C++ Game Project. ENDLESS MEMORIES

I remember my childhood, when I was 9 or 10, playing computer games was always an amazing experience. From Nokia's classic snake game to Need for Speed II, every game was realistic in its own environment and equally aesthetic back then. It always stimulated me to seek the path how games are created and how the developers create such magical worlds that evoke pretty natural responses from the players.

The quest has landed me to create my very own 3D game 'Endless Memories'. It is a simple role playing game in which a character is lost and finally reunites with his wife. The plot is quite simple. The main focus of making this game was to research on graphical contexts of game making.

Today there are numerous game developing soft-wares which hide the technical details from the game-developers, so that the developers can focus on game experience and story-line. Unity is the most leading game developing software. Most of these soft-wares are written in C++, which means to dive into technicalities of game making we have to develop our game at C++ level. This is the main reason why I developed the game in C++.

The major focus of this project is to work on graphical domain. Open.GL is most widely used domain of C++ that is employed to produce real-time graphics. Open.GL itself is very complicated package. To reduce the complexity of this package I used SFML package, which is freely available and helps the programmer to easily manipulate graphics in C++ using Open.GL.

In a very general concept, game is an interactive video. The key presses inputted by the player determine which frames will be displayed next, on screen. So, a developer codes a computer in such a way that the computer knows how to create new frames when the player presses any key.

SFML implements this concept in very simple way. With the help of sprites computer can easily figure out how to generate the next frame. Sprite is an simple image that can be painted on a screen. What makes sprite different from ordinary image is that it has a position on the screen and it can be painted over other sprites.

So the first step of creating this game was to move the central character of the game in the direction of the pressed key, (left, right, up or down). To show the character standing on the screen, we display the scene, a house or a room, and then place character on the screen.

Now we tell the computer to increase the horizontal position of the character, which is basically a sprite, if user presses right key. Similarly, decrease the horizontal position of the sprite when user presses left key. The same goes for the vertical position and the up and down keys, and after that update the screen. Ultimately, this generates the illusion, that the character is moving within the scene.

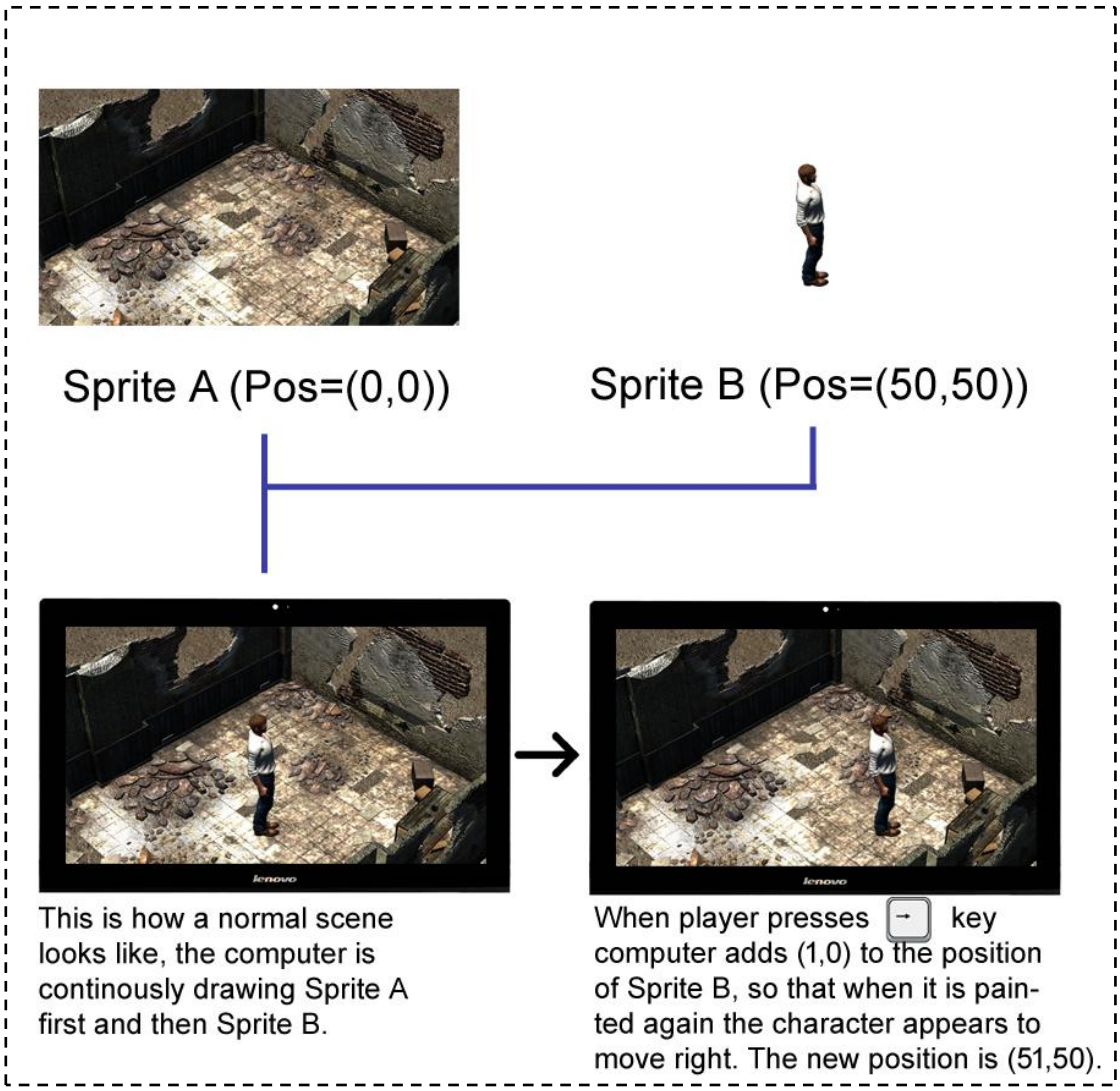

Figure 1

By applying this key principle every computer game is developed. Whereas in pure 3d games specialized sprites are used which are 3d models of physical objects which are often termed as object.

However, this game creates a illusion of 3d by showing scenes from a very special angle. This technique is called isometric view. By applying this technique simple 3d games can be made on 2d graphical utilities.

One key thing of game making is to include realistic animations, for example if we compare two scenes shown in figure 1 where the character moves right, the feel of actor is not real. As it looks like the character abruptly moved right. To add realism, computer needs to generate all the intermediate frames showing character moving his arms and legs to go right.

In very simple implementation, raw pictures of the character moving is provided to the computer. The computer then quickly draws and replaces images to make animation of the game character.

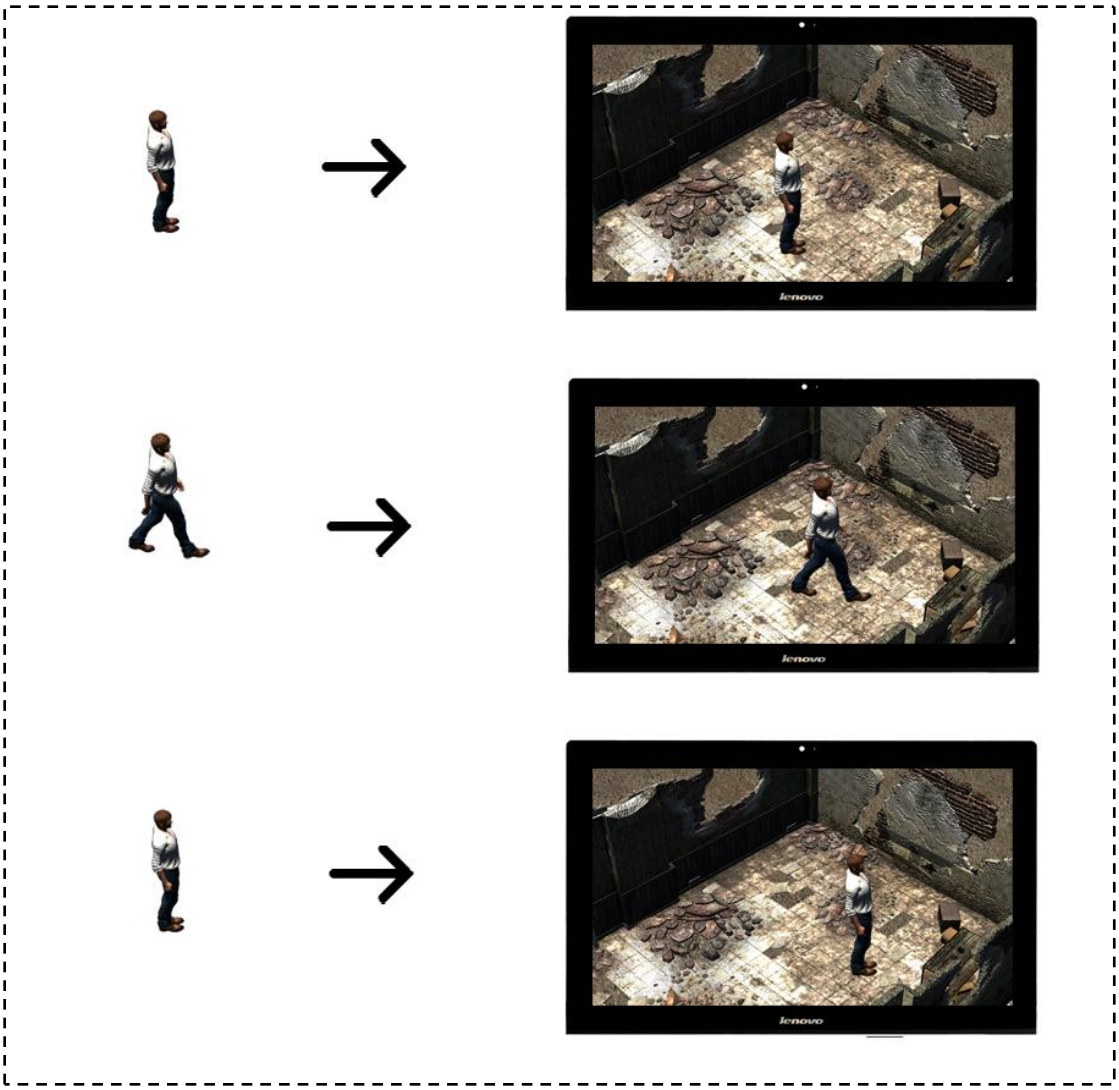

Figure 2 : Generation of intermediate frame. The sprite of character is painted with a new image, one with legs moving out. This image is shown for a short time, which adds animation to the character, making the game more real.

Last but not least, all these images and frames are generated by special software named iClone which is a 3d drawing and animating software. These images are fed to the computer which are then rendered to form graphics.

In the nutshell, simple technology of sprite and animated frames are used to build this game. For those who are interested in game development may like to see the code of this game or simply play this game to enjoy the graphical contents of this game.