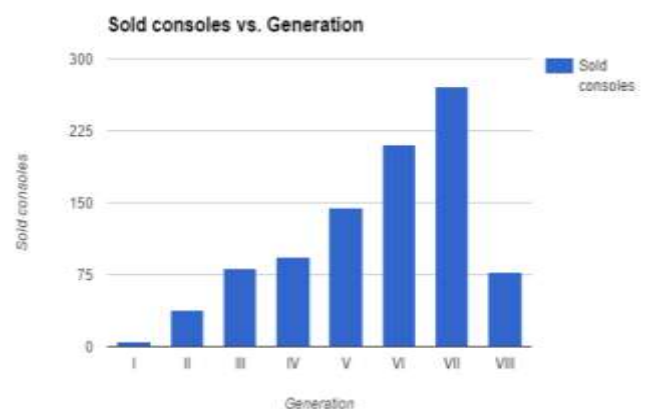


Chart -1: Consoles sold per generations in millions



Chart -2: Sales Figures for Modern Consoles

3. CONCLUSION

We can conclude that the handheld consoles are easily portable and performs extremely well. The emergence of video games and gaming consoles as a mainstream form of culture and entertainment has resulted in a rapidly developing range of specialized electronic devices. Many of those devices are comparatively low-cost, high-powered, reliable, and closely-held by massive proportions of the population. There is an implementation of working physics engine and creation a game world base on tile map approach. With the help of handheld gaming console user can easily carry the console anywhere and can enjoy the experience of gaming.

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