DESIGN DOCUMENT

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Abstract

This document contains information about all common aspects to the screen saver

1 Overall Design

Our overall design consists of a board(intialised by a board class) with n number of balls(intialised by a ball class) on it. Each ball is controlled by a thread and also a separate thread displays the overall state of the board with balls. Initially, the color and the positions where the balls would be placed would be random. Also the respective velocities of the balls would be in random directions. But the initial state can also be controlled by using the functions defined in the ball and the board class. The board class consists of a vector of balls(vector is used for random access of the balls) using which the state of each of the balls would be present. Initially all threads are in active state. Each attempts to pick up the mutex$_{l}ocktomodifyitsownpositionandperformcollisions$.

2 SubComponents

The following are the subcomponents of our projects :-

2.1 Classes defined

The following are the classes used by us :-

- *Board*:-The board class provides information about the background its dimensions, number of balls placed on it and the information about the balls .

  ifndef BOARD$_{H}define BOARD_{H}$

include "Ball.h" include ¡vector¿

class Board public: Board(float,float);

float GetDimensionX(); float GetDimensionY(); int GetNumberBalls (); vector¡Ball¿ GetVectorBalls(); Ball GetBallFromId (int);

string GetBoardInformation();

void SetDimensionX(float); void SetDimensionY(float); void SetNumberOfBalls(int); void SetVectorBalls(vector¡Ball¿); void SetBallFromId(int,Ball);

void AddBallToBoard(Ball); void RemoveBallFromBoard();

void UpdateBoard(float);

private: float dimension$_{x}$; $floatdimension_{y}$; $intnumber_{b}alls$; $vector < Ball > vector_{o}f_{b}alls$; ;

endif

- *Ball*:-The ball class consists of information about the balls; their color, radius, velocity etc.