Assignment 1 Graphics

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January 2016

1 Factors Considered

Factors that were kept in mind while creating the game.

- Laws of Motion: Each moving object continues in the same direction and velocity unless acted upon by an external force. The primary forces are: gravity, friction and collision. All objects should come to rest on the ground, if their velocity v falls below a threshold.

- Gravity: Every free moving object is acted upon by a downward force, which causes a constant downward acceleration of k units/sec.

- Friction: There are two types of friction forces:

    1. Air friction, which causes a deceleration proportional to the speed in the direction opposite to the objects velocity.

    2. Ground friction, which does the same for any object rolling/sliding on the ground in the direction opposite to the motion.

- Collision: Define a bounding circle (centre and radius) for each object that you create. Two objects will collide if their bounding circles touch or overlap. An object and an element of the world (ground or any other immovable entity) will collide if the bounding circle of the object overlaps any of the line segments or curves that constitute that element.
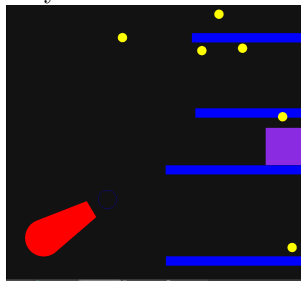
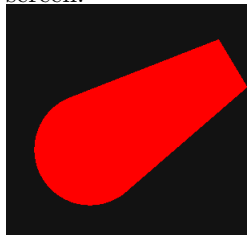## 2 Objects Created

Objects that are inside the the game.

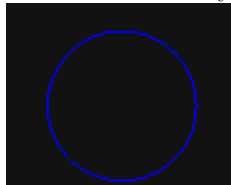- Game Screen: The whole game screen.
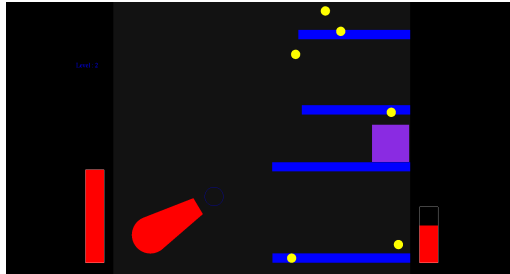
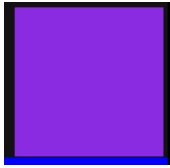- Play Screen: The screen in which game is to be played.

- Cannon: Fires the birds. It is found in the lower left corner of the play screen.
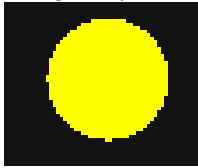

- Bird: The bird is a blue circle. It dies when the speed is less than a benchmark velocity.


- Block: The block is the final target of the bird. It is the purple square found the map.

- Obstacles: The obstacles are the bubble, their motive is to obstruct the bird from reaching the block. They are yellow circles, which does not follow gravity and can pass through objects.

- Speed Meter: Shows the current speed of the bird to be fired from the cannon. It is found in lower left corner at side of the play screen.
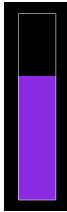
- Life Meter: Shows the number of birds left in the cannon. It is found in lower right corner at side of the play screen.

- Score/Level: Shows the score or level number of the game. It is found in upper left corner at the side of the play screen.

3   Building the game

Script to build the game.

- make clean

- make

- ./angrybirds

4   Controls

Controls I designed for the game.

- Keyboard

    1. Space Bar : Fire the bird
    2. Up arrow : Zoom in
    3. Down arrow : Zoom out
    4. Left arrow or num 4 : Pan left
    5. Right arrow or num 6 : Pan right
    6. num 8 : Pan up
    7. num 2 : Pan down
    8. a : Uplift the cannon
    9. b : Downlift the cannon
    10. s : Slow the bird to be fired
    11. f : Fast the bird to be fired
    12. k : Kill the current bird, if you are tired of waiting for it to stop.

- Mouse

    1. Left Mouse Button : Fire the bird
    2. Scroll Up : Zoom in
    3. Scroll Down : Zoom out