A proposal for game development

Muhammad Faisal Altaf[1], Muhammad Ali[2], Zeeshan Pervaiz[3]

[1,2,3]Army Public College of Management and Sciences, Rawalpindi, Pakistan

Email: [1]faisalaltaf@live.com, [2] ali.prince.hero@gmail.com, [3] zeeshanpervaiz1739@gmail.com

ABSTRACT

Salvage Life is First Person Shooting game. In which player will find him-self in a critical situation like any kind of terrorist attack. It may include bomb blast, firing, attack with weapons and captive situation. The story of *Salvage Life* is based upon post terrorist attack and player need to take first essential steps when this kind of attack happens. By playing this game the players will know about their responsibilities as a citizen, steps to provide first aid and rules and regulations. Basic purpose of this game is to deliver awareness among the peoples about post terrorist attack and their responsibilities as a citizen.

Keywords: game; game development; terrorism; serious games; first aid;

1. INTRODUCTION

We all know that game is the well-known source to mentally train the user or a player related to any situation depends on the story. It could be any puzzle game, racing game, sports game etc. and some of them are serious games like military, academic, medical and training and development. Basic purpose of the serious video game is to provide a virtual environment to build a sense of reality. So the user can imagine even better about the reality of that specific scenario. Another purpose of game is entertainment for the user. Entertainment is the basic requirement for any game because if this aspect is not there in the game, player will find that useless.

Most of the games are built to entertain their user or using virtual environment to give an impact of reality based incidents. By exaggerating the idea of serious games we are going to develop "*Salvage Life*" a game which is based on the story of terrorism. The story of *"Salvage Life"* based upon post terrorism attack scenario. When incident of terrorism is happened then what would be the essential steps to be taken at first. The basic theme of *"Salvage Life"* is to provide awareness to their user about terrorist attack if happened in their society. By playing this game user will know about their responsibilities. The facet of entertainment is also present in *"Salvage Life"*.

2. RESEARCH BACKGROUND

The video game is a well-known source of entertainment. It provides leisure activities to many people. Most of the games are interactive, graphically strong and are based on First Person Shooter (FPS). The game is a medium to interact players with highly complex simulated world. With the advent of geometric action of Pong in 1970's to the latest highly graphical and complex games of today, the game industry has revived so much and has advanced technologies which have been common to desktop computers and mobile devices.

Players can now find games on many physical platforms like arcade machines to personnel nodes and smart phones. Now a day a game is transformed from large pieces or games machines in a small mobile device. Many people can be entertained easily because of advanced technologies.

Game development, finances skilled efforts of many computer hardware engineers and technicians for hardware development and it involves designers, artists, voice, programmers, computers software engineer and testers. Marketers and a network of distributors bring such developed games to the huge number of users. With the large number of users, the industry also supports numerous fan publications, many of them are based on web [1]. Game objects based on famous characters are inspired by any movie or any television show like The Super Mario Bros, Super Show, Batman etc.

2.1 Research goals and objectives

The games are based on characters, story, missions, environments and playing capabilities. Many of the games are just for entertainment and not for training. However, simulation including these elements is based upon refined technology like 3D graphics, animations, artificial technologies and networking. Game of First Person Shooter (FPS) can be used for training of militant squad or any other forces. It gives the impact of reality based environment. Different games of the FPS are developed for training purposes that include Marine Doom to enhance the capability of teamwork and increasing coordination skills between four-soldiers fire teams (Riddell, 1997), America's Army to train west point American Army Officers and another one is Full Spectrum Warrior to train squad leaders in urban warfare tactics.

The global security environment has changed the war fighting. Battles in the field of terrorism demand mature judgment, decision making, and collaboration of young war fighters, and often part-time soldiers. Traditional methods include training by logistical challenges, geographic distribution of personnel, and limited resources that are required in the frequent field training. This situation is changing the area in which we trained the war fighters.

- Gaming is one of the technology that is often designed for distributed use over the internet or local area network. Thus, military trainees in the world can use this technology to simultaneously play required training scenarios.
- Gaming is technology that often provides trainers with total control over the scenarios, as lightweight simulators do.
- Like simulators, games have the electrical capacity to emulate the real world, and so provide opportunities to railroad train with some pragmatism, but out of damage's way.
- Both game technology and simulations can be implemented in a low-cost fashion and allow for wide serviceableness and private development.
- Research in psychology supports the use of video games for training, suggesting that playing action-based video games affect human skills related to visual attention (Boot, 2005; Castel, Pratt, & Drummond, 2005; Green & Bavelier, 2003).

Behind all these there are many commercial off the shelf (COTS) games like Delta Force 2, Steel Beast, and Falcon 4.0 is also used to cover military training requirements by various armed forces [1].Another purpose of video games or simulations is to spread awareness among people by implementing the reality based story. The story may belong to war scenarios, terrorism effects and some other kind of issues that are present nowadays in the world.

2.2   Early history

The history of games goes as far as the early 1950s, when academics began designing simple games and simulations as contribution of their computer science research. Video gaming would not stretch mainstream popularity until the 1970s and 1980s, when colonnade video games, gaming consoles and abode computer games were introduced to the general public. Since then, video gaming has become a popular sort of amusement and a section of modern culture in most parts of the world.

The full term "games" is the purely technical definition and encompasses a wider range of engineering science. While still it is not correctly defined, the term "console game" is now generally encompasses any game played on hardware human body with an electronic logic circle that incorporates a constituent of interactivity and output signal the results of the player's legal action to a display. Going by this broader definition, the first video game that is appeared in the early 1950s is very tightly connected to research projects at university and large corporations. The computer games of the 1950s can be divided into three main categories:

1. Training and instructional programs.
2. Research programs. (such as artificial intelligence)
3. Demonstration programs. (such as to entertain the public)

Because these games were largely developed in unique hardware in past when porting between systems was not so easy and were often dismantled after fulfilling their purposes, they did not generally used for any further developments in the industry. For the same reason, it is impossible to tell who is the first person that developed the first computer game or who originally designed that game or play mechanics introduced during the decade, as there are likely many games from that period that were never published and are therefore unknown today [1].

"One of the first computer games was a chess simulation that is developed by Alan Turning and David Champernowne and the game was called Turochamp, which was completed in 1948 but was never implemented on a console or computer. The first implemented computer game was a two custom built machines known as Bertie the Brain and Nimrod, which played tic-tac-toe and the old game of Nim" [2, 3].

Perhaps the main purpose of the first game that is created was solely for fun and entertainment and to show and to demonstrate the power of technology, to train the individual or to aid in research and the name of the game was Tennis for Two, which is designed by William Higginbotham and built by Robert Dvorak at the Brookhaven National Laboratory in 1958. This game was designed to entertain the general public at Brookhaven's annual series of open houses, the game was implemented on an analog computer and graphics was displayed on an oscilloscope and this game was dismantled in 1959. This game designer Higginbotham never considered to launch

this successful game commercially, which would not be possible at that time because of the limitations of technology of that time [3].

The mainframe computers that were developed in 1950s were generally batch processing machines which had limited speed and memory. Thus it was difficult to develop and play games on such machines. Furthermore, these mainframe computers were extremely expensive and relatively very few in numbers, so computer was a precious resource at that time and that could not be wasted for fun or entertainment.

In 1970, medium scale integration (MSI) transistor-transistor logic (TTL) circuit was introduce by combining multiple transistors on single microchip which reduced the cost of computing and introduced a new wave of minicomputers costing under $ 10,000. While, it was still very costly for the home, these approaches reduced the cost of computing enough that coin-operated games industry could be seriously considered. Hence, the revival of electro-mechanical first person shooting and racing games like Sega Enterprise's Periscope (1967) and Chicago Coin's Speedway (1969) introduced visual display and electronic sound effect in the entertainment arcade [1].

2.3 Early video games (1972–1978)

In 1972, strike out was decided by "Nolan Bushnell" and "Ted Dabney" at their own and their pre-existing alliance as Atari was incorporated. After watching a Magnavox Odyssey's demonstration ahead of its release, new hire Al Alcorn was charged by Bushnell to create a new version of that system of table tennis game as a practice project to introduce himself with video game design. Atari decided to release Alcorn's version as Pong because it ended up being so fun which was available in limited quantities in late 1972. After reaching in the market in quantity in March 1973, it stirred up for ball-and-paddle video games in the coin-operated amusement industry [2, 3].

Solid state pinball emergence in late 1970s, in which newly emerging microprocessor replaced electro-mechanical technologies which stole the prominence from video games, which entered a period of decline once again in 1977 and 1978. During that time games like Atari's Breakout (1976) and Cinematronics' Space Wars (1978) were sold in very large numbers, so overall profitability began to lag [1].

2.4 Mainframe games

Computer games were created in a large number for mainframe and minicomputer in 1960s, but due to continuing scarcity of computer resource, a lack of sufficiently trained programmers interested in crafting entertainment products, and difficulty in sharing programs geographically, these games failed to achieve wide distribution. However, situation was very change in the end of 1970s. During the decade BASIC and C, high-level programing languages were widely adopted. These languages were more accessible than the earlier more technical language such as FORTRAN and COBOL which opened up creation of computer game in large base of users.

"PLATO" system was developed at the University of Illinois which was able to host more impressive games. Intended as an educational computer, hundreds of users all over the United State were connected through this system and it allowed users to interact with each other in real-time, which allowed the system to host impressive array of graphical and multiplayer games including some of most famous computer RPGs which were primarily derived, like adventure but instead of puzzle solving that game place a higher emphasis on fighting and character advancement [4-6].

2.5 Golden era of gaming

From 1978, coin-operated amusement industry in the U.S. video games were entrenched, but their popularity was lesser than the industry stalwarts of pool and pinball. In arcade video games, Space Invaders popularized or introduce many important concepts. Instead of timer or set score it regulated by lives, by accumulating point, gain extra lives. It was first game that confront the player with targets and the first to include background music during play. Space Invaders became a national phenomenon as over 200,000 invader games from its intense game play [3].

2.6 Home computer games

Those home computers of the late 1970s started rapidly evolving in the 1980s, allowing their programmers to program simple games. Example of those games are like Star Trek, ports or clones of popular arcade games such as Space Invaders, Frogger, Pac-Man and Donkey Kong etc. That era of developing games was dominated by home computers' software libraries. A 1984 series of reviews of Atari 8-bit software used 198 pages for total games compared to 167 for all others. That was the year of computer gaming market in which it took over from the console market that was following the crash of that year; home computers offered equal gaming power and,

since their simple and powerful design allowed games to take complete control of the hardware after switching on, they were nearly as simple to start playing with as consoles [7].

The game Commodore 64 was publicly released in August 1982. It found great initial success because it was highly advertised and priced efficiently. It used BASIC programming environment and highly advanced graphic and sound capabilities of that time, similar to the ColecoVision console. In 2008 Sid Meier nominated and rated the IBM PC as one of the three most important electronic innovations in the history of video games. The IBM PC compatible platform became a technically most impressive gaming platform with IBM's PC/AT in 1984 [1, 3].

2.7   Today (present) gaming

The revolution of computers in new technology is reducing the cost of processors as the Intel 80386, Intel 80486, and the Motorola 68030, introduced the rise of 3D graphics, animations and modeling, as well as "multimedia" capabilities of sound and CD-ROMs. Initially the 3D games began with flat-shaded graphics (Elite, Star glider 2 or Alpha Waves), and then mapping the simple forms of texture (such as in Wolfenstein 3D). In early 90s, popular kind of computer games were based on real-time strategy, since, the setting for the standard game mechanics of many games was Dune II. In the "Alone in the Dark" partially it was the survival-horror type with its short stories and journey based elements. Formula was established by that which later on displayed, based on CD-ROM consoles, with early games such as Resident Evil, which created the name "survival horror" and promoted the type, and Silent Hill [8, 9]. In the era of 1990s that "Sim" games were started to published successfully, initially with *Sim City* and continuing with various names, such as *Sim Earth*, *Sim City* 2000 [1, 3].

New movements in casual gaming, those games with less complexity were designed for improvised play sessions, started to draw attention from the industry. Most of the games were puzzle games, such as Popcap's Bejeweled and Play First's Dinner Dash, although other games were with a more relaxed stride and open-ended play. Biggest success was associated with "The Sims by Maxis", which became the bestselling PC game of all times, exceeding Myst [10, 11].

More casual games include Happy Farm and Zynga games like Mafia Wars, Farm Ville, and Café World, among various others, which are joined into social networking sites like Myspace, Facebook, and Mixi. These all games are totally free of cost to play, there is option available to buy in game items stats with money and remuneration offers. After releasing of Happy Farm in China, social network games started attainment mainstream admiration in 2008. Predisposed by the Japanese soothe RPG series Story of Seasons, Happy Farm fascinated 23 million active users on daily bases in China. Later on it enthused many copies such as Sunshine Farm, Happy Farmer, Happy Fishpond, Happy Pig Farmer, and games on electronic or social media like Facebook having games like Farm Ville, Happy Harvest, Farm Town, Barn Buddy, Country Story, Sunshine Ranch, Jungle Extreme, and Farm Villain. One of the very popular and famous games on social media is Farm Ville, which has more than 70 million energetic users globally. Other games which are popular on social network are Yo Ville, Mob Wars, Mafia Wars, and Frontier Ville [4-6, 12]. We will not go in depth of social gaming as we are not making one.

2.7.1   3D gaming

The biggest revolution of gaming in present age is rise of 3D gaming which has revolutionized the world of gaming that we see today. In 3D polygon graphics history ,these were the highly popularized graphics by Yu Suzuki's Sega AM2 games Virtual Racing (1992) and Virtual Fighter (1993), some of these games and gamers also included Sony Computer Entertainment (SCE) staff that is involved in the invention and creation of the original PlayStation gaming console which credits Virtual Fighter as the inspiration for the PlayStation's 3D graphics hardware [7, 8]. Today we are playing 3D games with the latest technologies of processing and graphics powers. These thrilling sounds and graphics effects, made today's games more realistic games than any previous age of gaming [10, 11]

3.   PROBLEM

First Person Shooting (FPS) games developed in the recent history are based upon war scenarios. And theme of those games was to achieve any target and not providing any sense of awareness among users. By taking an idea from the past we are going to develop a game which is First Person Shooting (FPS) game based upon post terrorist attack. Main theme of this FPS game is to provide awareness among user or a player. Let the player know about their responsibilities as a citizen. The problem statement of this research is given below.

"To develop a game in order to induce sense of rules awareness at an incident of terrorism among citizens"

Figure 1 represents the diagrammatical representation of the proposed game related to terrorist action.
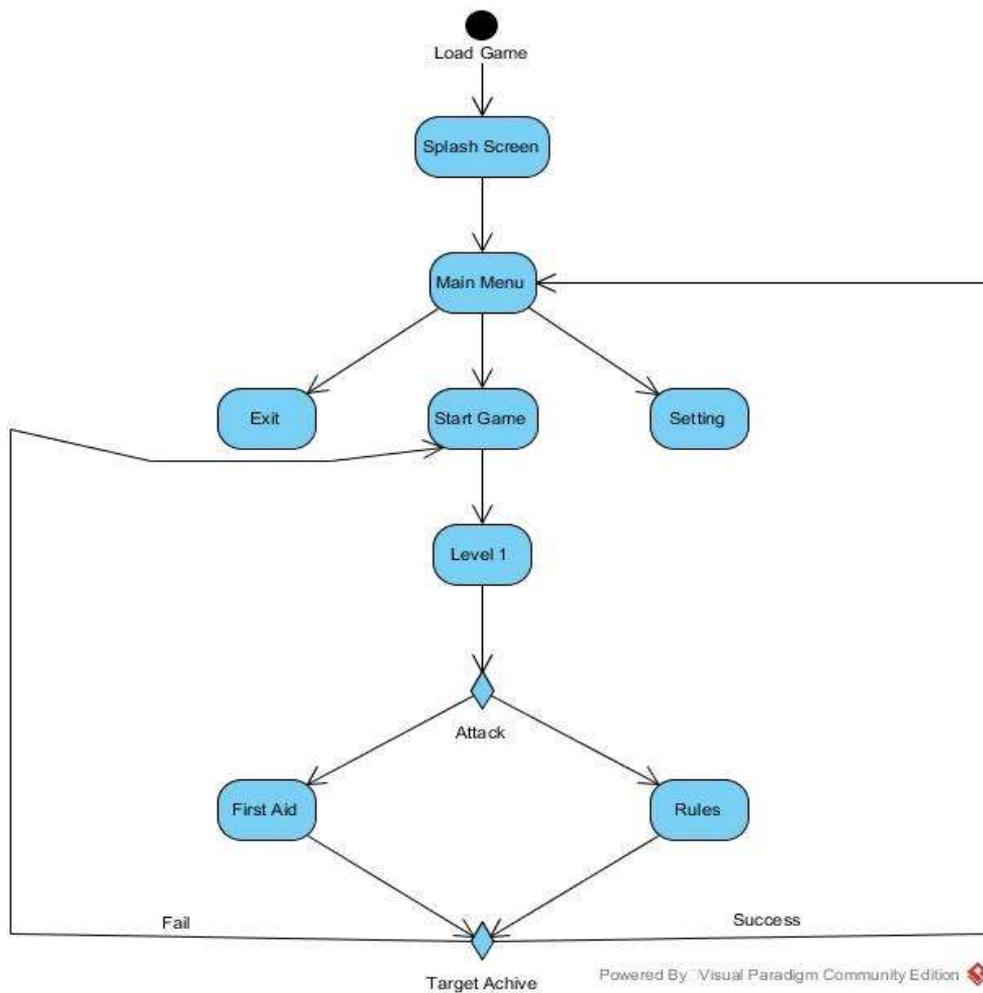
Figure. 1 Activity diagram of Salvage Life

4. CONCLUSION

We tried our best to create a game that gives awareness against terrorism and first aid training with some entertainment to our user, specially youth. It is the basic version of PC having windows based operation system. The main scenario of the game is that on the starting of game there is an animation of bomb blast, after that awareness guideline will be shown and the control will shift to user. System will ask from user to call the ambulance and our system will also guide the user about first aid. This is the basic version of Salvage Life. Due to project duration limitation we did cover all aspect of terrorism and rules and regulations, so we wish to continue this with more scope like mind training of young generation to aware the responsibility of normal citizen, help the people who are in tough condition, and aware the people about what to do in such tough conditions (hostage situations).

ACKNOWLEDGEMENT

REFERENCES

1. Donovan, T., *The History of Video Games.* 2010.
2. Mark, W., *Video Game Explosion.* 2005.
3. Mark, W., *Encyclopedia of Video Games.* 2012.
4. Nutt, C., *"GDC China: Chinese Indie Game Trends and Opportunities".* . 2009.
5. Available from: http://www.apa.org/releases/resolutiononvideoviolence.pdf.

6.   scholarworks. Available from:http://scholarworks.gvsu.edu/lajm/vol25/iss2/4.
7.   Available from: http://sag.sagepub.com/content/early/2009/04/27/1046878109334330.abstract.
8.   Available from:http://sag.sagepub.com/content/32/1/97.short.
9.   Computer and video game design]. Available from: http://www.vault.com/industries-professions/industries/computer-and-video-game-design.aspx
10.   Alexander1, A.L., *PC based simulation.* 2005.
11.   Bateman, C., *"Meet Bertie the Brain.* 2014.
12.   Edweek. *Gaming*. Available from: http://www.edweek.org/ew/articles/2011/03/17/25gaming.h30.html?tkn=XQDCbAEm%2BOYlXmj8CrgGehhpjbVOReeJEqon.

AUTHOR PROFILE

Faisal Altaf is currently an undergraduate student at Army Public College of Management and Sciences (APCOMS) in the Department of Computer Science, Rawalpindi, Pakistan. APCOMS is affiliated with University of Engineering and Technology Taxila, Pakistan. His research interests are in game development, software engineering, software architecture and software testing.

Muhammad Ali is currently an undergraduate student at Army Public College of Management and Sciences (APCOMS) in the Department of Computer Science, Rawalpindi, Pakistan. APCOMS is affiliated with University of Engineering and Technology Taxila, Pakistan. His research interests are in game development, software engineering, software architecture and software testing.

Zeeshan Pervaiz is currently an undergraduate student at Army Public College of Management and Sciences (APCOMS) in the Department of Computer Science, Rawalpindi, Pakistan. APCOMS is affiliated with University of Engineering and Technology Taxila, Pakistan. His research interests are in game development, software engineering, software architecture and software testing.