VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI

Mini Project Report on

"FISHING GAME"

Submitted in the partial fulfillment for the requirements of Computer Graphics & Visualization Laboratory of 6th semester CSE requirement in the form of the Mini Project work

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CERTIFICATE

This is to certify that the Project work entitled **"FISHING GAME"** is a bonafide work carried out by **Kathyayini R (1BY17CS077) and Kavana H Mahesh (1BY17CS078)** in partial fulfillment for *Mini Project* during the year 2sss019-2020. It is hereby certified that this project covers the concepts of *Computer Graphics & Visualization*. It is also certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in this report.

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4. Identify and provide solutions for sustainable environmental development.

ACKNOWLEDGEMENT

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ABSTRACT

The mini project “Fishing Game” creates a basic 2D pictorization of realtime process fishing. It shows the movements of fishes in sea and the food block which is constantly moving vertically. If fishes touches the block then it disappears(caught) there by score will get incremented. This is an interactive project that allows user to view the scenarios of movement of fishes and the food block by using the keyboard input device.

This project also helps us to understand the capabilities of graphics system by exploiting the numerous OpenGL functions.

The most important aspect of this project is that the basic functions of OpenGL can be implemented in an understandable format thus grabbing the interest of user.

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CHAPTER 1 : INTRODUCTION

The brief introduction of what the computer graphics is and also about the API(Application Programmer interface)used in the project i.e.. OpenGL is provided. Also a brief introduction about the project is given.

1.1 Brief Introdction:

1. About Computer graphics:

The objective of Computer graphics is to utilize and demonstrate algorithms for drawing simple geometrical figures and utilize it to design a graphics package.

Computer graphics concerns with the pictorial synthesis of real or imaginary objects from their compute based models. It is a subfield of computer science and is concerned .With the digitally synthesizing and manipulating visual content.

Definition: Computer Graphics is a study of manipulating the visual and geometric information using computational technique. Computer Graphics as an academic discipline focuses on mathematical and computational foundation of image processing generation rather than purely aesthetic issues.

Advantage: The development of computer graphics has made computer easier to interact with user, and better understanding.

2. About OpenGL:

OpenGL stands for open graphics Library. OpenGL (Open Graphics Library) is a standard specification defining a cross-language, cross platform for writing applications that produce 2D and 3D images. The interface consists of over 250 different functions calls which can be used to draw complex three-dimensional scenes from simple primitives Developers can create graphics and special effects that will nearly be the same on any operating system and any hardware that supports OpenGL.

1.2 Motivation:

The ultimate motivation for this project is to provide graphical interfaces between user and the system by using the OpenGL interactive application provided by Computer graphics. And also our main goal is to implement(apply) the knowledge whatever we have learnt about the Open Graphical Library for designing many graphical applications.

1.3 Scope:

This project is designed and implemented using OpenGL interactive application that basically deals with providing the graphical interfaces between user and system.

This project exhibits "FISHING GAME". Wherein there are 2 scenes, the 1 st scene shows a sea with fish movements and in the 2nd scene we can see the fish catching the food block so that a fish caught there by score gets incremented. This project also consists of welcome page which is displayed at the beginning which consists of 2 options one is press 's' to start and press 'q' to quit. While playing if the specified time got over it shows Game over.

1.4 Problem Statement:

Humans have been fishing as long as we've existed. We do it for sport, for recreation and many still do it for food . In this day and age, not everyone has the time to pack up their gear and head out to the nearest lake or river. The good news is that those people still have some options if they want to catch some fish, although we admit it'll never be as good as the real thing. There comes the concept of fishing games into existence.

1.5 Proposed System:

Here in this project , Fishing Game we have proposed graphical interfaces between user and the system by using the OpenGL concepts.

This project deals with the 2D pictorization of realtime process fishing. It shows the movements of fishes in sea and the food block which is constantly moving vertically.If fishes touches the food block then it disappears(caught) there by score will get incremented . This is an interactive project that allows user to view the scenarios of movement of fishes and the food block by using the keyboard input device.

1.6 Limitations:

Here in this project we have implemented only visualization of sea, fishes and the fish catching block which is constantly moving vertically up and down. We can also standardize this by introducing the fisher man with his fish catching net as a real time fishing scene. And also we can improve the Graphics.

As of now we have implemented only 2D pictorization , by implementing 3D pictorization the game gets more realistic feel .

And also in this we have introduced only score board which get incremented once the fish get caught but we can also introduce the bonus score system in this.

CHAPTER 2: LITERATURE SURVEY

Humans have been fishing as long as we've existed. We do it for sport, for recreation and many still do it for food . In this day and age, not everyone has the time to pack up their gear and head out to the nearest lake or river. The good news is that those people still have some options if they want to catch some fish, although we admit it'll never be as good as the real thing. There comes the concept of fishing games into existence.

The development of Computer Graphics has made computer easier to interact with user and better understanding.

In order to achieve or to implement the Fishing Game we have used concepts of Computer graphics. Here this project creates a basic 2D pictorization of realtime process fishing. OpenGL stands for Open Graphics Library is standard specification defininig a cross language ,cross platform API(Application Programming Interface) for writing that produce 2D and 3D images that has been used here.

Here in the proposed system we make use of Computer Graphics functions like inbuilt functions by OpenGL and some user defined functions to provide a graphical interfaces between user and the system as mentioned in the implementation part.

Here we also make use of input given from the user with the help of keyboard and mouse input devices which is offered by the OpenGL.

So there by with the help of all the knowledge on Computer Graphics and also about the API(Application Programming Interface) and OpenGL Concepts we have Implemented this Fishing Game mini project as the proposed system describes.

CHAPTER 3: SYSTEM REQUIREMENT

This chapter specifies the requirements needed in a system in order to run this project in computer graphics using OpenGL interface.

1. Software Specification:

Operating system : Window XP

Language : Visual studio

Programming Language: C/C++ using OpenGL

IDE: Code Blocks

Functional Requirement: <GL/glut.h>

2. Hardware Specification:

Processor : Pentium IV 2.0GHz and above

RAM : 1GB DDR with 256 MHZ

Hard disk : 40GB

Key board : For input and to create system and user interface

CHAPTER 4: SYSTEM ANALYSIS

This part is for the purpose of studying a system(proposed system) or its parts in order to identify its objectives. Afer the implementation of the system now that proposed system has to be analysed by experimenting . After that we will get some outputs that has to be verified .

Here in this project we have used so many user defined functions like

> boat function to create a graphic boat for fishing

> fish1 function to create a random number of fishes.

> random function which helps us to play the game in a specified time.

> key and keyboard functions to make use of key board keys as inputs from the user

> drawsc function which deals with the game scoring thing.

> Initially system displays the welcome page with two options either to start or to quit the game

> System will checks for time out if time is over it displays as game over then player need to start the game again to play.

> System will ensure or check whether the score got incremented when fishes touches the food block.

> Once game is over the player's score will be displayed on the screen.

System as to check whether fishes are randomly generating as the game continuous.

CHAPTER 5: IMPLEMENTATION

Here in the proposed system we make use of Computer graphics Functions like inbuilt functions(Open GL) and user defined functions to provide a graphical interfaces between user and system.

1.Built in functions used:

The following functions that are supported in OPENGL and used to initialize the glut library to build geometrical objects.

1. **glutInit() :** It provides an interface between OPENGL and window and initializes glut library.
2. **glutDisplayFunc() :** Display callback functions and determine that window should be redisplayed.
3. **glutKeyboardFunc () :** This is callback for events generated by pressing a key.
4. **glutMainLoop() :** Start execution of program.
5. **glutPostRedisplay() :** Request the display callback to be executed.
6. **glPushMatrix ():** Push the current matrix onto stack. Push matrix pushes the current matrix stack down by one, duplicating the current matrix. That is, after the glpushmatrix call, the matrix, on top of stack is identical to one below it.
7. **glPopMatrix ():**Pops from the matrix stack corresponding to the current matrix mode
8. **glLoadIdentity ():**Sets the current transformation matrix to an identity matrix
9. **9.glTranslate[fd](TYPE x,TYPE y,TYPE z):** Alters the current matrix by a displacement of (x,y,z). TYPE is either GLfloat or Gldouble.
10. **gluOrtho2D(GLdouble left,GLdouble right,GLdouble bottom,Gldouble top):**Defines a two dimentional viewing rectangle in the plane z=0.
11. **glutkeyboardFunc(void *f(int width,int height)):** Registers the keyboard callback function .The callback function returns the ASCII code of the key pressed and the position of the mouse.

11. **glutDisplayFunc(void (*func)(void)):**Registers the display function func that is executed when the window needs to be redrawn.
12. **glutInitDisplayMode(unsigned int mode):**Requests a display with properties in mode..The value of mode is determined by the logical OR of options including color model.
13. **glClearColor(GLclampf r,Glclampf g,GLclampf b,GLclampf a):** Sets present RGBA clear color used when clearing color buffer.
14. **glScale[fd](TYPE sx,TYPE sy,TYPE sz):**Alters the current matrix by a scalling of (sx, sy, sz).Type is either GLfloat or GLdouble.
15. **glRasterPos[234]sidf(TYPE xcoord,TYPE ycoord):**Specifies raster position .the coordinates can be shorts s, ints I, and floats f or double d.
16. **glutBitMapCharacter(void *font,int char):**Renders the character with ASCII code char at the current raster position using raster font given by fonts include GLUT_BITMAP_TIMES_ROMAN_10 and GLUT_BITMAP_TIMES_ROMAN_8_BY_13.The raster position is incremented by the width of the character.

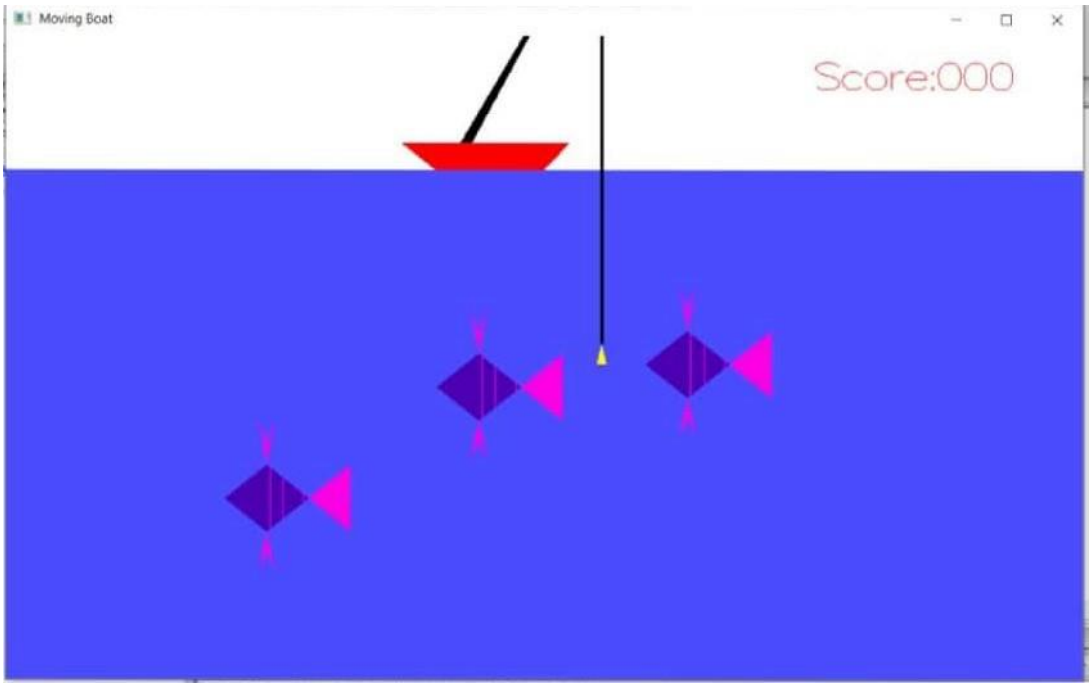
2. User defined functions:

This section highlights on different modules of code developed and how they are interlinked.

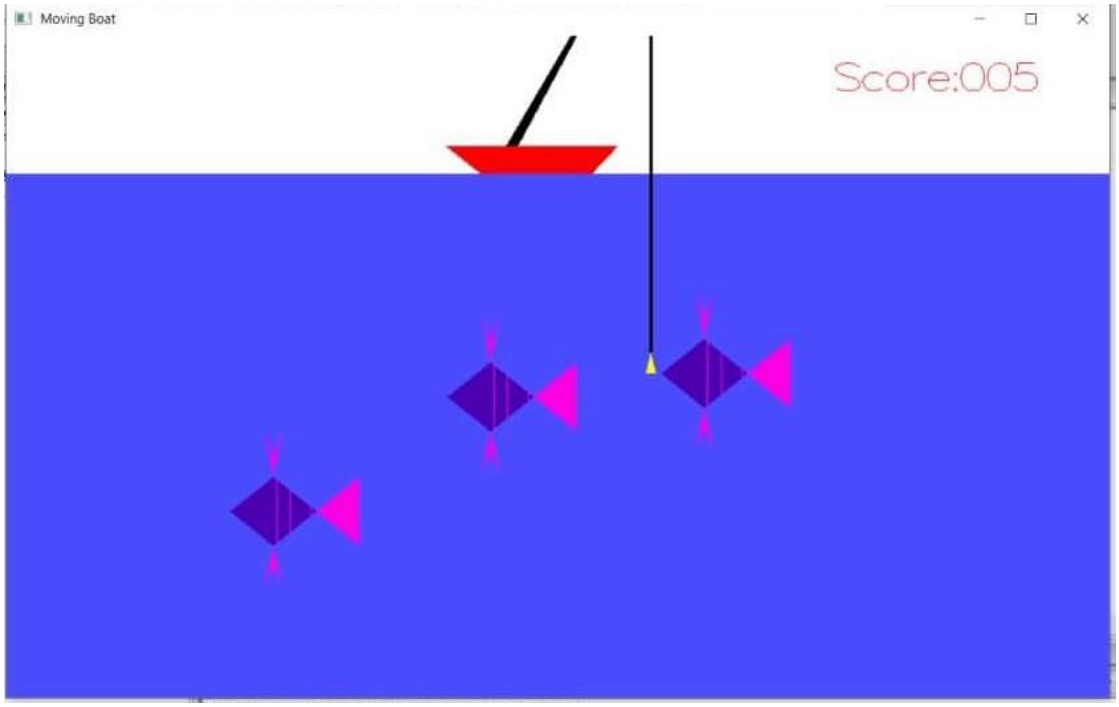
1. **void fish1() :** to create a fish in 1st scene.
2. **void random() :** to create a specified timings to play
3. **void boat():** to create a boat.
4. **void drawsc():** to imlement the score part

CHAPTER 6: INTERPRETATION OF RESULTS

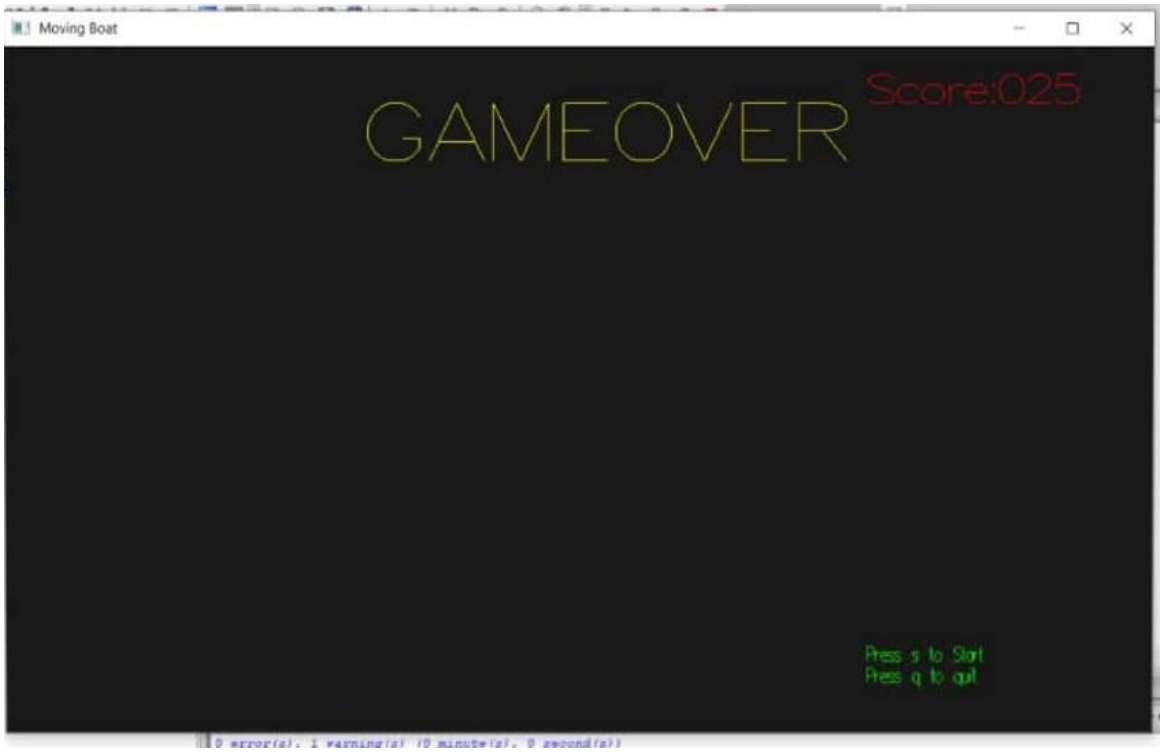
Snap 1:Starting page which shows two options
1.press s to start
2.press q to start



Snap 2: Shows that initially fishes appear randomly so that user can move and catch the fishes



Snap 3: Shows when a fish is caught the score increments



Snap 4: When the specified time is over shows the message as GAME OVER

6.1 CONCLUSION:

Nothing is perfect in this world. So, we are also no exception. Although, we have tried our best to present the information effectively, yet, there can be further enhancement in the Application. We have taken care of all the critical aspects, which need to take care of during the development of the Project.

This project is designed and implemented using OpenGL interactive application that basically deals with providing the graphical interfaces between user and system.

This project exhibits "FISHING GAME". Wherein there are 2 scenes, the 1st scene shows a sea with fish movements and in the 2nd scene we can see the fish catching the food block so that a fish caught has done the fishing which increments the score board. This project also consists of welcome page which is displayed at the beginning which consists of 2 options one is press 's' to start and press 'q' to quit. While playing if the specified time got over it shows Game over.

6.2 FUTURE ENHANCEMENTS:

Here we can try to implement the real time fishing by introducing fisher man with his fishing net in the boat there by it standardize the visualization of the fishing scene. And we can also introduce bonus score system and also the pop up notifications for scoring and also we can introdroce the life chances in the game. By designing this fishing game in 3D pictorization.

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