URO
Interim Report

Current State of the Game

Functional minimum: completed

- The ball can be controlled and the camera is following it
- There are two players which each of them have a separate camera and screen.
- We can display the ball and the shields
- We have an arena

Low target: mostly completed
There are some bugs in this layer, which we are now trying to fix (more on this later). The following points are implemented:

- Basic physics is done, but has some bugs
- The arena is constructed. It has support for normals and a heightmap included
- There is some basic menu for the game and also the HUD's for both players.
- The notion of fuel, inertia and acceleration is done, but just expressed as heat (change to initial idea)
- The shield mechanism also works
- Mechanism for background music

In the low target we need to test some of the parameters (how many points are when generated, how strong should the gravity or the acceleration be, where is the camera placed, ...).

Desired target: In progress

- "Rocket jump"-engine is done (graphics effects missing and also some advanced handling)
- Basic Cubify is done
- Simple Radar added (Minimap is replaced)

Start of the game:
At the start of the game maya is given 100 points to give alien motivation catch maya in a energy shield and make maya motivation to escape from alien
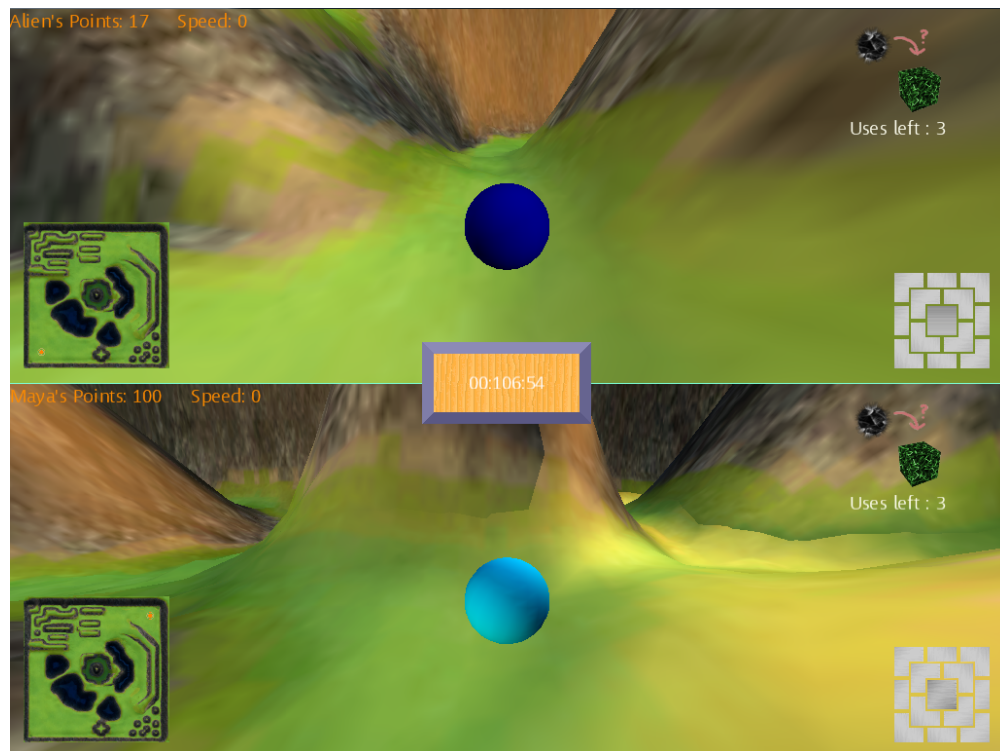
Cubify Power-up: At the beginning each player has 3 cubify power-ups and they can be used by pressing the "A" button. Cubify lasts 5 seconds and during Cubify phase player:
1) Has bigger friction - as sliding cube has bigger friction than rolling sphere
2) Can not control - it is moving by inertia
3) Can not use any power-up

Shiled: Shield is active, while alien holds the "B" button. Activation and maintenance of the shield cost some heat When maya is inside the shield maya looses 10 point per second and alien gains 10 points per second. Points may go to negative. We thought it would be more fair

Maya is given points if he is withing two shield radii from alien, and the amount of points decreases with distance increasing. Additional score are given for either players if they maintain speed more than 100 during 3 second.
End of the game - scores and final winner are displayed.

Where we want to be

The following points are, where we are lacking a little behind the schedule:

- Graphical effects (arena, shield, ball, radar, hud)
- The physics (has some bugs)
- Parameter settings:
  - Camera position (where should it be?)
  - Size of the shield
  - Size of the arena
  - Acceleration rate and other forces
- Pyramids are still missing

Which things do not work as expected

In this chapter, we want to explain, where we have bugs or just things, where the parameter should be tested in more detail.

Physics:
The most important bug is in the physics. Sometimes the ball is intersecting with the ground and the gravity does not work as expected, which leads to some flying. There should be a better prediction on when the ball cannot just roll in the direction of the speed (unplanarity of the ground, obstacles). For a first version we just corrected the y-coordinate of the ball to

be above the ground. The problem with this approach was, that it did prevent any jumps due to ramps ad even to the rocket jump.

Controller:
The player is able to change the direction of the ball by just giving a force from left or right. But if the ball is standing still, this should be just a change of orientation, instead of a acceleration. Maybe we have to adjust here the notion of changing the direction.

Camera:
Sood portiometimes the camera is too far away to see a gon of the arena (especially if the ball is moving fast). In other situations, the camera is to close. So here the parameters should be well tested and adjusted accordingly.

Pyramid:
The drawing of the pyramid needs too much time until now, so we skipped it for the XBox-version in the interim report. This should be speed up.

What did we change to the initial idea

The two most fundamental changes were:

Heat:
Instead of fuel and damage-tolerance, we introduced the heat. If we accelerate or build the shield, this produces heat. If we do nothing, the heat decreases.
If the heat exceeds some threshold, this causes damage to the engine (which means, the threshold gets smaller), the player loses point and cannot control the ball any more, until the heat is below another threshold. If the ball is damaged due to other reasons (crashes for example), this also reduces the heat-tolerance. There will be a Power Up, which repairs this tolerance.

Effect of the shield:
The first idea was, that the shield slows down the enemy. But this is in contradiction with one of our main goals: High speed.
So we thought, to just steal points from the enemy, if he is in shield. And then we tried to motivate the runner to move and not to hide: If the maya is near to the alien, he gets points. If he is too close and the alien builds the shield, he loses some of his points.

The fun-parts

So, what is exactly the challenge?
As describe in the effect of the shield, the challenge of the game is for the maya, to be close to the alien, but prevent be "catched" by the shield.
the challenge for the alien is to get even more closer to the maya, to catch him in the shield.
If the players move with high speed, they gain extra points. So just hide and not moving is not an option.