Oblig

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Introduction

I have made a game about shooting a ball at an object with a speed and angle.

Physics

Forces

Gravity = $-9{,}81 m/s^2$

Solution

To move the ball the Newton's law is applied in the Y axis since this is the only axis we have working forces

Constant acceleration $v = v_o + at$

The angle is set by setting Y and Z values to the balls start speed.

By setting a Z speed the ball will move forward as long as it is in the air. The air time will depend on the Y speed, so to hit the target the Z speed need to be greater than 0 as and the Y need to give enough air time for the ball to move forward to the wanted destination.

Implementation

setPosition

This is the method that moves the ball, depending on the velocity of it. Each time it updates it will add the distance moved (velocity*update time) since last update to the current location

setVeloccity

setVelocity is changing the velocity of the ball depending on the forces working on the ball. Each update this will calculate the new speed with Newton's law.

References