

TEAM 1

## PROJECT PROPOSAL – MORPH MADNESS



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## Story:

### Big Bang Theory

Most of today's scientists claim that they how our universe stepped into being. They say that out of the "big bang" all matter emerged and, coincidence after coincidence, lead to the system we're now living in. What happened before this epic event in time, you're about to find out ...

Billions of years ago, before we even started to measure time, there already existed civilizations just a few light years away from the current position of our planet. These civilizations lived in various solar systems and owned highly sophisticated technology. They were organized in structures like today's countries are. So they had different authorities and respected the corresponding contracts and borders. Most of the time, the different races were living in peace with each other and tried to find out, how the universe was working. They were great scientists and found the answer of a lot of their questions.

But at a point in time they found out the horrifying fact that an event will happen which will shake the very foundation of their peaceful existence. This event would destroy their civilization and furthermore the whole universe as they knew it to make space for something new ... something they couldn't explain. They called this event the big bang.

The different administrations found out that there is only a very small chance to survive. Recent discoveries have shown that anomalies in the form of small black holes have started to appear where the universe is assumed to collapse. New but unstable research has shown that it might be possible to use them to jump into the unknown future. To investigate those anomalies and with it, to look for ways to escape the imminent disaster, small teams have been sent out into space.

You are one of the pilots trusted with the mission to search these holes in the space-time continuum and to transmit any information you can get back to your home base before others do. But you have to be careful: you are not alone and there might be only one race that is able to escape!

## Big Idea





## Summary:

Each player has the control over a sphere. This sphere represents a futuristic vehicle that has, according to the latest innovations, various features. By applying forces in arbitrary directions on the sphere the player is able to steer and accelerate it. Of course also external forces caused by the environment and even by the wind have to be considered. The summation of all external and internal forces defines the behavior of the sphere.

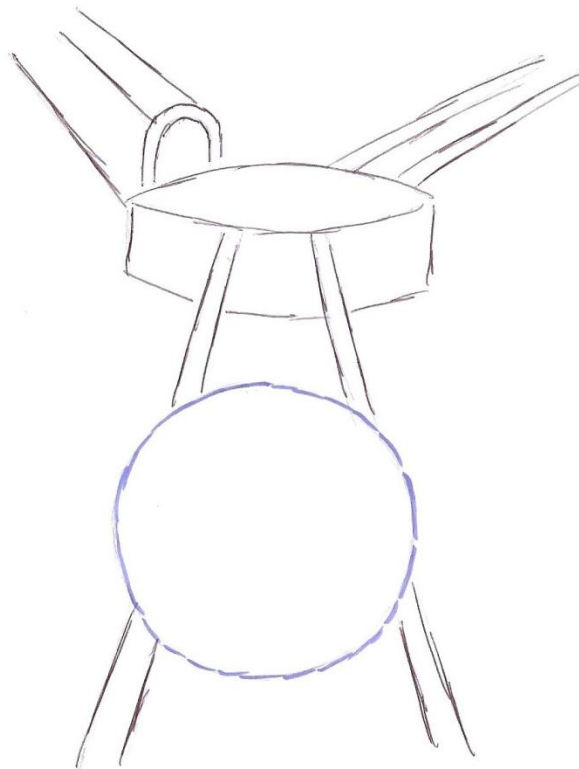
In addition there is the possibility to let the sphere grow and shrink. Having control over the size of the sphere, the player is able to influence its physical properties. This will affect the forces acting on the sphere as its size influences the wind forces. For example considering the headwind factor a small sphere reaches a higher maximum velocity than a larger sphere. The same applies vice versa considering tailwind. Furthermore the player needs to modify the size of the sphere to move over different obstacles. This means that bridges can only be passed with a large sphere, while passing pipes require a small sphere and so on.

The aim of the game is to hold a flag for a certain time. In a first step the players have to search the flag in the environment. As soon as one of the players has found it, he will catch the flag by simple steering the sphere onto it.

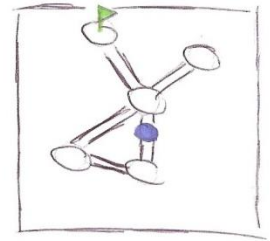
Size : 

Damage : 

Ammunition  
 < Weapon 1 > 35/1  
 < Weapon 2 > 7  
 < Weapon 3 > 11



map:




Rank:

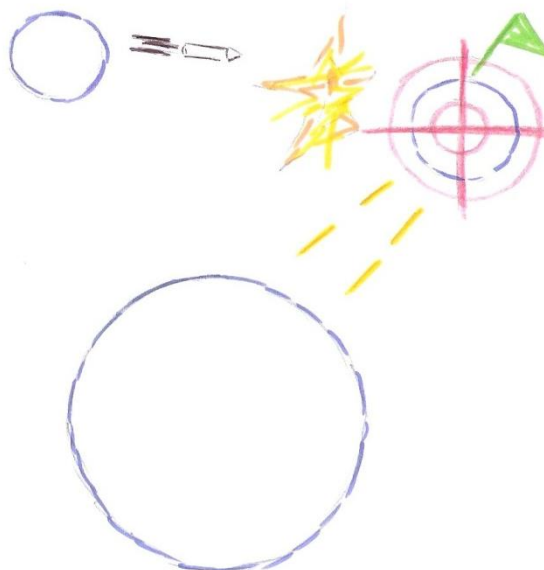
Player 1: 1:21  
 Player 2: 0:58  
 Player 3: 0:11  
 Player 4: 0:00

Then the second phase of the game will start. The player with the captured flag has to defend it for a certain time. The flag is now in his sphere and the player is free to drive away with it or to fight against his opponents. The other players will try to destroy the sphere with the captured flag in order to take it away. After a certain time, or if the opponents were able to destroy the sphere with the captured flag, the flag will be respwan at a random location and the game will go back to the first phase.

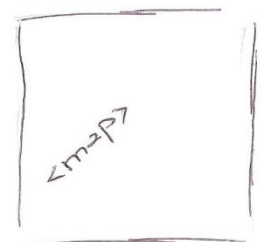
Size : 

Damage : 

Ammunition  
 < Ammunition >



map:



Rank:

< Rank >

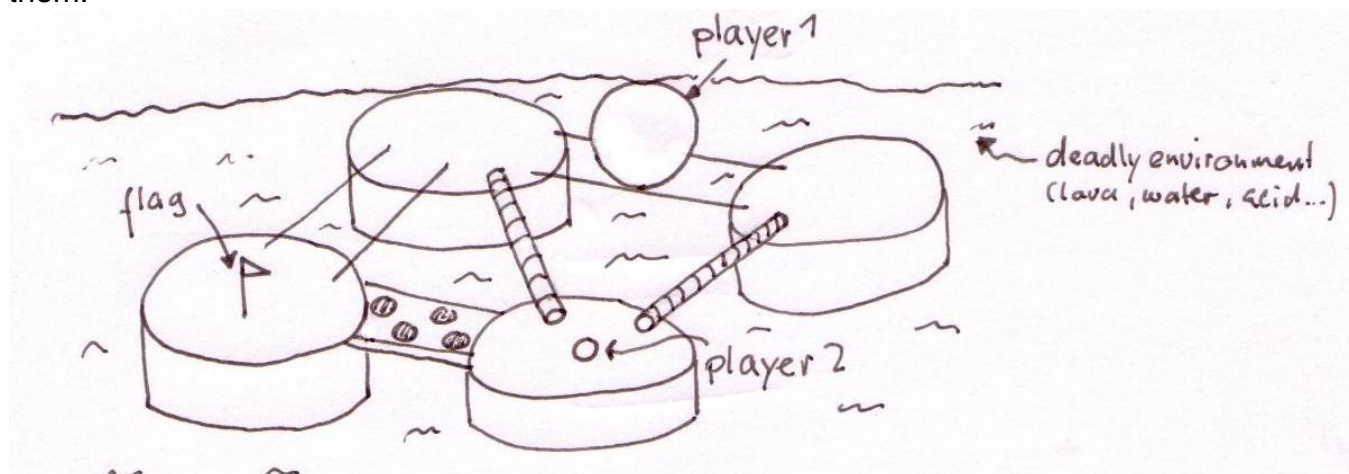
The player's goal is to hold the flag for a predefined time. The time the player was able to successfully hold the flag is being accumulated. As soon as one of the players was able to hold the flag for the predefined time, the run will be finished and the players have the opportunity to prepare for the next game.

As an additional objective the player can collect as much money as possible during each run in order to buy upgrades and updates on a marketplace to improve the sphere.

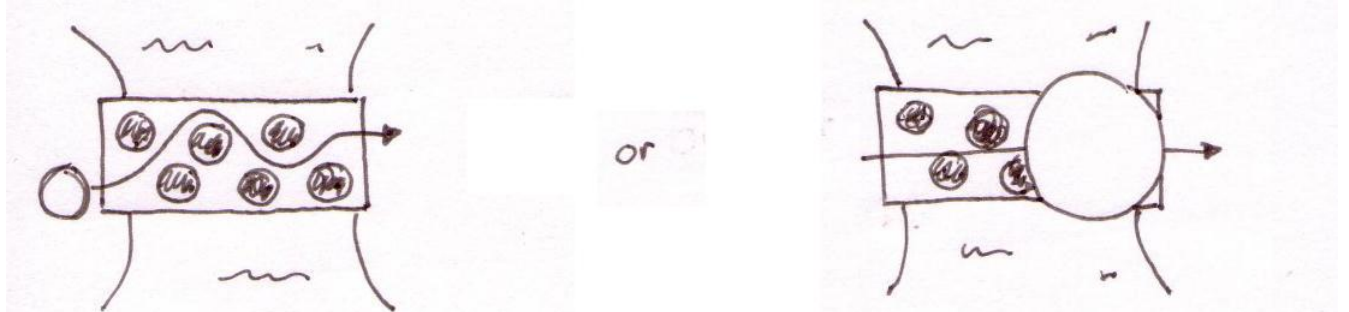
There are several possibilities for the players to collect money. On the one hand each player receives a certain amount of cash whenever he was able to catch the flag. On the other hand all the players can try to destroy the opposing spheres. For each destroyed sphere the player receives again a certain amount of cash.

The player can buy additional items like weapons, speed upgrades, armor and different materials after each run. Examples of such upgrades could be a speed upgrade, more health points, a better solar panel to recharge the energy faster or different material for the sphere like wood, metal or diamond.

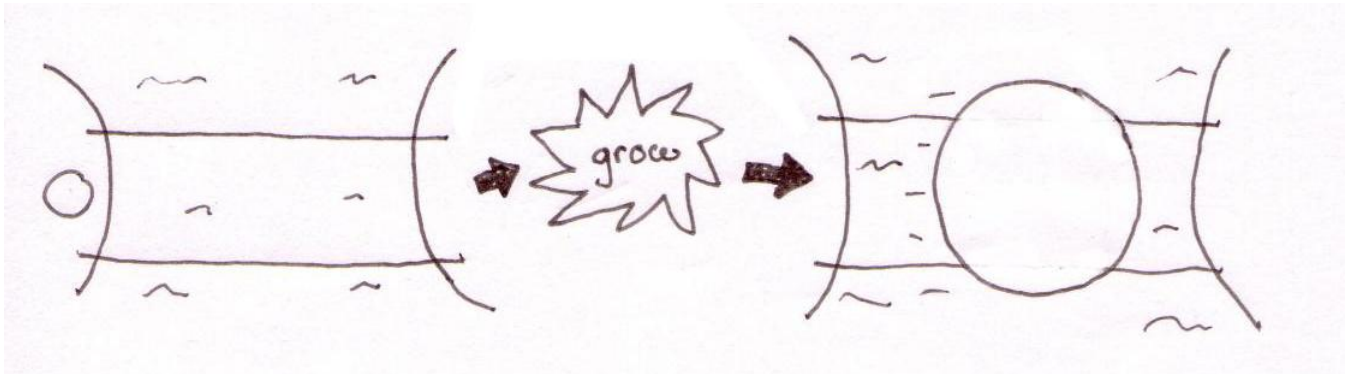
The map consists of several platforms in a deadly environment. Important items are spawned on different platforms and the player has to change the size or material of his sphere to reach them.



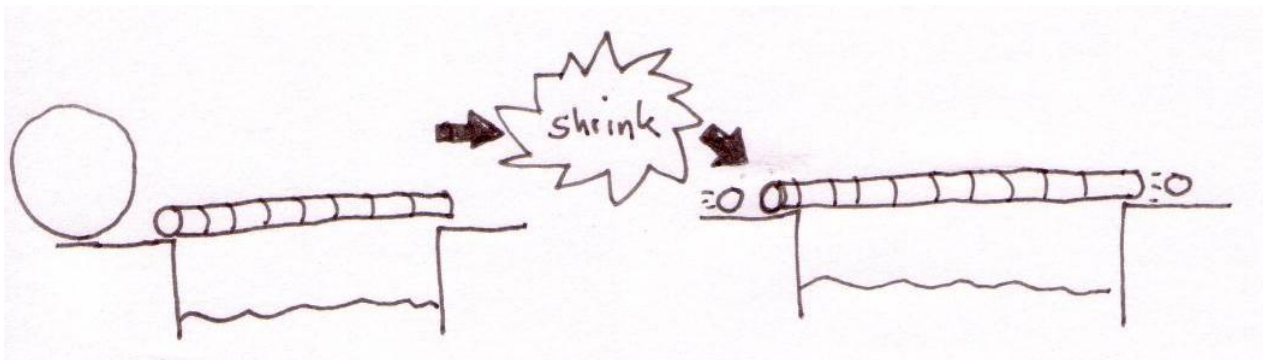
Platforms are connected with bridges, pipes and other connections that can only be passed in a certain physical state (size or material of sphere). An example of such connections could be a bridge with gaps, where the player can choose to use a small sphere to move around the gaps or the player could also use a very big sphere and just roll over the holes.



Another connection could consist of two sticks only. If the player uses a sphere that is too small the sphere would slip through the gap between the sticks and fall into the deadly material between the platforms. If the sphere is big enough the player could roll over the sticks like over rails and reach the platform on the other side.



Some platforms may also be connected with a small pipe. It is not possible to roll over the pipe and therefore the player has to shrink the sphere to fit through the pipe and reach the other side



Sometimes the player also has to change the material of the sphere to reach another platform. It might be necessary to use a wooden sphere that can swim to reach a platform which is surrounded by water.



### Optional:

- Merge and split of two players to divide control over the sphere
  - one player is driving the sphere
  - the other is shooting

## Technical Issues:

We think that a game like ours makes most fun when players can compete against their friends but we wanted to add a single player mode as well. For the single player mode we need an AI which can control a sphere like a human player would. The AI should be able to plan a path in the area to reach important objects like the flag. While moving around the AI should be able to shrink and grow the sphere to pass obstacles and to use the different types of connection between the platforms. The AI needs to know that only a small sphere fits through pipes and that a large sphere is needed to use two sticks as a bridge. The AI should also know that it cannot pass a water obstacle with a metal sphere.

If the AI is able to capture the flag it has to find a way to avoid other players which want to take the flag for themselves.

If we implement different weapons the AI should be able to decide which weapon would be good for a given situation and the AI has to be able to select a target to aim at other players and to shoot.

One of our plans is to give the player the possibility to merge his sphere and the sphere of another player together to share the control over a super sphere. If there are not enough human players it could be possible to merge with the sphere of an AI player. The human player would then control the movement of the sphere and the AI could concentrate on aiming and shooting but they could also switch their roles.

The AI will need a lot of balancing to make a challenging game that is not frustrating because the AI is too good.

The second technical issue in our game is the rendering of the spheres. The player should realize that they are very special vehicles designed by aliens. The shrinking and growing will be visualized with an interesting animation. If the player changes the material properties of a sphere another animation will indicate that some highly advanced alien technology is used to mimic the properties of known material. We will probably use some semitransparent surfaces and a lot of special lighting to make these animations plausible.

## Schedule

### Layers

#### Functional minimum:

- Player can move sphere (all directions and jumping)
- Player can grow and shrink sphere
- Sphere can catch and move flag
- Player can bump into opponent spheres to destroy them
- Basic arena (Non textured Platforms with simple connections)
- Respawn of destroyed sphere
- Simple player physics
  - Player with flag is slower than others
  - Big sphere is slower than a smaller one

#### Your low target:

- Simple weapons
- Basic AI for non-human players (can move over whole arena and tries to get flag)
- Basic sounds
- Physical behavior with material properties (Wood, Metal...)
- Basic HUD (Points, Time, Weapon...)
- Basic shading and lighting
- Random placement of the flag
- Enhanced arena (low physical effects)
  - Water
  - Lava (or other deathly surrounding)
  - Pipes
  - Rails

#### Your desirable target:

- Final HUD
- Game menu
- Texturing of Spheres and Scene
- Basic explosions and weapon effects
- Advanced Shading and Lightning
- Advanced weapons (with different properties for each material)
- Advanced sounds
- Advanced AI (shooting)
- Team game mode (2-vs-2)
- Enhanced arena with physically based water, lava...

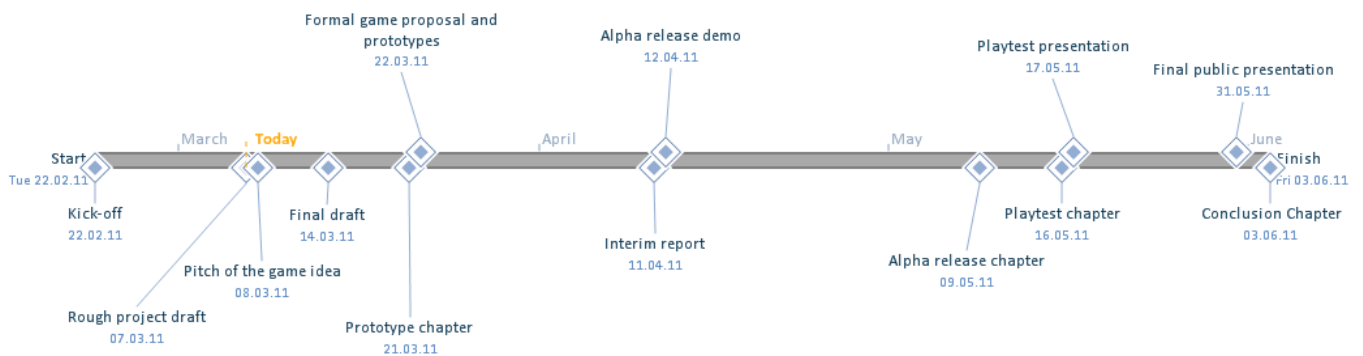
### Your high target:

- Splitting and merging of Players
- Non-human players can split and merge (AI)
- Achievement system (Money collection)
- Marketplace for upgrades and updates
- Damaged spheres are moving and transforming slower
- Advanced Weapon effects (Smoke, explosions)

### Your extras:

- Different arenas
- Editor for maps
- Multiplayer over Network
- Sphere Design Editor
- More upgrades and updates in the marketplace

### Timeline



## Who does what?

Make a rough work plan here or describe possible milestones – for example:

Markus: modeling and character animation, sound effects, GUI implementation

Martina: game engine implementation, AI programming

David

Lars

Matthias

Stefan

## Assessment

Tell us what the main strength of the game will be. What part is going to be the most cool? Who might want to play this game? What do they do in the game? What virtual world should the system simulate? Basically, you are setting up a world view for your subsequent design. What criteria should be used to judge if your design is a success or not?

Fun:

- Constant contact with the opponent
- Based on story and motivated by final event (big bang)
- Can be played as a tournament with friends.

Criteria:

- Players should be interested to play the game again after they completed one round with an opponent or/and the following day/week.
- Experience should bring an advantage with it.