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**Micro Project Proposal**

# Bouncing Ball Using Computer Graphics

## 1. Aims/Benefits of the Micro-Project:

1. Understand the implementation of graphics program.

2. To learned that how to bounce the ball using graphics function.

3. To understand the various functions and their uses.

## 2. Course Outcome Addressed:

1) CO1-Manipulate visual and geometric information of images.

2) CO2-Implement standard algorithms to draw various graphics object using C program.

3) CO3-Devolop programs for 2-D and 3-D Transformations.

4) CO4- Use projections to visualize objects on view plane.

5) CO5-Implement various clipping algorithms.

6) CO6-Devolop programs to create curves using algorithms.

## 3. Proposed Methodology:

Here we are using computer graphics to execute Bouncing Ball Animation.

We have added functions ( like initgraph(), setfillstyle(), delay(), flood_fill(), !kbhit(), circle() ) And many more.

Bouncing Ball perform movement of Ball with using above functions.

### 4.Action Plan:

| Sr. No. | Details of Activity | Planned Start date | Planned Finish date | Name of Responsible Team Members |
|---------|---------------------|--------------------|--------------------|----------------------------------|
| 1 | Search the topic | 29/08/2022 4:00pm-5:00pm | 5/09/2022 4:00pm-5:00pm | Bavge Prathmesh & Thakur Aditya |
| 2 | Search the information | 12/09/2022 4:00pm-5:00pm | 19/09/2022 4:00pm-5:00pm | Bavge Prathmesh & Nalwade Kunal |
| 3 | Algorithm developing | 26/09/2022 4:00pm-5:00pm | 03/10/2022 4:00pm-5:00pm | Dhange Rohit & Nalwade Kunal |

| 4 | Flowchart developing | 10/10/2022 4:00pm-5:00pm | 15/10/2022 4:00pm-5:00pm | Thakur Aditya & Bavge Prathmesh |
|---|---|---|---|---|
| 5 | Function making | 31/10/2022 4:00pm-5:00pm | 07/11/2022 4:00pm-5:00pm | Thakur Aditya & Rohit Dhange |
| 6 | Coding developing | 14/11/2022 4:00pm-5:00pm | 21/11/2022 4:00pm-5:00pm | Bavge Prathmesh |
| 7 | Debugging | 28/11/2022 4:00pm-5:00pm | 05/12/2022 4:00pm-5:00pm | Nalwade Kunal & Rohit Dhange |
| 8 | Finalizing Project with its report | 12/12/2022 4:00pm-5:00pm | 19/12/2022 4:00pm-5:00pm | Thakur Aditya |

## 5. Resources Required:

| Sr. No. | Name of resource / material | Specification | Quantity | Remarks |
|---|---|---|---|---|
| 1 | Computer | WINDOWS 11,4 GB RAM, 1 TB HDD | 1 | |
| 2 | Operating System | WINDOWS 11 | 1 | |
| 3 | Compiler | Turbo C | 1 | |
| 4 | Browser | Chrome | 1 | |

## 6.Names of Team Members with Roll No.'s:

| Sr. No. | Enrollment No. | Name of Team Member | Roll No. |
|---|---|---|---|
| 1 | 2110950062 | Mr. Bavge Prathmesh Santosh | 14 |
| 2 | 2110950065 | Mr. Thakur Aditya Vithalrao | 17 |
| 3 | 2110950068 | Mr. Dhange Rohit Shivasharan | 20 |
| 4 | 2110950099 | Mr. Nalwade Kunal Nitin | 50 |

**Mr. Kazi A.S.M.**

**Name and Signature of the Teacher**

## Micro-Project Report

# <u>Bouncing Ball Using Computer Graphics</u>

## 1. Rationale:

Creating a Bouncing Ball Animation for Learning And Fun in Turbo C.

## 2.Aims/Benefits of the Micro-Project:

1. Understand the implementation of graphics program.

2. To learned that how to bounce the ball using graphics function.

3. To understand the various functions and their uses.

## 3. Course Outcomes Achieved:

1) CO1-Manipulate visual and geometric information of images.

2) CO2-Implement standard algorithms to draw various graphics object using C program.

3) CO3-Devolop programs for 2-D and 3-D Transformations.

4) CO4- Use projections to visualize objects on view plane.

5) CO5-Implement various clipping algorithms.

6) CO6-Devolop programs to create curves using algorithms.

## 4. Literature Review:

Here we are using computer graphics to execute Bouncing Ball Animation.

We have added functions ( like initgraph(), setfillstyle(), delay(), flood_fill(), !kbhit(), circle() ) And many more.

Bouncing Ball perform movement of Ball with using above functions.

**Functions we are used :**

| Function | Description |
|----------|-------------|
| initgraph | It initializes the graphics system by loading the passed graphics driver then changing the system into graphics mode. |
| getmaxx | It returns the maximum X coordinate in current graphics mode and driver. |
| setcolor | It changes the current drawing colour. Default colour is white. Each color is assigned a number, like BLACK is 0 and RED is 4. Here we are using colour constants defined inside graphics.h header file. |
| setfillstyle | It sets the current fill pattern and fill color. |
| circle | It draws a circle with radius r and centre at (x, y). |
| floodfill | It is used to fill a closed area with current fill pattern and fill color. It takes any point inside closed area and color of the boundary as input. |
| cleardevice | It clears the screen, and sets current position to (0, 0). |
| kbhit | It is used to determine whether a key is pressed or not. It returns a non-zero value if a key is pressed otherwise zero. |
| delay | It is used to suspend execution of a program for a M milliseconds. |
| closegraph | It unloads the graphics drivers and sets the screen back to text mode. |

# 5 Actual MethodologyFollowed:

## 5.1 Flow Chart:
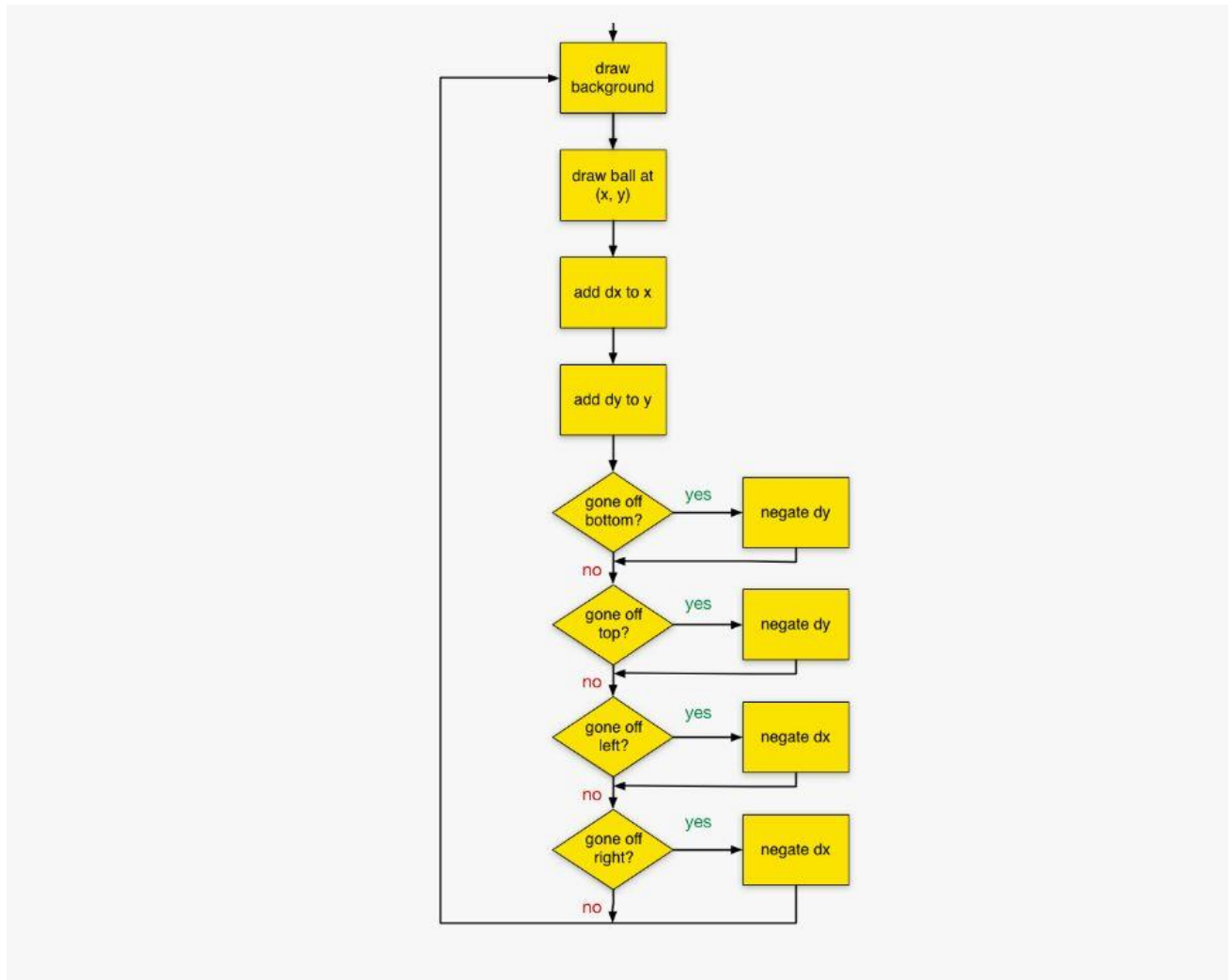


## 5.2 Source Code:

### Bouncing Ball using Computer Graphics.

```c
#include <stdio.h>
#include <conio.h>

int main()
{
 int gd = DETECT, gm;
 int i, x, y, flag=0;
 initgraph(&gd, &gm, "C:\\TC\\BGI");
```

```
/* get mid positions in x and y-axis */
x = getmaxx()/2;
y = 30;

while (!kbhit()) {
 if(y >= getmaxy()-30 || y <= 30)
    flag = !flag;
    /* draws the gray board */
    setcolor(RED);
    setfillstyle(SOLID_FILL, RED);
    circle(x, y, 30);
    floodfill(x, y, RED);

/* delay for 50 milli seconds */
delay(50);

/* clears screen */
cleardevice();
if(flag){
    y = y + 5;
} else {
    y = y - 5;
}
    }
    getch();
    closegraph();
    return 0;
}
```
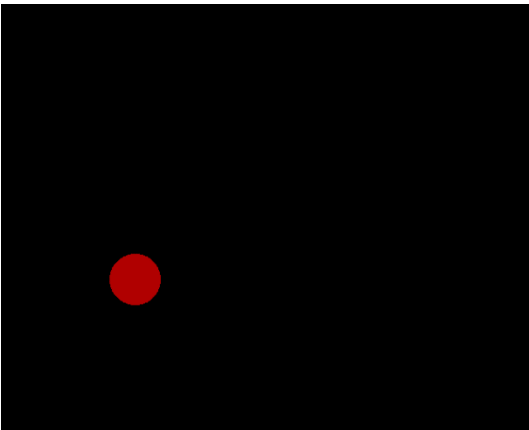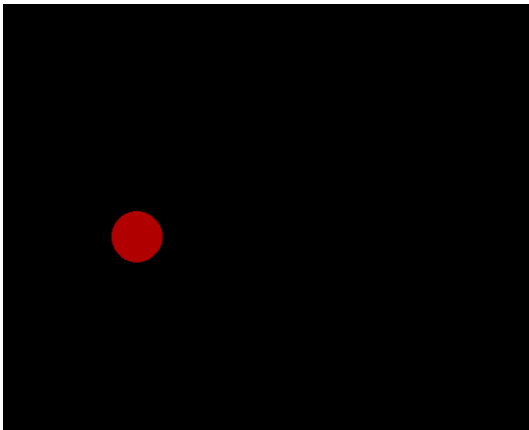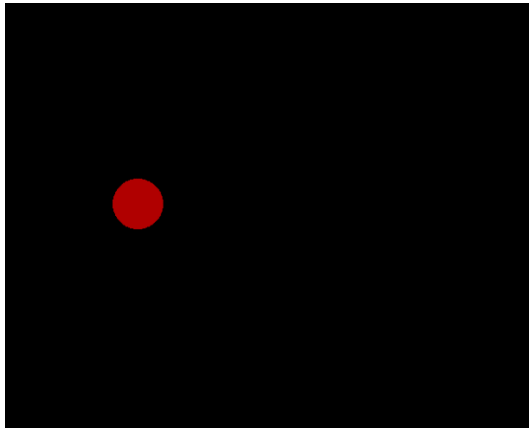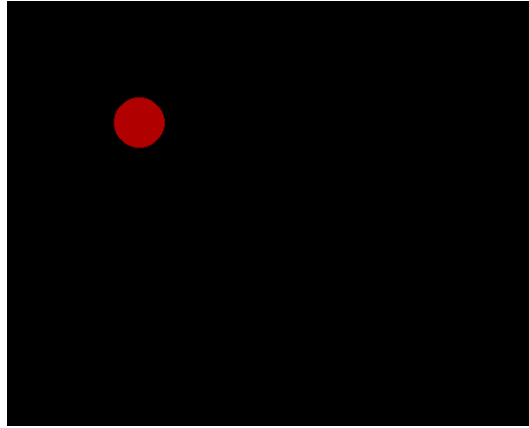
## 6. Actual Resources Used:

| Sr. No. | Name of resource / material | Specification | Quantity | Remarks |
|---------|------------------------------|---------------|----------|---------|
| 1 | Computer | WINDOWS 11,4GB RAM, 1TB HDD | 1 | |
| 2 | Operating System | WINDOWS 11 | 1 | |
| 3 | Compiler | Turbo C | 1 | |
| 4 | Browser | Chrome | 1 | |

**7.Outputs of Micro-Projects:**

## 8.Skill developed / Learning out of this Micro-Project:

There are so many thing that we learn from this project of

1. We learn that how to make the project in computer graphics program.
2. How to do the testing of program in turbo c.
3. How to collect the information and how to make the presentation that we learn from this project.
4. We develop our logic implementation for programing and coding.
5. We learn to use functions in computer graphics.
7. We learn some keywords from 'graphics.h' header file.
8. This all thing we learn from this project.

## 9. Applications of this Micro-Project:

1. It can be used to learn code of Bouncing Ball.
2. It can also be used to learn some computer graphics terms like circle(),flood-fill() and other functions.
3. For Fun.

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