Report On

Rainy Day Stroll: A boy with an Umbrella

Submitted in partial fulfillment of the requirements of the Course project in
Semester III of Second Year Artificial Intelligence and Data Science

by
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CERTIFICATE

This is to certify that the project entitled “Rainy Day Stroll: A Boy with an Umbrella” is a bonafide work of "Suzen Machado (Roll No. 23), Lavanya Murudkar (Roll No. 31), Harsh Naik (Roll No. 32) submitted to the University of Mumbai in partial fulfillment of the requirement for the Course project in semester III of Second Year Artificial Intelligence and Data Science engineering.

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Abstract

The "**Rainy Day Stroll: A Boy with an Umbrella"** computer graphics program in C is designed to simulate a visually engaging rainy day scenario. This program utilizes fundamental graphics concepts and libraries to create a realistic depiction of a boy walking in the rain while holding an umbrella. It is an educational and creative project that showcases the potential of computer graphics in simulating natural phenomena and evoking emotions through visual storytelling.

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Introduction

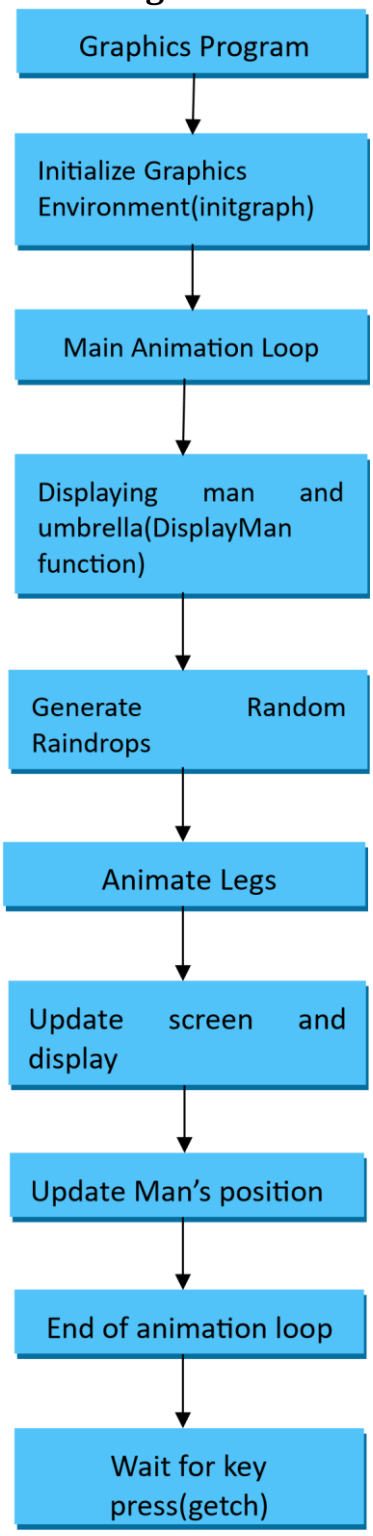
Computer has become a powerful tool for the rapid and economical production of pictures. Computer Graphics remain some the most exciting and rapidly growing fields. Old Chinese saying "One picture is worth of thousand words" can be modified in this computer into a "One picture is worth of many kilo by tes of data". It is natural to expect that graphical communication will often be more convenient when computers are utilised for this purpose. Many people for different domain of applications use interactive graphics. For example structural engineering use

for efficient design of structures on the basis of the analysis of stress in various elements of the structure. From the survey it is evident that in future, engineers, designers etc. will be using computer graphics quite extensively. There is virtually no area in which graphical displays cannot be used to some advantage, and so it is not surprising to find the use of computer graphics so wide spread. Today, we find Computer Graphics used routinely in such diverse areas such as science, engineering, medicine, business, industry, government, art, entertainment, advertising, education, training, etc. So for understanding the depth of this subject and forgaining sound knowledge in this field we had an attempted to the first step on this current field. We tried to make a graphically designated A Man Walking in the Rain. The Graphic Designated Man, Cloud,
Rain and Umbrella are made with the application of Graphics codes.

Problem Statement

The objective of this computer graphics project is to design and implement a realistic rainy day scenario, featuring a boy walking with an umbrella. The project aims to provide an engaging and educational experience for users, offering a glimpse into the world of computer graphics and its potential for creating visually compelling and emotionally resonant scenes.

Block Diagram/Description/Working



Working:

The main program initializes the graphics system, and then it enters an animation loop.

Inside the animation loop, various functions are called, including ‘displayMan’, ‘drawCloud’, and drawing the ground line. There's a loop for drawing random raindrops, and a mechanism to animate the man's legs and update his position. A delay function is used to control the animation speed. The program continues to loop until a key is pressed, at which point it exits the loop and eventually the program:

Here’s the simple overview of how the program works:

1. Initialize the graphics environment with initgraph.
2. Enter a loop that runs until a key is pressed.
3. Within the loop, the screen is cleared.
4. The man, a cloud, and a ground line are drawn.
5. Random raindrops are generated and drawn on the screen.
6. The man's legs are animated to simulate walking.
7. A delay controls the animation speed.
8. The man's horizontal position is updated to make him appear to move from left to right.
9. The loop continues until a key is pressed.
10. The program exits when a key is pressed.

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Software and Hardware used:

Software:

Turbo C/C++ IDE: The code is written in C and is intended to be compiled and run using the Turbo C/C++ integrated development environment (IDE). Turbo C/C++ was a popular IDE in the 1990s, primarily used for MS-DOS programming. It includes a text editor, a C/C++ compiler, and a graphics library for DOS-based applications.

Borland Graphics Interface (BGI): The program uses the Borland Graphics Interface (BGI) library, a part of Turbo C/C++, for handling graphics operations. BGI provides functions for drawing graphics elements like circles, lines, and arcs on the screen.

Hardware:

64 bits Microprocessor.

Code:

```
#include<conio.h>  #include<stdio.h>
#include<graphics.h>
void displayMan(int x,int y)
{               circle(x,y,10);                         //face
line(x,y+10,x,y+30);       //neck    line(x,y+30,x-
20,y+40);                   //left      hand
line(x,y+30,x+20,y+40);    //right hand
line(x+20,y+40,x+30,y+30);
```

```
line(x,y+30,x,y+70);                    //body
line(x+30,y+30,x+30,y-90);  //umbrella
pieslice(x+30,y-30,0,180,55);
 }
void drawCloud(int z,int y)
{
                        int r=50;

                        arc(z,y,45,135,r);
arc(z+50,y,45,135,r);
arc(z+100,y,45,135,r);
arc(z,y,135,225,r);
arc(z+50,y,135+90,225+90,r);
arc(z,y,135+90,225+90,r);
arc(z+100,y,135+90,225+90,r);
 arc(z+100,y,315,45,r);
}



void main()
{
   int gd=DETECT, gm,i,d=0,x=50,y=340,z=50,shouldMove=1;
int rx,ry;
   initgraph(&gd,&gm,"C:\\TURBOC3\\BGI");
while(!kbhit())
   {
            cleardevice();
            displayMan(x,340);

            drawCloud(z,60);
            line(0,430,639,430);

for(i=0;i<500;i++)
      {
         rx=rand()%639;
ry=rand()%439;
if(rx>=(x40)&&rx<=(x+110))
if(ry>=(y50)&&ry<=479)
continue;            line(rx-
10,ry+10,rx,ry);
      }
```

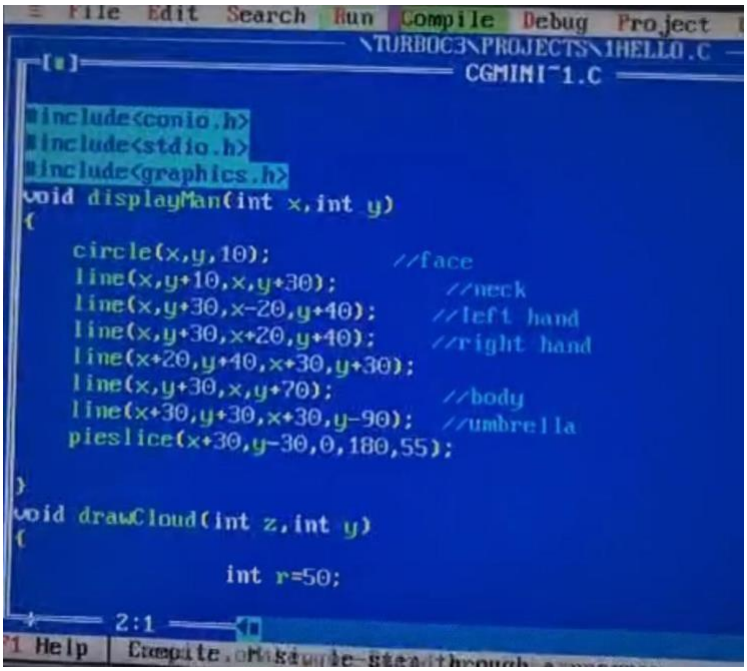
```
      //legs
if(shouldMove)
      {           if(d<20)
d+=4;
          else
              shouldMove=0;           line(x,y+70,x-
d,y+90);           line(x,y+70,x+d,y+90);
      }       else
      {           if(d>0)
d-=4;
          else
              shouldMove=1;           line(x,y+70,x-
d,y+90);
          line(x,y+70,x+d,y+90);
      }
      delay(200);
x=(x+10)%639;
   }
   getch();
}
```

Terms Explained:

- Header Files: The code includes necessary header files, such as <conio.h>, <stdio.h>, and <graphics.h>, for handling console input/output and graphics.
- displayMan Function: This function is responsible for drawing the man. It uses various graphics functions to draw the man's face, neck, arms, body, and an umbrella.
- drawCloud Function: This function draws a cloud on the screen using arcs at the specified position (z, y).
- main Function: This is the main function where the program execution begins.
- Variables are declared and initialized, including the graphics driver (gd), graphics mode (gm), position variables (x, y, z), and others.
- initgraph(&gd, &gm, "C:\\TURBOC3\\BGI"); initializes the graphics mode and sets up the graphics environment.

- The main loop, which runs while no key is pressed, clears the screen and displays the man, cloud, and a horizontal ground line.
- A loop is used to draw random raindrops on the screen, and they fall vertically.
- The legs of the man are animated to create a walking effect.
- The delay(200); function is used to control the animation speed.
- The man's horizontal position (x) is updated to make him move from left to right on the screen.
- The program continues to run until a key is pressed, at which point it exits the loop.
- getch(); waits for a key press to exit the program.

Result and Conclusion:



Conclusion:

This project is one of the sample project on Computer Graphics..
To had tried our best to include each and every basic features of graphics in our projects. We aimed it to be an interfacing application to the real world that means our project must not be a project for any examination but also applicable for real world use. We have able to give some benefits to the disability. It some how makes our life easier in this or that way. From this very project we were able to achieve various knowledge in computer graphics and also in logical of group work, team coordination. We learned how team work is very much important in coding. We refresh our knowledge in C Programming. Moreover we also gained an experience engineering field.

References:

Books/article:

[1]Donald, Hearn. Computer Graphics. Pearson Education: 2005, Pearson Education.

Web reference:

1. **www.learnstreet.com**
2. **https://www.sourcecodesworld.com**