MVPS's
RAJARSHI SHAHU MAHARAJ POLYTECHNIC, NASIK

COMPUTER TECHNOLOGY DEPARTMENT.

ACADEMIC YEAR 2020-21

COMPUTER GRAPHICS (22318)

MICRO-PROJECT
ON

"Program to Display a Moving Car"

SUBMITTED BY

SR. NO	ENROLLMENT NO	EXAM SEAT NO	STUDENT NAME
1	1910020362	240630	Savant Omkar Vitthal
2	1910020360	240628	Raut Atharva Satish
3	1610020163	240586	Wani Pushpak Shrikant

MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

CERTIFICATE

This is to certify that Ms./Mr. Savant Omkar Vitthal

Roll No. 45 of 3rd semester of Diploma in **Computer Technology** of Institute **MVPS's Rajarshi Shahu Maharaj Polytechnic, Nasik (Code: 1002)** has successfully completed micro-project in **COMPUTER GRAPHICS (22318)** for academic year 2018-19 as prescribed in curriculum of MSBTE, Mumbai.

Place: Nashik

Enrollment no.:1910020362

Date:11/02/21

Exam seat no:240630

Prof.P.N.Patil	**Prof.P.D.Boraste**	**Prof.D.B.Uphade**
Course Teacher/Guide	**H.O.D**	**Principal**

Seal of institute

MVPS's RAJARSHI SHAHU MAHARAJ POLYTECHNIC,NASIK

Institute Code: 1002

COMPUTER TECHNOLOGY DEPARTMENT

Log Book for Micro Project

Academic Year :- 2020-21 **Scheme :- I**
Semester :- III **Class:- SYCM**
Name of Course :- Computer Graphics (CGR) **Course Code:- 22318**

Title of the project: Program to Display a Moving Car

Group Members:-

Sr. No.	Roll No.	Enrollment Number	Exam Seat No.	Name of the Student	Signature of student
1	45	1910020362	240630	Savant Omkar Vitthal	
2	43	1910020360	240628	Raut Atharva Satish	
3	1	1610020163	240586	Wani Pushpak Shrikant	

Project Reporting:

Sr. No.	Date	Discussion & details	Group members present	Teacher's comment/ remark	Signature of teacher
1		Formation of groups			
2		Discussion on concept of Micro Project			
3		Topic selection for the Micro Project			
4		Preliminary discussion with guide			
5		Submission of Micro Project proposal			
6		Information Gathered			
7		Literature survey (Introduction)			
8		Discussion with guide			
9		Design of GUI and output			
10		Code generation of modules			
11		Error Evaluation			
12		Merging of all individual modules into one single module			
13		Draft copy of report.			
14		Final report writing			
15		Presentation & oral			
16		Final submission			

\

MVPS's RAJARSHI SHAHU MAHARAJ POLYTECHNIC,NASIK
Institute Code: 1002
COMPUTER TECHNOLOGY DEPARTMENT

Rubrics for Evaluation of Micro Project

Academic Year :- 2020-21 **Scheme :- I**

Semester :- III **Class:- SYCM**

Name of Course :- Computer Graphics (CGR) **Course Code:- 22318**

Group Members:-

Sr. No.	Roll No.	Enrollment Number	Exam Seat No.	Name of the Student	Signature of student
1	45	1910020362	240630	Savant Omkar Vitthal	
2	43	1910020360	240628	Raut Atharva Satish	
3	1	1610020163	240586	Wani Pushpak Shrikant	

Sr. No.	Criteria	Indicators of different levels of performance					Marks obtained
		Poor (01)	Satisfactory (02)	Good (03)	Very Good (04)	Excellent (05)	
1	Selection Of Application (Programming Elements)						
2	Concept/ Content/ Function Descriptions						
3	Coding						
4	Error solving						
5	Timely Submission						
Total marks Out of 25							
Marks Out of 6							

Ms.P.N.Patil
Name & Signature of Course Teacher/Guide

MVPS's RAJARSHI SHAHU MAHARAJ POLYTECHNIC,NASIK

Institute Code: 1002

COMPUTER TECHNOLOGY DEPARTMENT

ANNEXTURE II

Academic Year: 2020-2021 **Name of Faculty:** Ms.P.N.Patil

Course: Computer Graphics (CGR) **Course code:** 22318 **Semester:** III

Title of the project: **Program to Display a Moving Car**

COs addressed by the Micro Project:

CO-318.1 Manipulate visual and geometric information of image
CO-318.2 Implement standard algorithm to draw various graphics object using C program
CO-318.3 Develop programs for 2D and 3D transformation.
CO-318.4 Use projection to visualize object on view plane.
CO-318.5 Implement various clipping algorithms.
CO-318.6 Develop programs to create curves using algorithm

Major learning Outcomes achieved by students by doing the Project:

a) **Practical Outcomes**
……
……

b) **Unit outcomes in cognitive domain**
……
……

c) **Outcomes in affective domain**
……
……

Comment/Suggestions about team work/leadership/inter-personal communication (if any)
……
……

Roll. No.	Enrollment no	Exam seat no	Student Name	Marks out of 6 for performance in group activity	Marks out of 4 for performance oral/ presentation	Total out of 10
45	1910020362	240630	Savant Omkar Vitthal			
43	1910020360	240628	Raut Atharva Satish			
1	1610020163	240586	Wani Pushpak Shrikant			

Ms. P.N.Patil
Course Teacher/Guide

Mr.P.D.Boraste
H.O.D

INDEX

Abstract:

This paper is scrutinizes the use of different terms and syntaxes in Computer Graphics, enabling viewer to get the complete concept of different aspects of Computer Graphics. To satisfy this we created a simple animation of a car moving from one point to another point which is created by various terms of graphics. A little use of looping is also used as a reference to the output, satisfying every need of a perfect graphics program.

INTRODUCTION

Computer graphics is a sub-field of computer science which studies methods for digitally synthesizing and manipulating visual content. Although the term often refers to the study of three-dimensional computer graphics, it also encompasses two-dimensional graphics and image processing**.** Computer graphics studies the manipulation of visual and geometric information using computational techniques. It focuses on the mathematical and computational foundations of image generation and processing rather than purely aesthetic issues. Computer graphics is often differentiated from the field of visualization, although the two fields have many similarities. Computer graphics deals with generating images with the aid of computers. Today, computer graphics is a core technology in digital photography, film, video games, cell phone and computer displays, and many specialized applications. n computer graphics, two or three-dimensional pictures can be created that are used for research. Many hardware devices algorithm has been developing for improving the speed of picture generation with the passes of time. It includes the creation storage of models and image of objects. These models for various fields like engineering, mathematical and so on. Today computer graphics is entirely different from the earlier one. It is not possible. It is an interactive user can control the structure of an object of various input devices

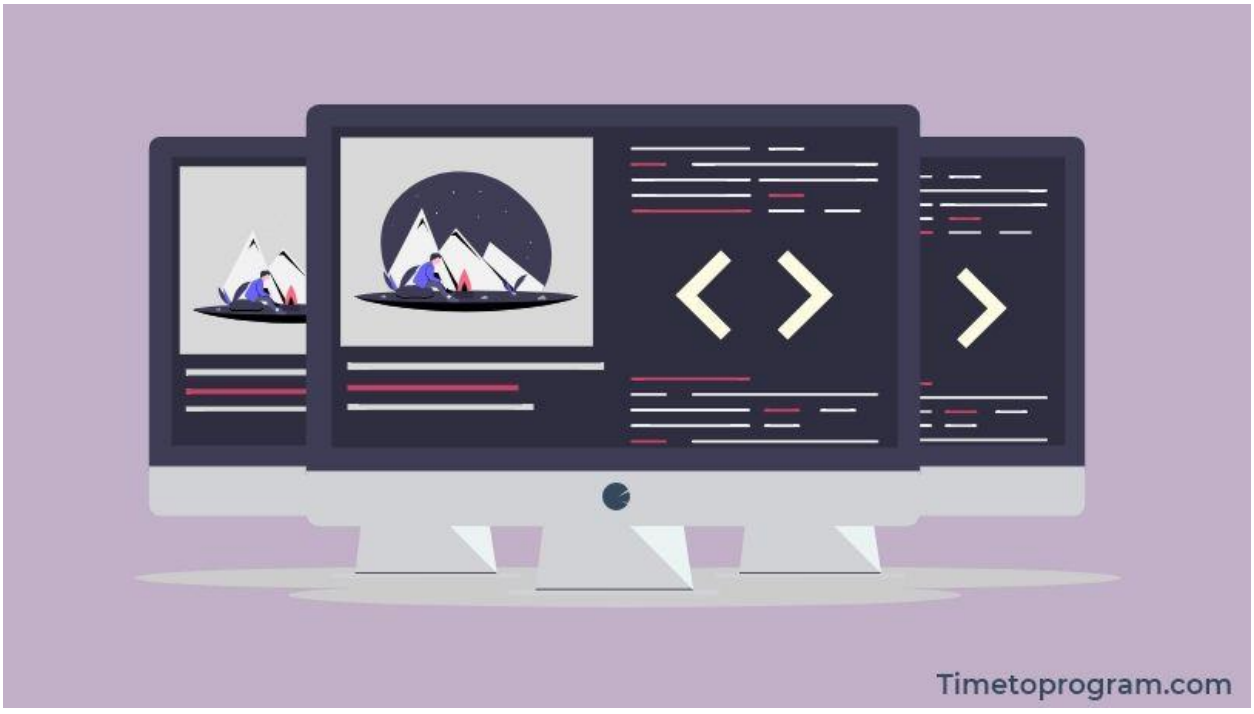

Fig.1. Computer Graphics

Literature Survey:

Graphics is defined as any sketch or a drawing or a special network that pictorially represents some meaningful information. Computer Graphics is used where a set of image needs to be manipulated or the creation of the image in the form of pixels and is drawn on the computer. Computer Graphics can be used in digital photography, film,entertainment, electronic gadgets and all other core technologies which are required. It is a vast subject and area in the field of computer science. Computer Graphics can be used in UI design, rendering, geometric object, animation and many more.In most area, computer graphics is an abbreviation of CG. There are several tools used for implementation of Computer Graphics. The basic is the <graphics.h> header file in Turbo-C, Unity for advanced and even OpenGL can be used for it's Implementation. It was invented in 1960 by great researchers Verne Hudson and William Fetter from Boeing.

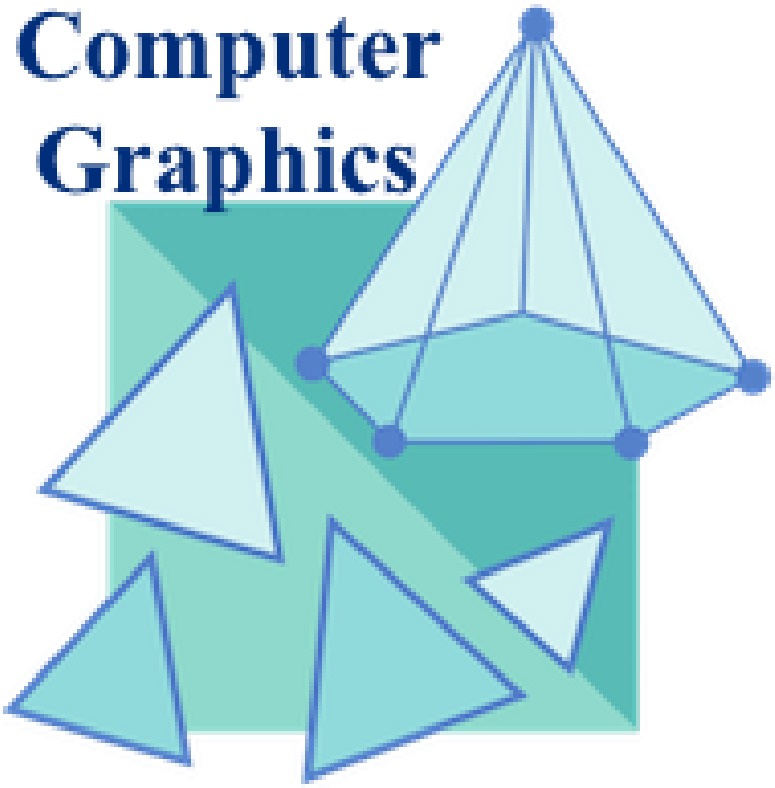

Fig.2.Computer Graphics II

System Designing:

This is a simple program which specifies the use of computer graphics in our daily life. It shows the animation of a car moving pixel by pixel until it reaches its destination. All aspects and terms of Computer Graphics were considered while creating this program.

First we included standard header files which is essential for every C and graphics program. We have to also include graphics header files which was mandatory to include in order to make program work. Then we created a function to make program a lit bit easier to understand and work.

In the function, we initalised graphics drivers and graphics mode. Then we started the program with a for loop in order to make a continuos loop of statements. We specifically chose for loop because it gave us more control than while or do-while loop, thanks to its condition statement accessibility. We set Parameter for For loop as: for (i=0;i<=420;i=i+10). This made the looping accessbile to the Output Screen making it viewable on screen. Then we set the color to white so that the outuput can be clearly seen on screen. We used a bunch of Line and Circle statements to design a car. Then with the help of increment operators we moved it by pixel everytime the loop is executed. Then we closed the graphics mode by closegraph() fuction.

After Completing the function we placed executed it in the main function of program, finishing the program. And it gives us the expected output we needed.

Main Statements Used:

```
#include<graphics.h>

#include<stdio.h>

initgraph(&gd,&gm.”C://TC3//BGI”)

for (i=0;i<=420;i=i+10)

line(0 + i, 300, 210 + i, 300)

circle(65 + i, 330, 15);

delay(100);

getch();

closegraph();

int main()

draw_moving_car();

return 0;
```

Source Code

```
#include <graphics.h>
#include <stdio.h>

void draw_moving_car(void) {

    int i, j = 0, gd = DETECT, gm;
    initgraph(&gd, &gm, "C:\\TC3\\BGI");

    for (i=0;i<=420;i=i+10)
    {


    setcolor(WHITE);
    line(0 + i, 300, 210 + i, 300);
    line(50 + i, 300, 75 + i, 270);
    line(75 + i, 270, 150 + i, 270);
    line(150 + i, 270, 165 + i, 300);
    line(0 + i, 300, 0 + i, 330);
    line(210 + i, 300, 210 + i, 330);


    circle(65 + i, 330, 15);
    circle(65 + i, 330, 2);
    circle(145 + i, 330, 15);
    circle(145 + i, 330, 2);
    line(0 + i, 330, 50 + i, 330);
    line(80 + i, 330, 130 + i, 330);
    line(210 + i, 330, 160 + i, 330);
    delay(100);
```

Fig.3.1. Code

```
    setcolor(BLACK);
    line(0 + i, 300, 210 + i, 300);
    line(50 + i, 300, 75 + i, 270);
    line(75 + i, 270, 150 + i, 270);
    line(150 + i, 270, 165 + i, 300);
    line(0 + i, 300, 0 + i, 330);
    line(210 + i, 300, 210 + i, 330);
    circle(65 + i, 330, 15);
    circle(65 + i, 330, 2);
    circle(145 + i, 330, 15);
    circle(145 + i, 330, 2);
    line(0 + i, 330, 50 + i, 330);
    line(80 + i, 330, 130 + i, 330);
    line(210 + i, 330, 160 + i, 330);
    }
    getch();
    closegraph();
}
int main()
{
    draw_moving_car();
    return 0;
}
```

Fig.3.2. Code II

Flowchart

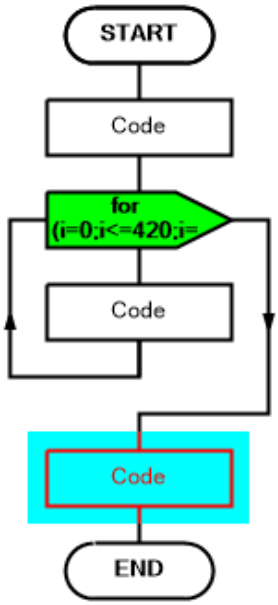

Fig.4.Flowchart

Algorithm

1. Start
2. Declare variable i,j
3. Intialise graphics driver and graphics mode.
4. Check for condition.
5. If condition is true then go to step 6, otherwise go to step 8.
6. Execute the code and increment i.
7. Go to step 4.
8. Stop.

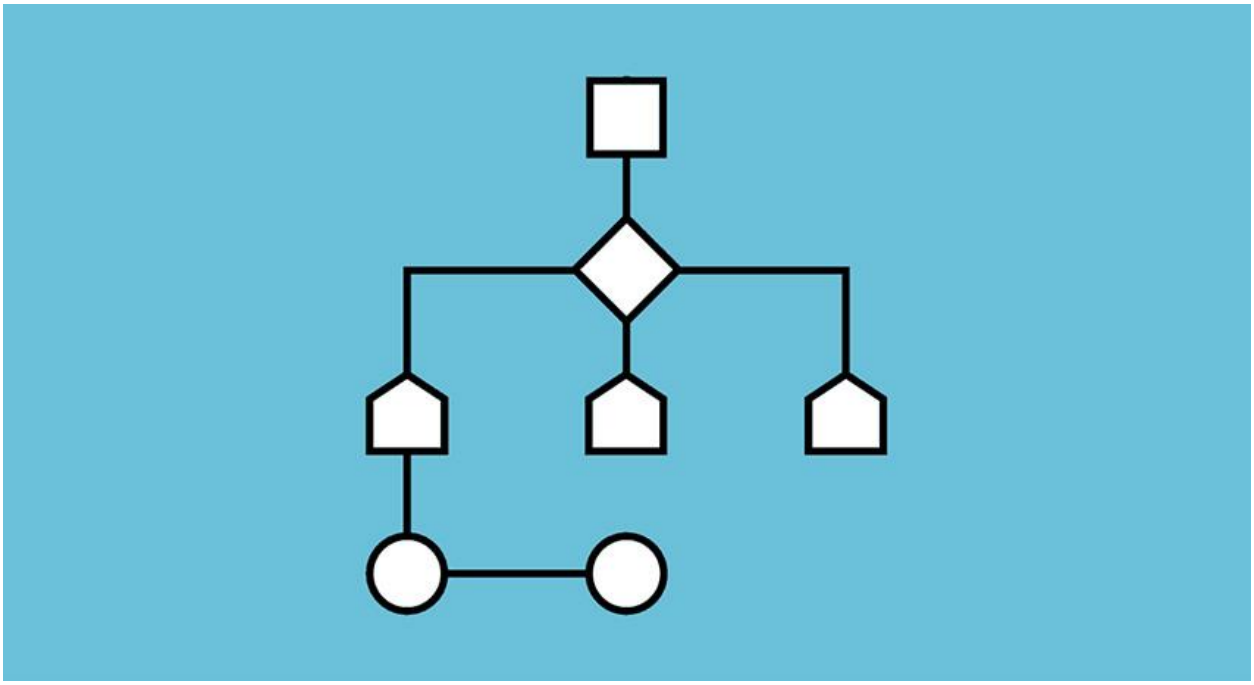

Fig.5. Algorithm

Output

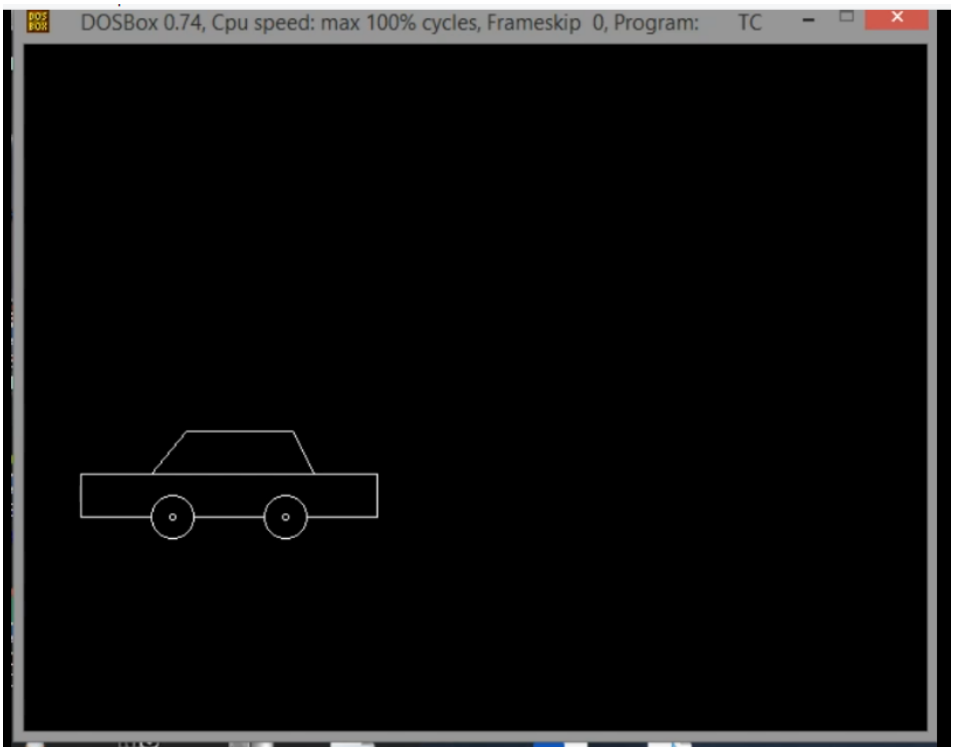

Fig.6.1. Output

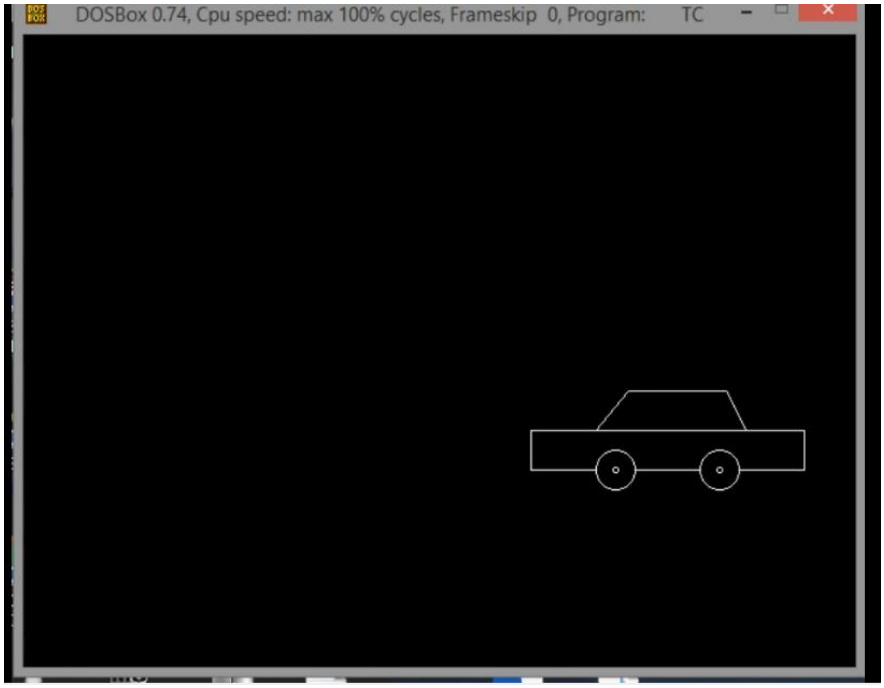

Fig.6.2. Output II

Conclusion

To display a picture of any size on a computer screen is a difficult process. Computer graphics are used to simplify this process. Various algorithms and techniques are used to generate graphics in computers. It involves computations, creation, and manipulation of data.

In other words, we can say that computer graphics is a rendering tool for the generation and manipulation of images. Interactive computer graphics work using the concept of two-way communication between computer users. The computer will receive signals from the input device, and the picture is modified accordingly.

Picture will be changed quickly when we apply command.

Future Scope

This project will help users to understand about grpahics and understand them. Computer Graphics mean creating images with use of computer. It is a main aspect of Computer Science. So in order to learn various concepts and aspects of Graphics we have created this project using C and C++. This project contains a lot of work especially the creator. Using various statement makes the work messy but fruitful.

Animation is main aspect of graphics. Real Life interaction make things better understandable. It make's people learn faster as compared to plain text. Computer Graphics focuses on it complexity and logic more easy than it shall look.

This project is prototype right now, but it will be more developed in future. As we learn more concepts about it the more developed it will be as time passes. All sort of information was adapted from learning and practicing.

Users Discretion is Advised.

References

[1] "geometryprocessing.org". geometryprocessing.org. Retrieved 2014-05-01.
[2] Archived March 14, 2007, at the Wayback Machine
[3] "High Performance Graphics". highperformancegraphics.org.
[4] "Best Practices Memo". Cra.org. Archived from the original on 2014-05-02. Retrieved 2014-05-01.
[5] "Choosing a venue: conference or journal?". People.csail.mit.edu. Retrieved 2014-05-01.
[6] "Graphics/vision publications acceptance rates statistics". vrlab.epfl.ch. Retrieved 2014-05-01.
[7] An extensive history of computer graphics can be found at this page Archived April 5, 2007, at the Wayback Machine.
[8] "Point Based Graphics 2007 - PBG07". Graphics.ethz.ch. Retrieved 2014-05-01.
[9] "Ron Fedkiw". graphics.stanford.edu. Retrieved 2014-05-01.
[10] Archived February 14, 2007, at the Wayback Machine
[11] CS 598: Digital Geometry Processing (Fall 2004) Archived 2004-10-25 at Archive.today
[12] "Digital Geometry Processing". cs.ubc.ca. Retrieved 2014-05-01.
[13] "Discrete Differential Geometry". ddg.cs.columbia.edu. Retrieved 2014-05-01.