SPACE SHOOTER GAME USING PYTON

Uma Rani[1], Mogulagani Prashanth[*2], P. Suma Sree[*3], D. Anvesh[*4]

[1]Uma Rani, Department of Computer Science and Engineering, Ace Engineering College, Hyderabad

[2]JNTUH, Computer Science and Engineering, Ace Engineering College, Hyderabad, Telangana, India

[*3]JNTUH, Computer Science and Engineering, Ace Engineering College, Hyderabad, Telangana, India

[*4]JNTUH, Computer Science and Engineering, Ace Engineering College, Hyderabad, Telangana, India

DOI: https://www.doi.org/10.56726/IRJMETS-NCASCTE202215

ABSTRACT

Reminiscent of many "shoot 'em up" video games from the early eighties- Space Shooter is an arcade game developed using Python as a programming language. Although built to be simplistic, the mechanics of this game are pretty dynamic. Moreover, the game also has engaging gameplay. Pygame is a cross-platform set of Python modules which is used to create video games. It consists of computer graphics and sound libraries designed to be used with the Python programming language. Pygame was officially written by Pete Shinners to replace PySDL. Pygame is suitable to create client-side applications that can be potentially wrapped in a standalone executable. The project basically uses the pygame module. We use images and animate the images using pygame module. We use pygame module to do button mapping and several other display function. We use classes to call functions after every iteration of the game level.

Keywords: Space Shooter Game, Astroids, Arcade game, Shooter Bullets.

I.   INTRODUCTION

The game is developed for full-time entertainment and enthusiasms. It teaches the Gamer to be alert at every situation he/she faces.**Python** based **space shooter** space combat game with dynamic gameplay power ups and complex mechanics using pygame module with source code.The player starts the game with three lives and has to constantly shoot and dodge to save themselves from being wiped out by a constant oncoming barrage of asteroids. A hit from an asteroid causes the player's health to decrease. While smaller asteroids deal lesser damage, larger asteroids will deal a heavier blow to your health bar. Once the player's health bar runs out, they lose a life. This game also features two types of power-ups. While one boosts your defense by replenishing your health, the other improves your attack by doubling and tripling your rate of fire and increasing the damage dealt.

As a player's score increases, the game bumps up the difficulty by increasing the frequency of the falling asteroids. Thereby, ensuring the player stays engaged and alert.

II.   METHODOLOGY

Python

In this project we are making use of python language. Python is an interpreted, interactive, object-oriented programming language. It incorporates modules, exceptions, dynamic typing, very high level dynamic data types, and classes. It supports multiple programming paradigms beyond object-oriented programming, such as procedural and functional programming. Python combines remarkable power with very clear syntax. It has interfaces to many system calls and libraries, as well as to various window systems, and is extensible in C or C++. It is also usable as an extension language for applications that need a programmable interface. Finally, Python is portable: it runs on many Unix variants including Linux and macOS, and on Windows.

Python Pygame (Game Development Library)

Python is the most popular programming language or nothing wrong to say that it is the next-generation programming language. In every emerging field in computer science, Python makes its presence actively. Python has vast libraries for various fields such as Machine Learning (Numpy, Pandas, Matplotlib), Artificial intelligence (Pytorch, TensorFlow), and Game development (Pygame,Pyglet). Pygame is a cross-platform set of Python modules which is used to create video games.

It consists of computer graphics and sound libraries designed to be used with the Python programming language.

Pygame was officially written by Pete Shinners to replace PySDL. Pygame is suitable to create client-side applications that can be potentially wrapped in a standalone executable.

III.   MODELING AND ANALYSIS

In this project we are using different libraries of python in order to successfully implement the idea. The modules or module. These libraries help to perform different action easily just we need to download and import it.

Let's understand about those modules

SMTP: Simple Mail Transfer Protocol (SMTP) is a protocol, which handles sending e-mail and routing e-mail between mail servers. Python provides smtplib module, which defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon.

OS:Python OS module provides the facility to establish the interaction between the user and the operating system. It offers many useful OS functions that are used to perform OS-based tasks and get related information about operating system. The OS comes under Python's standard utility modules.

SYS : The sys module in Python provides various functions and variables that are used to manipulate different parts of the Python runtime environment. It allows operating on the interpreter as it provides access to the variables and functions that interact strongly with the interpreter

PYGAME: pygame is a Python wrapper for the SDL library, which stands for Simple DirectMedia Layer. SDL provides cross-platform access to your system's underlying multimedia hardware components, such as sound, video, mouse, keyboard, and joystick. pygame started life as a replacement for the stalled PySDL project.

TIME: The Python time module provides many ways of representing time in code, such as objects, numbers, and strings. It also provides functionality other than representing time, like waiting during code execution and measuring the efficiency of your code.

MATH: What is math module in Python? The math module is a standard module in Python and is always available. To use mathematical functions under this module, you have to import the module using import math . This module does not support complex datatypes.

RANDOM: Python Random module is an in-built module of Python which is used to generate random numbers. These are pseudo-random numbers means these are not truly random. This module can be used to perform random actions such as generating random numbers, print random a value for a list or string, etc.

Below is about existing and proposed system of our project:

The space shooter is a very attractive game for any ages peoples. The spaceship moves around the galaxy and protect galaxy from various asteroids and enemies. Asteroids and enemies attacks the spaceship. The spaceship shoots and destroy his enemies and save galaxy. The score are being increased automatically by destroying each asteroids and enemies.

Disadvantages:

The existing system may run slowly that is the enemies approach is slow.

Graphics and animation are little cheaper.

There is no use of sound libraries.

The space shooter is a very attractive game for any ages peoples. The spaceship moves around the galaxy and protect galaxy from various asteroids and enemies. Asteroids and enemies attacks the spaceship. The spaceship shoots and destroy his enemies and save galaxy. The score are being increased automatically by destroying each asteroids and enemies.This Report describes all the requirements for the project. The purpose of this research is to provides a virtual image for the combination of both structured and unstructured information of our project

"Space Shooter". This is a single-player strategy game on the Windows platform. The player willprogress through levels which require precise manipulation of the environment, though the gameEncourages creativity and daring via branching pathways. The episodic structure of the gamefacilitates the pace of the story. I demonstrate the action flow between inputs, script, display(output).We are working mainly with story, levels, object, animation, graphics, scripts, gameengine facilities.

IV.   RESULTS AND DISCUSSION

User gets exposed to the game window as shown below in Fig 6, As the player starts the game , there is full health bar initially and if the asteroids hit the player the health bar decreases as shown in the figure 7. As the score increases , the difficulty increases by releasing larger asteroids upto a certain level. After that there is a boss player with its own health bar, player has to diminish the health bar of the boss player as shown in figure 9. Larger asteroids reference is shown in figure 8.
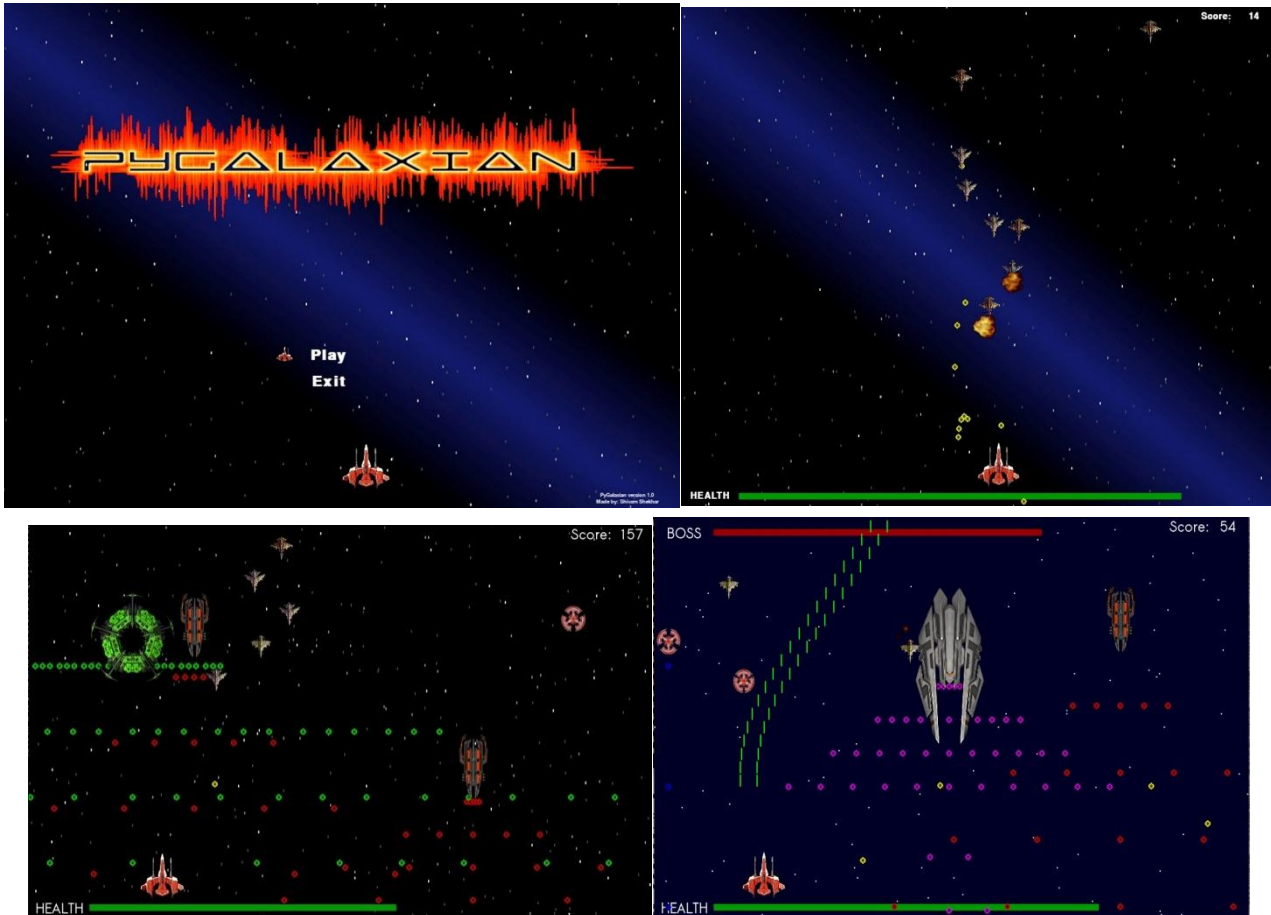
V.   CONCLUSION

Even though the game might not the standards of many commercial games, given the resources and time frame. The game is easy to play and the visual effects make the game look graphically good. Each effect contributes to the appearance of the game. The game is easy to play and the visual effects make the game look best. Each effect donates to the look of the game own laptop. There are a lot of positive aspects to working together with team. When problems occur everyone can help, ideas can be discussed and you get to know each other better, making it more motivating and fun with members to work on a project. In hindsight, we should probably have utilized the rooms with computers provided by college in order to increase productivity.

VI.   REFERENCES

[1]   R. Galantay, et al., "living-room: Interactive, space oriented augmented reality," 2004, p. 71.
[2]   K. Kim, et al., "ARPushPush: Augmented reality game in indoor environment," 2005
[3]   M. WEILGUNY and D. MEDIEN, "Design Aspects in Augmented Reality Games," 2006.
[4]   AKENINE-MÖLLER, T., HAINES, E., and HOFFMAN N. 2008. Real-Time Rendering. Third Edition, Boca Raton, CRC Press.
[5]   BLINN, J. 1978. Simulation of Wrinkled Surfaces. ACM SIGGRAPH Computer Graphics, vol. 12, no. 3, pp. 286– 292.
[6]   NYSTROM, R. 2014. Game Programming Patterns. Genever Benning, ch 2.

[7]   FISHMAN, Band SCHACHTER, B.1980.Computer display of height fields. Computers& Graphics, vol. 5, no. 2, pp. 53-60.

[8]   MUSGRAVE, F. K., KOLB, C. E., and MACE R. S. 1989. The Synthesis and Rendering of Eroded Fractal Terrains. ACM SIGGRAPH Computer Graphics, vol. 23, no.4, July, pp.41-50.

[9]   AKENINE-MÖLLER, T., HAINES, E., and HOFFMAN N. 2008. Real-Time Rendering. Third Edition, Boca Raton, CRC Press.

[10]   BILLETER, M., SINTORN, E., and ASSARSSON, U. 2010. Real Time Volumetric Shadows using Polygonal Light Volumes. High Performance Graphics (2010), pp. 39-45.