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 **Introduction**

 **Title**

**Up, Up and Away**

 **Group Members**

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This proposal is to enlighten people about what our mini project for C++ is. The main focus of the entire project indeed is to build a game using Object Oriented approach. We, three students of Pulchwok Campus (faculty of Computer Engineering) have decided to make a simple game, name of the game (Up, Up and Away) where the main motive of the player is to surpass the obstacle that resists the path of the marching player. The player will score as more as s/he reaches the farthest point. The programming language C++ will be used for writing the codes. As well as the graphics library to be used is SFML (Simple and Fast Multimedia Library).

SFML provides a simple interface to the various components of your PC, to ease the development of games and multimedia applications. It is composed of five modules: system, window, graphics, audio and network.

The main objective of the program is to entertain user with the game. Other Objectives of the program are listed below:

 **Objectives**

 Design a mini project using C++ programming language;

 Implement Object Oriented Programming concepts such as Class, Objects, Inheritance, Abstraction, Polymorphism etc.;

 Perform input/output of data from/to files;

 Try to apply advanced concepts such as template;

 Practice analyzing and debugging techniques;

 Develop good coding habits

 Use separate code files for different classes declaration and implementations;

 Use functions to make the code concise and modular;

 Use comments where necessary;

 Use appropriate indent during coding

**Existing System**

There are several such games that matches the theme of our project. This game will be similar to some popular games like Temple Run, Subway Surfers, etc.

**Proposed System**

**a Description**

This game is called Up, Up and Away. It is a simple 3D game. The object of the game is to surf the infinite space while dodging any obstacle that appears on the way. The player can collect coin on the way to increase his/her score and get on the highscore list. The player can perform actions like boost, fly high, fly low, go right or left which can be controlled with the keyboard’s arrow keys. The score obtained by the player will be saved and can be accessed from the HighScores option of the Main Menu. This is the basic descript of the proposed project.

**b System Block Diagram**

Main Menu

Play Game

start die

Show High Scores

back HighScores exit

Close

exit

**Methodology**

For this project, we will be using Simple and Fast Multimedia Library (SFML), which is a [cross-platform](https://en.wikipedia.org/wiki/Cross-platform) software development [library](https://en.wikipedia.org/wiki/Library_(computing)) designed to provide a simple [application programming interface](https://en.wikipedia.org/wiki/Application_programming_interface) (API) to various multimedia components in computers. The project will be based on object oriented concept.

The various modules of sfml like system, windows, graphics and audio will be used to make this game. Separate classes will be built for different parts of the program and the concept of inheritance will be used wherever applicable. In the class for player object and obstacles, data members will include the position of the object, its velocity and its dimension. Similarly member functions will include various actions that are to be executed by the object.

**Project Scope**

The scope of project is mainly in entertainment field. With such a lot of mass hungry for entertainment we are providing a medium where people can sit back and relax. With dynamic gameplay, smooth movements and rich audio system, we are hoping people are going to enjoy it.

Also, we have decided to make the program open source. Hopefully, some people will be benefited by our experience in programming the pseudo 3D game using sfml library.

The project will be designed on a 64-bit windows desktop and will be compatible for both 64-bit and 32-bit windows system.

**Project Schedule**

* (Day 1) Reviewing and analyzing the algorithm for development.
* (Day 2 – 8) Learning the external graphics library and additional features of C++.
* (Day 8) Work division.
* (Day 8 - 18) Coding by creating individual libraries according to the work division and features.
* (Day 19 – 20) Executing and testing.
* (Day 21 – 24) Debugging.
* (Day 25) Documentation.