Faculty of Computers, Informatics and Microelectronics
Technical University of Moldova

Windows Programming
Laboratory work # 4

Windows Timer. Animation.

Author :
Bantuș Vladislav

Supervisor :
Mihai Coșleț

April 11, 2018

Laboratory work #4

1 Laboratory Work Requirements

Mandatory Objectives

- Create an animation based on Windows timer which involves at least 5 different drawn objects

Objectives With Points

- Increase and decrease animation speed using mouse wheel (2 pt)
- Solve flickering problem (2 pt) *please describe in your readme/report how you did it*
- Add animated objects which interact with each other (2-6 pt), ex.:
    - Few balls which have different velocity and moving angles. In order to get max points, add balls with mouse, make balls to change color on interaction and any other things that will show your engineering spirit
    - Any other interesting and reach in animation application
- Animate a Nyan Cat that leaves a rainbow tail (Math.floor(+35% for task with interacting objects))

2 Laboratory work implementation

2.1 Tasks and Points

Mandatory Objectives

- Create an animation based on Windows timer which involves at least 5 different drawn objects

All mandatory objectives are implemented !

Objectives With Points

- Increase and decrease animation speed using mouse wheel (2 pt)
  - User can change animation speed using mouse wheel
- Solve flickering problem (2 pt) *please describe in your readme/report how you did it*
  - The flickering problem is solved
- Add animated objects which interact with each other (2-6 pt), ex.:
  - Few balls which have different velocity and moving angles. In order to get max points, add balls with mouse, make balls to change color on interaction and any other things that will show your engineering spirit
    - User can add balls with mouse just by clicking on the form , added balls will have different moving angles and will change their color on interaction .
  - Any other interesting and reach in animation application
    - User can stop animation by pressing on the key ”B” and start it by pressing on the ”B” one more time .
- Animate a Nyan Cat that leaves a rainbow tail (Math.floor(+35% for task with interacting objects))

10p / 13p

2.2 Laboratory work analysis

Link to my repository - https://github.com/Vladdd97/PPE.git

In this application an user can add balls just by clicking on the form and change their moving speed using Mouse Wheel .

3.3 Screens

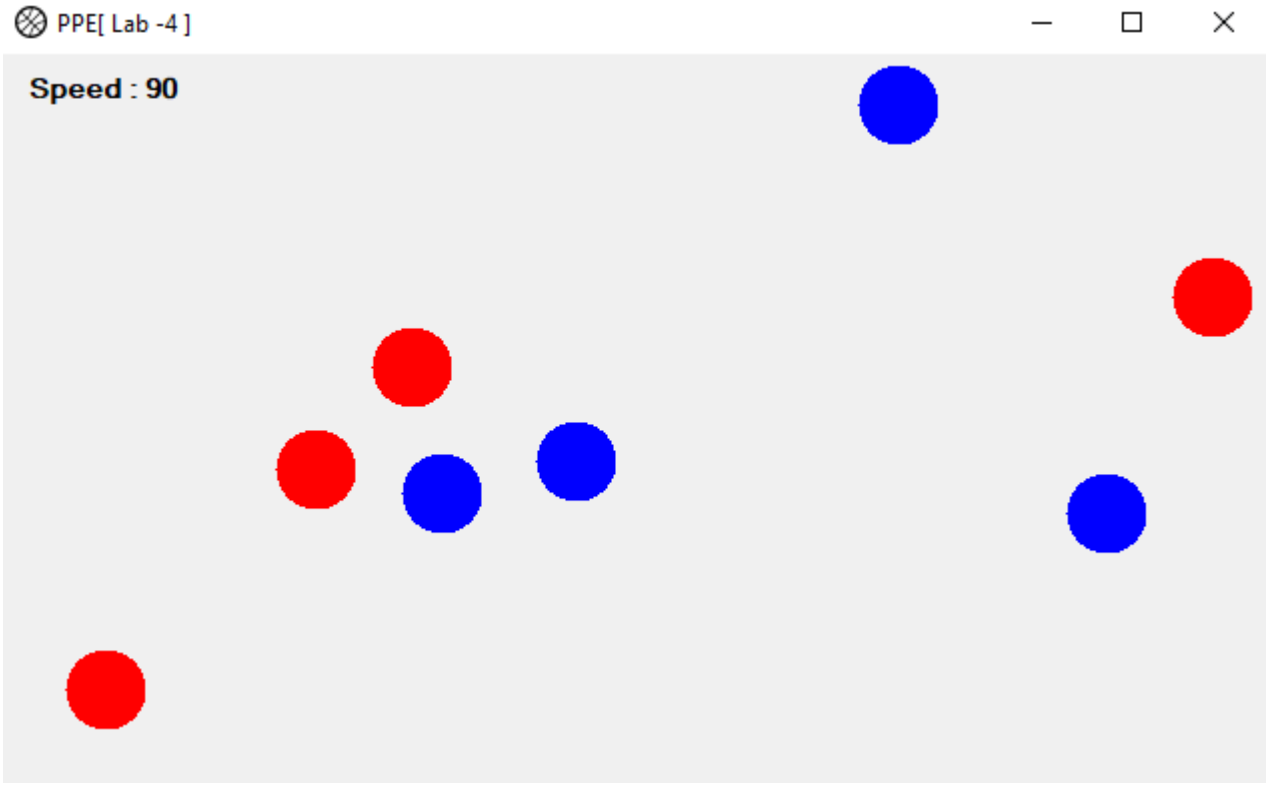

Figure 1. Animation App

Conclusion

For this laboratory work I made an animation App using Windows Timer . I solved flickering problem using DoubleBuffered = true; .

Double buffering uses a memory buffer to address the flicker problems associated with multiple paint operations. When double buffering is enabled, all paint operations are first rendered to a memory buffer instead of the drawing surface on the screen. After all paint operations are completed, the memory buffer is copied directly to the drawing surface associated with it. Because only one graphics operation is performed on the screen, the image flickering associated with complex painting operations is eliminated.For most applications, the default double buffering provided by the .NET Framework will provide the best results.

References

microsoft - https://msdn.microsoft.com/en-us/library
flickering problem - https://docs.microsoft.com/en-us/dotnet/framework/winforms/advanced/how-to-reduce-graphics-flicker-with-double-buffering-for-forms-and-controls