Report On

Moving Smiley Face

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

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CERTIFICATE

This is to certify that the project entitled “Moving Smiley Face” is a bonafide work of " Mitanksh Gosalia (Roll No.13), Sunit Sunil Khaire (Roll No. 21), Kiran Dhuri (Roll No. 07)" 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

This code snippet showcases a simple graphical animation using the graphics.h library in C. It initializes a graphics window and continuously updates it to create the animation of a smiley face. The animation includes drawing a face, eyes, and a moving mouth. The program runs until a key is pressed, making it a basic example of graphics programming in C. It can serve as a starting point for those interested in learning how to create graphical animations and applications in C.

Problem Statement

The aims is to create a simple graphical animation of a moving smiley face using the graphics.h library in Turbo C++ in simple C language.

Module Description

The provided code snippet represents a module in C that creates a simple graphical animation of a smiley face using the graphics.h library. Here's a breakdown of the module's functionality:

1. Initialization: The module starts by initializing the graphics system using the initgraph function. It specifies the graphics mode (DETECT) and the graphics driver (gm) and provides a path to the BGI (Borland Graphics Interface) file.

2. Animation Loop: The main loop runs while no key is pressed (!kbhit()). Inside the loop, the program draws the smiley face repeatedly to create the animation.

3. Drawing the Smiley Face: The smiley face consists of three main elements: the face, the eyes, and the mouth. It first draws the elements in black (setcolor(BLACK)) and then in white (setcolor(WHITE)) to create the animation effect.

i)The face is drawn as a circle centered at (x, y) with a radius of 100.

ii)Two eyes are drawn as circles offset from the center of the face.

iii)The mouth is drawn as an arc within the face.

4. Animation Control: A delay of 100 milliseconds is introduced between drawing frames to control the speed of the animation (delay(100)).

5. Animation Loop Control: The x coordinate is incremented in each iteration, which shifts the entire smiley face horizontally.

6. User Interaction: The animation continues until a key is pressed (kbhit()), at which point the program exits the loop.

7. Cleanup: After the loop ends, the getch() function is used to wait for a user input (typically a key press) before closing the graphics window. Finally, the closegraph() function is called to release the graphics resources.

This module provides a simple example of graphics programming in C, creating a basic animated smiley face.

Brief Description of Software and Hardware Used and Its Programming

Software Used:

1. Graphics.h Library: The code uses the graphics.h library, which is part of the Turbo C/C++ development environment. This library provides functions for graphics programming in C/C++ and is used to create graphical user interfaces and animations.
2. DOS.h Library: The dos.h library is included, but it is not used explicitly in the code. Historically, dos.h provided functions for controlling and accessing DOS (Disk Operating System) services. It was often used in older C/C++ programs for low-level operations.
3. Turbo C++: This Software is used for executing the C code.

Hardware:

1. Computer: The code itself does not interact directly with hardware components. It relies on the graphics.h library to interact with the graphics hardware of the system. The specific hardware requirements depend on the graphics driver selected during initialization (initgraph). A standard computer system with sufficient processing power and memory to run this code and execute the code. The hardware requirements are typically minimal for C-Programmed Animation.
2. Keyboard: A keyboard is required to stop the animation by pressing Enter key.

Programming:

This C code demonstrates simple graphics programming to create an animated smiley face. Here's a all type of its functionality:

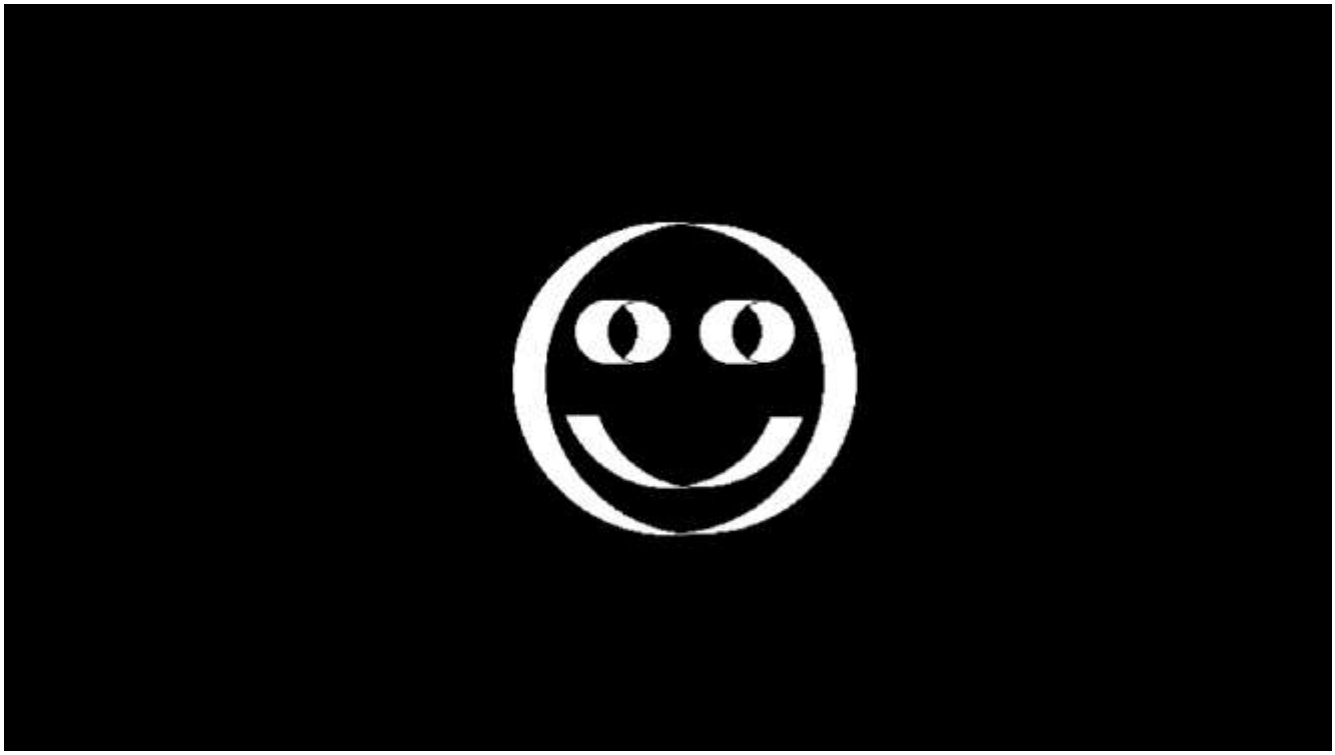
1. Initialization: It sets up the graphics environment by initializing graphics mode and driver using initgraph() and provides the path to the BGI file.
2. Animation Loop: The code enters a continuous loop to run the animation until a key is pressed (!kbhit()).
3. Drawing the Smiley Face: The code uses graphics.h functions to draw a smiley face with a face, eyes, and a mouth. It alternates between black and white colors to create a basic animation effect.
4. Animation Control: A delay of 100 milliseconds (delay(100)) controls the animation speed.
5. Animation Loop Control: The smiley face shifts horizontally by incrementing the x coordinate in each iteration, creating a left-to-right animation.
6. User Interaction: The animation continues until a key is pressed, at which point the program exits the loop and waits for user input.
7. Cleanup: After the loop ends, getch() waits for user input, and closegraph() is called to release resources and close the graphics window.

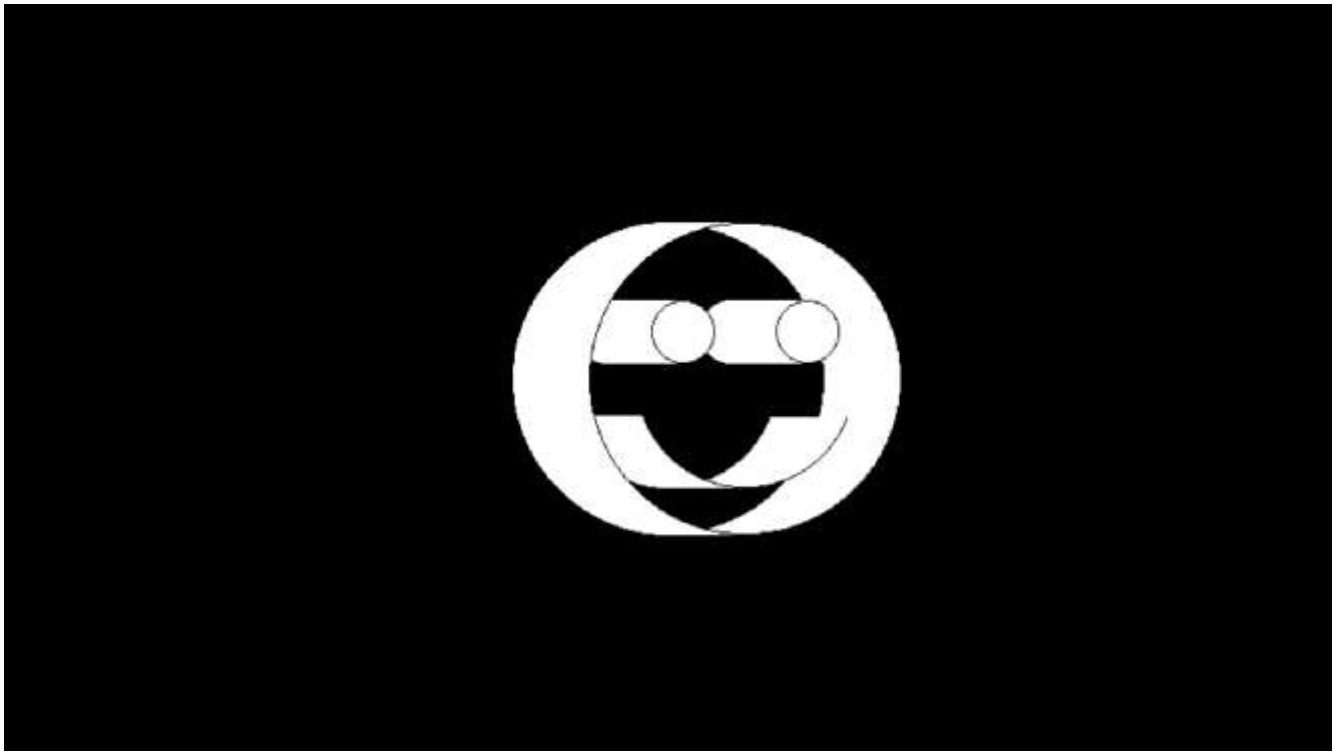
CODE:

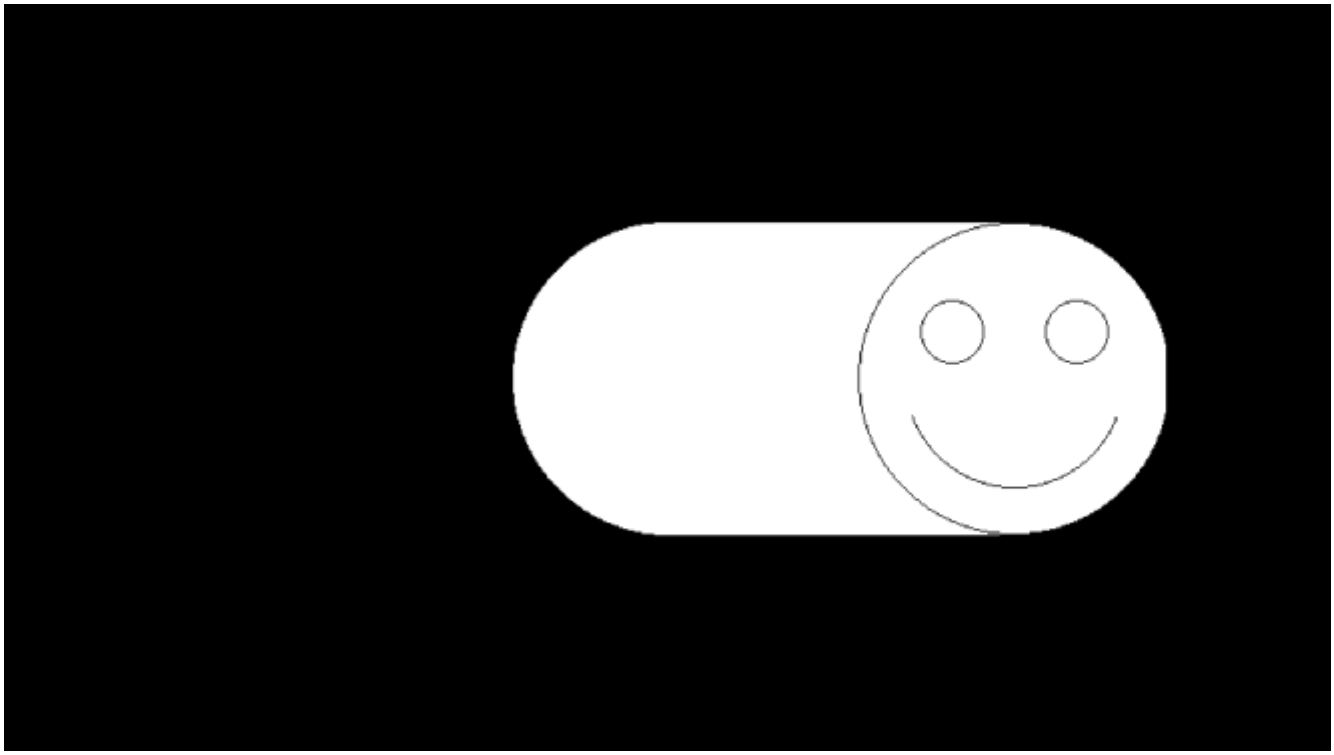
```
#include <graphics.h>
#include <dos.h>
int main() {
```

```
Int x=320,y=240;
   int gd = DETECT, gm;
   initgraph(&gd, &gm, "C:\\TC\\BGI");
   while (!kbhit()) {
      setcolor(BLACK);
      // Draw face
      circle(x, y, 100);
      // Draw eyes
      circle(x - 40, y - 30, 20);
      circle(x + 40, y - 30, 20);
      // Draw mouth
      arc(x, y, 200, 340, 70);
      delay(100);
      setcolor(WHITE);
      // Draw face
      circle(x, y, 100);
      // Draw eyes
      circle(x - 40, y - 30, 20);
      circle(x + 40, y - 30, 20);
      // Draw mouth
      arc(x, y, 200, 340, 70);
      x++;
   }
   getch();
   closegraph();
   return 0;
}
```

Results and Conclusion:







Conclusion:

In this code, a simple animation of a smiley face is created using the graphics.h library. The program initializes a graphics window and continuously redraws a smiley face with a moving mouth. The animation runs until a key is pressed. This code is a basic example of graphics programming in C.

In conclusion, the code demonstrates how to use the graphics.h library to create a simple graphical animation. It sets up a window, continuously updates the screen, and waits for user input. While this code is a straightforward illustration, it serves as a starting point for more complex graphics applications and animations in C.