Game Development Diary
Florian's

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May 16, 2012

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- Virgil Tanase
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- Andrew Borg Cardona
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- Ioana Marin
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- Giedrius Špokas
  - Concept Art, 3D Art, Animation
- Michele Ermacora
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- Julian Møller
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0.2   Game Overview

To visitors, Florian's is a circus with a twist, a weird and wonderful world to delight and entertain. With a collection of mechanical animals and other oddities, it's no wonder that Florian Valker and his circus are highly requested! But sometimes, there's more to things than just the show that is put up. Marcel, one of the puppets and part of the puppet show, has had enough of the constant mistreatment of him and his friends. He is determined to put a stop to it, and during the night, he visits the other puppets in order to come up with a plan to get revenge on their abusive puppetmaster. Things may not be as easy as they seem, however...

One night, Marcel finds out that he can no longer visit his friends, since Florian has locked them all up individually and scattered them around the circus, so as not to cause trouble. With his friends unable to help, he must visit each of them in turn to gain their powers and thus defeat Florian alone.

Florian's is a 3D puzzle-platformer set in a steampunk circus. You play as Marcel, a wooden puppet who seeks revenge against his tyrannical puppetmaster.

Part I

Game Development Report

Chapter 1

Conceptualization
or "Settling on a Great Idea"

Estimated phase duration: 10th February 2012 to 17th February 2012 (*7 days*)

1.1 Our First Meeting
Getting to know each other, Expectations, and Initial Brainstorming

After the group members were distributed between the project managers, I decided to take my team to a room in order to begin discussing suitable game ideas that could be developed in the time period of 3 months for our *Game Development* class. We settled in 3A07, and each team member gave a brief introduction of who they were, the skills that they could contribute to the team, as well as their expectations of the course and of the game that they wanted to make. I noticed that the team was fairly well balanced. More than half of the team had programming skills (Michele, Andrew, Julian, Virgil and myself), 3 team members had 3D modelling skills (Ioana, Giedrius and Virgil), 2 team members had 2D art skills (Ioana and Kristoffer), while 2 members had music composition and sound design skills (Virgil and myself). The skills that were eventually used can be seen in Section 0.1.

I explained that my goal was to be able to produce a playable prototype as quickly as possible so that we could begin testing as quickly as possible. Any problems could therefore be caught quickly and fixed in time, instead of scrambling to fix bugs during the last week of development time. This approach was used successfully during the Nordic Game Jam 2012, where the team involved created early prototypes and playtested them all the time. We then went on to win *Best Board Game* and the *Jury's Choice Award from David McCarthy - GREE*.

I expressed interest in working with Unity for this particular project. My reasoning was twofold. First of all, I had already worked with UDK in the first semester for the *Game Design* course and wanted to try something different; and second of all, we had 3 people in the team who already had some experience with working with Unity (these being Julian, Andrew and Virgil). Julian had worked with Unity during his DADIU project, while Andrew and Virgil had worked with Unity during the Nordic Game Jam 2012. This made it easy to leverage their skills to the team's advantage.

The brainstorming session then began with team members listing several moods that could be interesting to work with in a game. The moods that we came up with can be seen in the Appendix in Section D.3.5. After that, the team also came up with some interesting settings that the game could take place in. The team then went on to start combining different moods

and settings in unusual ways, and by the end of the hour, we had come up with 5 different ideas that could potentially be made into games. The team brainstormed interesting mechanics and ideas that could be present if the games were made.

After an hour, I ended the meeting, and scheduled the next meeting for after the next Game Development lecture (held on the 13th of February 2012). This allowed the team to unconsciously continue thinking about the game ideas that had been presented, as well as giving them a rest after an intense brainstorming session.

My intentions at this point were:

- to come up with a basic concept for the game as quickly as possible

- to start playtesting that concept with a paper prototype to see if the game is fun to play

- to start working on concept art and moodboards

- to start working on the design document and art and sound bibles

I also wanted to try the concept of pair programming, since we potentially have 4 programmers on the team.

In order to have a central location of information about the game we were making, I decided to host a wiki on my personal website[1]. I used MediaWiki, available for free from the Wikimedia Foundation. Here, I kept a record of all notes taken during our meetings, a link to the official course blog, draft versions of the vision document and design document, and other things. I also set up a Google Group, enabling us to communicate very easily simply by sending an e-mail. I chose Google Groups over something like Facebook because one of the team members did not use Facebook, and because I felt that Facebook was too distracting to use for communication.

1.2 Picking a Game Concept
From Five Ideas to One

During the second meeting, we continued discussing the 5 main game concepts that we had come up with during the first brainstorming session. These can be found in the Appendix in Section D.3.5. Although my personal preference was the game concept that dealt with viruses, we discussed the other concepts in more detail and I instantly fell in love with the circus concept.

This concept involved setting the game in a circus setting. Several possible gameplay ideas emerged from this concept, such as having backgrounds that could change the level in different ways, or by introducing a more *horror* feel to it by adding things that creep up on the player. We all agreed on not including direct combat in the game, therefore making it more of a puzzle game than an action game. We also discussed combining the concept with other interesting concepts, such as having a lunar circus, a fantasy circus or a surreal circus.

I made sure that everyone was on the same page by discussing future deadlines and my desire for getting a prototype out as quickly as possible. Our first deadline was the 27th of February, where each group was meant to pitch the idea they had come up with. I intended to stay ahead of schedule and present concept art, and possible a small playable demo in Unity.

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[1]The link to the wiki is `http://gamedev.scutajar.com`.

I also intended to have the design document, as well as the sound bible and art bible, in a readable form by then. My reasoning was that the more time we had for playtesting, coding and asset creation, the better.

I assigned people into sub-teams, so that the whole team consisted of 3 sub-teams. I formed an art sub-team consisting of Ioana, Giedrius and Kristoffer, a programming sub-team consisting of Andrew, Julian and Michele, and a sound sub-team consisting of Virgil and myself. I felt that splitting people up into groups allowed me to better manage people, although there is the risk of them falling out of touch with the game concept.

We eventually settled on a puzzle platformer that combined elements of circus and steampunk fantasy. We kept the idea of having no direct combat in the game, since we didn't want to make the game feel more like an action game, rather than a puzzle game. The main puzzle element that we wanted to include is the fact that the player's character could transform into different states, such as wood and metal. We also agreed on the idea of having different tents inside the circus as different levels. Each level would have several puzzles that the player had to solve, but we weren't quite sure of what the puzzles could be. We also toyed with the idea of having some sort of main map, where players could choose to replay different levels, as well as having a place where players could upgrade their main character in some way.

Once we decided on a game concept, I split the team into 2 groups. I asked one group to work on possible mechanics that could be included in the game, and I stayed with the second group to discuss concept art, narrative and player experiences. I made sure the groups consisted of both artists and programmers. After 15 minutes, I switched people around so that they could brainstorm more ideas on the other topic, and after another 15 minutes, we grouped all the ideas together. This allowed us to work in parallel and save time, as well as interact better with each other in smaller groups.

We discussed some initial problems we found with level design, level flow and some mechanics we thought up, and we then agreed to meet up on Friday to let the ideas simmer for a while. During the following meeting, we proceeded to continue brainstorming what puzzles might look like in our game. Although I felt that we had settled on the general theme and concept of the game, we hadn't exactly pinned down what the player could do in the game yet.

I found that it really helped the rest of the team's efficiency when they could see something visual, so instead of resorting to a description of the gameplay of a game that I had mentioned, I showed them a video of that gameplay. This made it easier for them to understand what was going on and what I was trying to explain. The same thing happened when Ioana started showing the rest of the team the results of her concept research; by having visual imagery, more ideas could be generated.

Chapter 2

Pre-Production
or "Fleshing Out the Design"

Estimated phase duration: 17th February 2012 to 2nd March 2012 (*14 days*)

2.1 Thinking About the Players
From Puzzles to Enemies

We started out the pre-production phase by going into more detail about the actions that players could take in the game. People presented puzzle ideas, concept art and sketches and tutorial ideas, and we settled more or less on the gameplay description. Virgil and Giedrius presented 2 quick prototypes made in Unity, allowing us to immediately see what was possible, what wasn't, and what could take some time to implement.

transform into clockwork;
walk across without being noticed;
transform into wood;
go up to the spotlight and light it up (cannot light off?);
go back and attract enemy into light, it burns;
transform into clockwork to pass through light without burning;
transform back tow ood to jump on boxes

can only walk using clockwork and cannot jump, but is disguised (unless he stops in front of enemy?) (does not burn?)
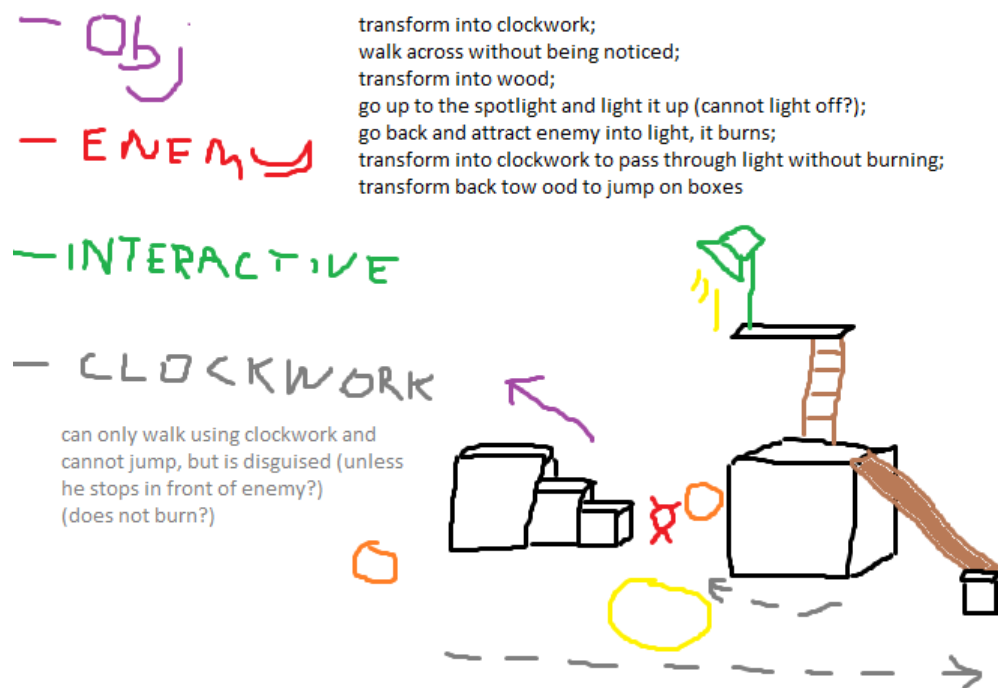
Figure 2.1: One of the puzzles designed by Andrew

Some of the puzzles we discussed were simple puzzles such as blocks that had to be pushed or pulled, enemies that had to be avoided and using the environment to your advantage (such

as water, fire and electricity). We also discussed the characteristics of the character's different states; what advantages and disadvantages would he have in his states? A wooden state might allow the character to float on water, for example, but would make the character vulnerable to fire. A stone state however, would make the character sink in deep bodies of water and slow moving, but would provide immunity to fire. These states may be seen in the Appendix in Section D.3.4.

2.2 Art Bible, Sound Bible, Narrative
Searching for Inspiration and a Particular Direction

(a) The game's colour scheme, designed by Ioana

(b) Concept Art for Marcel, by Ioana

(c) Concept Art for Marcel, by Kristoffer
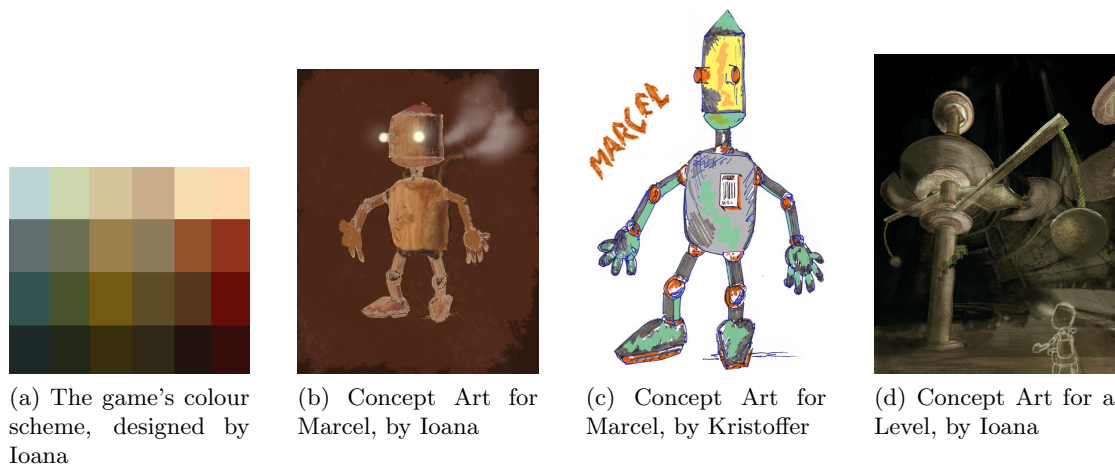
(d) Concept Art for a Level, by Ioana

Figure 2.2: Concept Art and Colour Scheme

As seen in Fig. 2.2, we also focused on creating an art bible and a sound bible for the game. Ioana was the art director, and she spent lots of time looking for a suitable colour scheme for the game as well as suitable research for our concept. Examples included poster ideas, box ideas, monster ideas and map ideas. These can be seen on the wiki in the Art Bible section[1].

We also went through a list of art assets, both 2D and 3D, that would be needed for the game. The list included models for the characters and enemies, models of environmental objects as well as models for decorative objects throughout the level, such as posters. The assets were given a time estimate as to how long they would take to complete, which would be used in the backlog in SCRUM.

Similar to the Art Bible, I sat down with Virgil in order to create a small Sound Bible that we could use. I defined a list of instruments that I determined as easily fitting the concept's soundscape. I also paid attention to the mood and feel of particular tracks. Some tracks invoked a more playful feel, while others were more orchestral and grandiose. I also listened to some carousel music as possible inspiration for smaller pieces of music (such as loading screen music). Since we were essentially merging two distinct concepts together (steampunk and circus), I had to be careful to find the perfect balance between the two instead of simply forcing them together.

I also took into consideration the sound effects that were needed in the game, such as

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[1] http://gamedev.scutajar.com/index.php?title=Art_Bible

footstep sounds, jumping sounds and other sounds made by the character, as well as more ambient sounds (like spotlights switching on, the clattering of the cage when it falls to the ground and the sound the main character makes when he winds himself up).

In the next meeting, we finalized our concept by settling on team names and character names, as well as finalizing the general direction of the narrative. We thought about the whole flow and scope of things, and I made sure to point out the fact that the ringleader and the puppetmaster were two different people. We settled on the idea of the puppetmaster being the ringleader's puppet of sorts, as I felt it was important to have this idea in mind while designing the vertical slice.

I eventually grouped all the ideas into one single document, which we presented as our vision document. This can be seen in the Appendix in Chapter A.

2.3   Pitching the Idea
Making Sure Everybody Listens to You

To end the conceptualization phase, we pitched the idea to Alessandro and Mark, as well as the rest of the class, on the 27th of February, 2012. As team leader, I first asked if anyone was interested in pitching the idea, but when no-one was interested, I decided to give the pitch a bit of a theatrical spin to it. My aim was to attract the attention of the audience, especially during an early morning lecture, by shouting out to the class and pretending I was a circus ringleader. After waking most of the class up, I then proceeded to explain the finer details of our game, such as the mechanics, art style and unique selling points of the game.

I was also in charge of designing the slides that were used during the presentation. I tried to make the visual style of the slides mesh together with the intended visual style of the game. Apart from the title slide, which contained a list of the team members, I also tried to make sure that the slides had as little text as possible; instead focusing on making the presentation more visual by including lots of pictures.

Chapter 3

Production
or "Everybody Gets to Work!"

Estimated phase duration: 2nd March 2012 to 27th April 2012 (*57 days*)

3.1 The Beginning of SCRUM
Working Through the Backlog

Once the project was accepted by Alessandro and Mark, we moved into the production phase. This meant that we could officially start SCRUM. Similar to the way we estimated how long it would take for the art assets to be complete, we also tried to estimate how long it would take for the sound and music assets to be complete and for the programming tasks to be complete.

All of this estimation was inputted into Asana, an online tool that allows the team members to track which tasks were still pending. I also kept a local copy in an Excel spreadsheet, allowing me to create weekly burndown charts throughout the production phase. One can see the list of tasks and the full backlog in the Appendix in Chapter B.
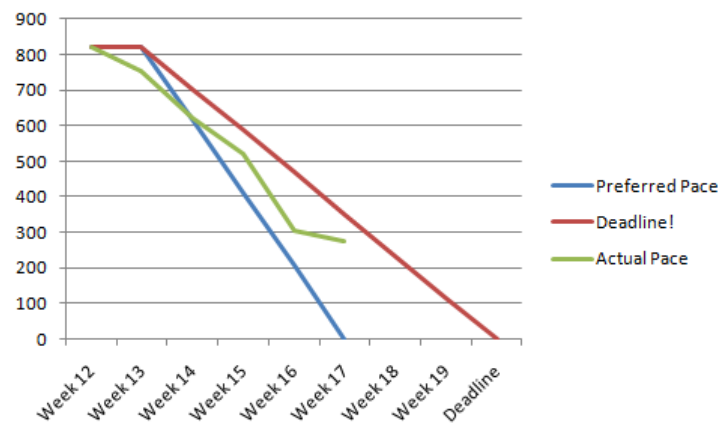
Figure 3.1: Burndown Chart, Week 17

I planned out SCRUM by having weekly sprints, which would start every Friday. We would also have a standup meeting every Monday, as well as frequent communication via e-mail or in person. I also set up two deadlines in order to get things done at the appropriate speed. The first deadline was *Friday, 27th April*, which coincided with the Play Day being held by Alessandro and Mark. The second deadline was *Wednesday, 16th May*, which coincided with

the course's official hand-in date. I stuck to these two deadlines for several reasons: first of all, I wanted to have a "buffer" deadline to allow playtesting and the fixing of bugs. Second of all, since game development projects are notorious to go over time, by aiming for the first deadline, the team would hopefully be in better shape to hit the second and proper deadline. Finally, I also wanted to give the team enough time to write out their report as part of the hand-in for the course.

It turned out that these two deadlines translated very well into a graphical form when I created the burndown charts. Having burndown charts provided a more visual way for the team to understand whether the project was on track or not. An example is shown in Fig. 3.1.

3.2 Creating Music
Finding the Right Mood for the Right Part of the Game

Apart from being the project manager and team leader of the group, I was also assigned to create the music for the game as well finding and implementing the sound effects in the game.

My personal experience lies with recording live instruments. As a singer and a drummer, I worked with a guitarist friend of mine to record a few songs using Cubase 6, a digital audio workstation that specializes in handling recorded music. However, since I do not play the guitar and have no access to equipment anyway, this was not an option for me here. Although never having tried the software before, I had taken lessons in using Ableton Live, a digital audio workstation that specializes in synthesis and sequencing, and is more suited towards electronic music. Although working with a MIDI controller is preferable, Ableton Live supports the use of the computer keyboard to replace a MIDI controller. I therefore decided to use Ableton Live 8.

The instruments I decided to use include EDIROL Orchestra, East West Quantum Leap Colossus, a freely available Calliope VST, a freely available organ VST called B8 Organ, as well as the standard instruments included with Ableton Live.
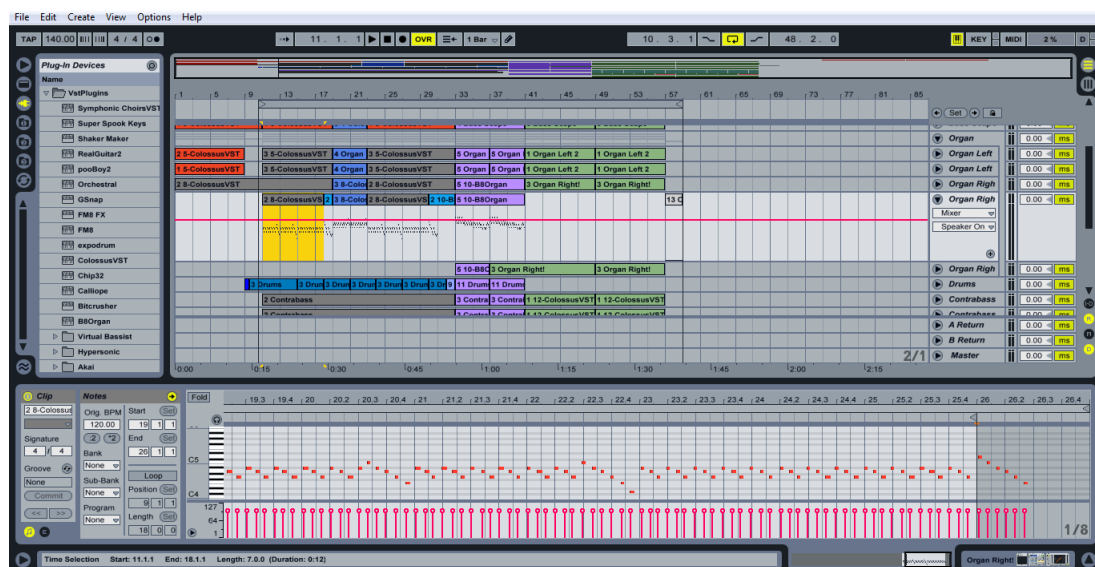

Figure 3.2: Sequencing the Boss Battle music in Ableton Live

The first track I decided to sequence was the boss battle music, as can be seen in Fig. 3.2. I wanted to convey the sense of urgency to the player, so I decided to work at the tempo of 140bpm. This made things kind of tricky to record, so at certain times, I had to record at lower tempos and then speed everything up later, which worked out fine. I also used the standard $\frac{4}{4}$ time signature. As main instruments, I used the organ and the string section. Some of the instruments are double tracked in order to sound thicker, such as the contrabass, the cello and the organ's left hand. I tried to incorporate the calliope into the track, but only ended up keeping it during the introductory sequence. As a drummer, I quickly learned how different and difficult it is to record sequenced drums using a keyboard; I would have loved to have access to an electronic drum kit in order to be able to better play the rhythm I had in mind. Towards the end of the track, I switched out the drum kit for the timpani in order to provide a more orchestral and epic feel to the music. The track is around 1 minute and 42 seconds long.

The second track I recorded was the gameplay music. I used a different approach with this track, since I didn't want it to be too distracting to the player. In this case, I wanted the music to sit quietly in the background. I started out by using a sample of a ticking clock in the background and using the calliope as the backbone of the track, but I had to remove the ticking sound, since people thought that I had left the metronome on. To give the track more of a circus feel, I decided to use the $\frac{3}{4}$ time signature. The track's tempo is quite slow at around 86bpm. Backing instruments include an organ, trombones and a calliope, and lead instruments include a string section, a vibraphone and pizzicato strings. The track is just under 4 minutes long.

The third track I recorded was the menu music. I wanted to give this track a more upbeat feeling to, emphasising more on the circus theme of the game. I decided to work at a tempo of 82bpm, and in a time signature of $\frac{6}{8}$. As backing instruments, I used a droning string section on just one note, a cello, an upright bass and a calliope playing bass notes. As lead instruments, I used a calliope playing treble notes, and I used a glockenspiel towards the end of the track. The track is just under 1:30 long.

3.3   Sound Effects
Bringing a Virtual World to Life

I was also assigned to finding or creating the sound effects for the game. However, I do not have as much experience as I would like to have in creating sound effects from scratch, and we also do not have access to proper recording equipment or Foley-studios.

Therefore, I turned to the website `freesound.org` in order to search for the sounds we needed. Some sounds were quite easy to find, such as the sound of a spotlight being switched on, or the sound of a wooden object being dragged across the floor. Other sounds however, such as the sound of a rhino, are more complicated to find.

Chapter 4

Alpha
or "We Have Something Playable, Let's Improve It"

Estimated phase duration: 27th April 2012 to 16th May 2012 (*19 days*)

4.1 Player Metrics and Playtesting
Something's Wrong, Please Fix It

As per the course schedule, we held a playtest session during the Play Day. In order to maximize the effect of this session, Andrew implemented player metrics into the build. We tracked player location and every 2 seconds, the player's position in the level was written to a database. We also tracked certain events, such as button pushing. The paths could then be visualized in a custom made tool also programmed by Andrew. An example of the paths that we could see can be seen in Fig. 4.1.
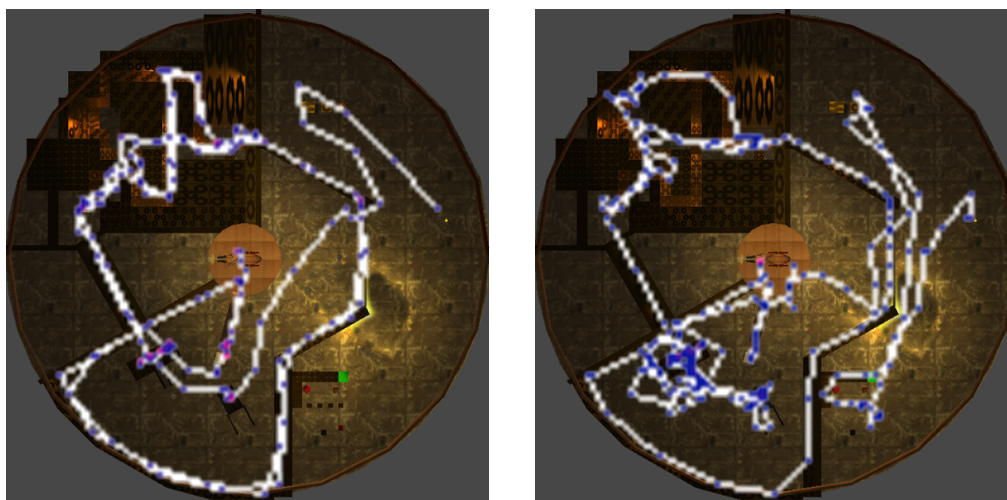
Figure 4.1: Playtester's Path Flows

We had 2 games running at the same time in order to maximize the amount of players that could playtest our game. During playtesting, I asked the players to think out loud about the game and what they were experiencing, and I took down notes. The notes can be seen in the Appendix in Section C.1. I also asked them if any of the puzzles made sense to them, if they knew where they were going, and if they felt the level was too confusing. In total, 19 people playtested our game.

We knew that most people would complain about the camera controller, because it still wasn't fully implemented yet. Some of the other comments were very insightful and uncovered unexpected issues with the level. For example, 53% of the playtesters did not understand the light puzzle. Some said that they felt that the puzzle was too random and there was no logic to solving it, while others said that they didn't know why they were solving it.

At the moment, the camera moves on its own, in relation to where Marcel is in the level. 21% of the playtesters wanted to be able to control the camera in some way. Additionally, 26% of the playtesters felt that they needed to use the mouse in some way, even though at the moment, the game is controllable using just the keyboard. One of the main focus of the team was to make sure that the player never felt lost and always knew where to go. Only 15% of the playtesters felt lost, and they provided us with very good feedback and suggestions, such as panning the camera upwards in the beginning of the level to indicate that the player should make his way upwards.

4.2 Crunch Time
Polish, Polish, Polish

After the playtesting session was held, we sat down to determine the list of things that needed to be fixed (which can be seen in the Appendix in Section D.1.1.

As the deadline got closer and closer, the group started fixing the listed tasks as well as focusing on polishing the project as much as possible. In my case, I focused on mixing and mastering the tracks I had composed, as well as adding more music, such as for loading screens and for the credits screen (screens that were added very late in the production process).

On Monday, 14th May, two days before the deadline, we sat down and wrote down a list of all the tasks that needed to be done in order to have a fully playable game from start to finish. These tasks were as follows:

- Put pillar in
- Put arena in
- Put sounds in
- Polish loading screen
- Credits & music
- Fix textures & lights
- Polish gameplay and dying
- Polish achieving of transformation
- Polish transformation point graphic
- Check boss battle

By the end of the day, we had completed most of the tasks, so we sat down to play the game in order to recompile another set of tasks, which were as follows:

- Falling doesn't kill character, no waypoint

- Transition to boss level

- Loading screens update

- Enemy patrolling

- Sounds

- Level decoration

I also made sure that everybody had started writing their development diary, in order to prepare for the group's hand-in on Wednesday, 16th May 2012.

Chapter 5

Personal Reflections
What I Learned While Making *Florian's*

5.1 Project Management
Leading a Team of 8 People to Create a Game

Although I had already obtained experience in project management in games, since I had managed a team of 6 people in my Bachelor's course, this was my first project in which I managed a team of 8 using SCRUM. However, we had used SCRUM in a separate team of 6 during Game Design, so I had some experience with how it should be used.

Learning from the mistakes made in the management of the team in Game Design, I decided to overestimate the amount of time it would take for people to complete art assets, music tasks and programming tasks. This gave us a total of 822.5 hours of work to do over 8 weeks. However, I had failed to take into consideration the time it would take to fix bugs. Also, there were some tasks that were not included in the backlog, but still had to be done anyway. I guess that guessing the things that will need to be done in a project is a skill that takes time to develop. Ultimately, we succeeded in completing the tasks on the backlog in time for our deadline (as can be seen in Fig. , as well as finding time to playtest the game and fix further bugs.
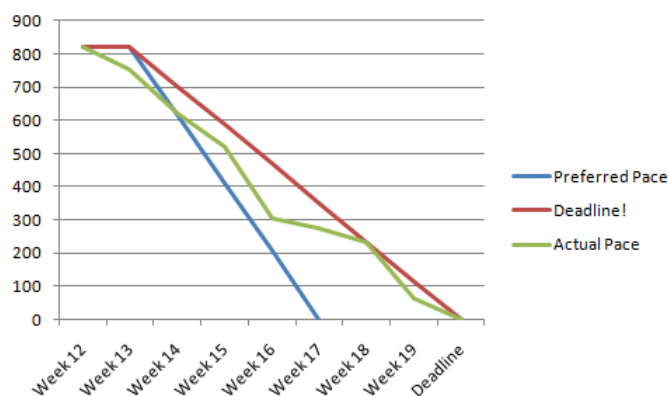
Figure 5.1: The group's progress throughout the project

We never really sat down to discuss specific roles in the team. It was acknowledged that there were people who were good at programming and people who were good at art, so no specific hierarchy was formed. However, I noticed that when people had a question regarding the game, whether it had to do with the mechanics, the art style or programming, they usually turned to me, so in a sense, I became the "game director" of sorts of the team. I would usually

redirect any questions I didn't know the answer to to more appropriate people, such as Ioana for art, or Andrew, Julian or Michele for programming. I also tried as much as possible not to get involved in every single thing, so for example when Ioana, Andrew and Virgil were designing the puzzles for the game, I left them to their own devices, confident in their abilities.

During the time we spent working on our Game Design project, we made it a point to all work together in the same space. As much as I tried to do the same thing for Game Development, this was not the case. Some people were attending extra lectures and could not make it to some of the meetings. Other people rarely showed up at the meetings, and other people preferred working from home. This meant that at most, we were around 3 to 4 people working together in the same space. We only held one standup meeting during the whole production, simply because there were not enough people present for the meeting. Sprint review meetings were also almost never held for similar reasons.

Some people were also more communicative than others. I made it a point to send regular e-mails, such as describing what we discussed during meetings, as well as sending a picture of the burndown chart weekly. However, I rarely received any replies, and if I did, it was always the same people that replied. One solution to this problem would be to try and bring the team closer together by having regular meetings that had nothing to do with the project, such as meeting up to watch a film or having a dinner party.

5.2 Audio and Music Production
Audio and Music Add More to the Game Than You'd Think

Audio and music are both commonly overlooked in game productions and generally left to the last minute. I tried to dispel this myth in our project by creating a sound bible during pre-production. I also tried to link the music that I composed with certain moods that I felt the player should have during the game, such as anxiety and panic during the boss battle.

Admittedly, composing music for the game was my first "major" production of music, and I learnt a lot from it. The track that took the longest for me to make was the boss battle music, even though it was only 1:45 long, as I had severely underestimated how long it takes to produce a track. To make things worse, I was working at a fast tempo and I had set my sights way too high, since I wanted my tracks to be orchestrated, when I knew nothing about orchestration or mixing techniques. Furthermore, it was my first "real" project using Ableton Live.

I'm pleased with the way the music tracks turned out though, particularly the gameplay music, which several people commented on and said was extremely catchy and fun to hear. While there are no quick fixes to achieve better music, I think that having a proper background in music theory and composition, as well as a background in mixing and mastering music. Admittedly, having access to proper equipment, such as a MIDI controller for easier access to different octaves, allows me to add more realism to the track. I couldn't record vocals for the tracks even if I wanted to, since I did not have access to a condenser microphone, and I wasn't able to record simple percussion or add guitar, simply because I did not have access to any ways of recording them from inside the university.

Regarding audio design, I have no knowledge or experience of how to record sound effects from scratch, and the university does not offer courses or equipment related to the subject. Therefore, I was limited to searching for the sounds I needed from websites. However, I was also able to combine different sounds together using *Audacity*.

Part II

Appendix

Appendix A

Vision Document

Note that the vision document is also available in our shared wiki[1].

A.1 High Concept

Experience the immersion of a steam punk circus! Play as Marcel, a wooden puppet out for revenge! Use your special transformation skills to overcome challenges and solve puzzles. Challenge your enemies not in direct combat but by defeating them with your brain. Save your friends, and direct the rebellion against the overbearing puppetmaster, escaping the steampunk circus gone wrong.

A.2 One Sentence Description

- Not all circuses are out to entertain.

- Take revenge against the puppet master's tyranny in a steampunk circus.

- Pinocchio gone wrong.

A.3 Key Features

- Experience a different world from a different perspective.

  - Experience the world from the point of view of a puppet. Suddenly, the normal world looks much bigger, and getting around is not as straightforward as it looks anymore!

- Transformation mechanic

  - Use Marcel's transformation powers to change into one of many different states, such as wood or metallic. Transform in order to solve in-game puzzles and save your friends!

- Solve mind-boggling puzzles!

  - Use the environment to your advantage and solve puzzles to reach the goal and clear the level. Manipulate lights, cross water, and avoid enemies!

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[1]`http://gamedev.scutajar.com/index.php?title=Vision_Document`

- Built in Unity

  - Quick, simple and easy to use!

A.4   Backstory

To visitors, Florian's is a circus with a twist, a weird and wonderful world to delight and entertain. With a collection of mechanical animals and other oddities, it's no wonder that Florian Valker and his circus are highly requested!

But sometimes, there's more to things than just the show that is put up. Marcel, one of the puppets and part of the puppet show, has had enough of the constant mistreatment of him and his friends. He is determined to put a stop to it, and during the night, he visits the other puppets in order to come up with a plan to get revenge on their abusive puppetmaster. Things may not be as easy as they seem, however. . .

One night, Marcel finds out that he can no longer visit his friends, since Florian has locked them all up individually and scattered them around the circus, so as not to cause trouble. With his friends unable to help, he must visit each of them in turn to gain their powers and thus defeat Florian alone.

A.5   Aesthetics

Visually, the game draws from both the vast genre of steampunk and Victorian England influences, as well as circus stylings. Since most of the game is set at night, the environment is meant to be dark and dull coloured, with the exception of areas in a spotlight.

The game is set in a circus, so most of the environment that Marcel can interact with will be inside tents and in the circus grounds. Tents and caravans will make up the majority of the buildings in the circus grounds, and posters promoting the different shows and spectacles will be seen dotted round the grounds.

A.6   Game Engine

We intend to use the Unity engine for several reasons:

- It allows for quick prototyping of game mechanics and level design.

- It is simple and easy to use.

- One of the team members has extensive experience in Unity, while 2 others have used it during the Nordic Game Jam.

Appendix B

Backlog

Programming	Hours	Art	Hours
Enemy AI	40	Marcel & Animations	40
Boss AI	40	Metal Marcel	20
LOD	20	Metal Character & Animations	30
Particles	20	Wagon	30
Camera Collision	40	Boss & Animations	40
Puzzle 1	30	Static Enemy & Animations	30
Puzzle 2	30	Moving Enemy & Animations	30
Puzzle 3	30	Main Pillar	15
Puzzle 4	30	Cannon & Animations	10
Puzzle 5	30	Cage/s	5
Boss Battle	40	Gears and Blades	5
Player Metrics	20	Boxes	5
Total Hours	*370*	Spotlights	2
		Buttons	1
Music	**Hours**	Tube Tunnel	2
Main Menu Music	40	Ring of Fire	0.5
Gameplay Music	80	Platforms	2
Boss Battle	40	Main Tent	5
Total Hours	*160*	Posters	10
		Leaflets	10
		Total Hours	*292.5*

Total Hours: 822.5

Appendix C

Playtesting Sessions

All names have been anonymized.

C.1 27th April 2012

C.1.1 Playtester's Comments

Playtester A

- "Is there an Interact button?"
- Back button and turning of the camera
- Didn't know he was meant to trap the enemy in the box, so he pushed him inside.
- Too much friction when you turn.
- Problem with camera in the lift area
- Wasn't sure where he was meant to go
- Audio feedback required
- No connection between buttons & lights
- Didn't know why he solved the light puzzle
- Asked us to see if players can skip puzzles.

Playtester B

- "Can I use WASD?"
- "Can't I walk backwards?"
- "I don't know why I'm solving the puzzle."
- "I can see through the wall"
- "Do I have to jump up those stairs again?"
- "Do I have to walk across the tightrope?"
- "I really don't want to fall down."
- "I thought the enemy was my friend."
- "It didn't feel wrong to go straight to puzzle 3"
- "I was lost inside the maze, but not in a frustrating way."
- "Biggest issue was controls."

Playtester C

- "Can I turn the camera up so I can look around?"
- Spinning is awkward.
- Outran enemy instead of trapping it.
- Cannot understand light puzzle.
- "How do I hold my balance?" (re: tightrope)

Playtester D

- Controls are crazy.

- "I'm using the mouse, but I shouldn't."

- "I'm using WASD, so using the mouse doesn't make sense."

- "No idea how to solve the light puzzle."

- Can't control the game, quit early.

Playtester E

- Went straight to puzzle 3.

- Wanted independent movement of camera

Playtester F

- "I don't know what the light puzzle is for."

- "Obviously a maze of sorts."

- Please improve the controls!

- "Tightrope is just mean"

- Fell off the elevator. Make it seen.

Playtester G

- "Why not WASD?"

- Wanted to separately move the camera.

- Might need to sprint in the maze.

- Didn't understand the light puzzle. Spent at least 5 minutes on it.

- Can't move back by pressing S.

- No correlation between buttons and lights.

- "General orientation would be nice."

- "Game made me ambitious"

Playtester H

- "Not sure what I have to do"

- Wanted to control camera with the mouse

- During the light puzzle, she kept running to the door to check if she could pass.

- "I'm lost?" (Thought that going out to the tightrope was going the wrong way)

- "Seeing through the walls is annoying."

- "Interaction is tricky."

Playtester I

- Reached for the mouse

- Felt that the light puzzle was random luck

Playtester J

- Wanted to use the mouse to look

- Felt that the elevator was broken

Playtester K

- Add shadows

Playtester L

- Wanted to use the mouse

- Wasn't sure what to do with the light puzzle

- Thought that going out to the tightrope was going the wrong way

- Animation for tightrope walking

Playtester M

- Tried to use the mouse

- Solved the light puzzle by accident, didn't know what to do

Playtester N

- Got the idea of trapping the creature in the box

- More dramatic lighting needed

- Felt the level was a bit too empty

Playtester O

- Maybe make the level timed?

C.2   15th May 2012

Playtester A

- After controls explanation: Why E?

- Why can't you walk backwards?

- Unity physics glitch (major glitch)

- "I'm so afraid of touching two boxes together"

- Solved Puzzle 2, pushed box successfully for puzzle 1

- It would be nice if the sidekick could walk with me, sidekicks are cool.

- I want to read the message again.

- Metal character was actually jumping, Joanna solved the lights puzzle while she was in metal form, since she felt she didn't need to transform back

- Aiming jumps is hard, because character keeps moving forward when I turn

- Wall disappears when I turn

- Keyboard issue, cannot run and jump at the same time, so solving some puzzles is awkward

- Rhino looks an evil dog

- Camera confused me sometimes.

- Really liked the cloth effect.

Playtester B

- Why can't I walk backwards?

- Do I die if I jump off the shelf?

- I don't know what to do in tutorial level. Ah, walking into the stars, that always helps.

- I like the fog of war.

- Animation and speed of running feels wrong

- Why do I start walking slowly, and then I speed up slightly?

- Really liked the cloth effect.

- Unity physics glitch (major glitch)

Playtester C

- Why can't I walk backwards?

- Unity physics glitch (major glitch) (parenting glitch)

- Need another waypoint before the flaming boxes

- Didn't really like the tightrope because of the horrible controls

Playtester D

- Wanted to move backwards

- Felt that the gameplay music was a bit too repetitive at times

Playtester E

- Managed to solve the game without solving puzzle 2

- Felt the need for more enemies in the maze

- Couldn't really see what the boss was doing in puzzle 2

- Wanted to move backwards

- Didn't understand where she had to go in the tutorial level

- Mainly used WASD to move

Playtester F

- Wanted to use the keypad keys

- Tried to push and pull other things besides the wooden boxes

- Wanted to move backwards

- Felt that the character wouldn't move when the keys were pushed

- Wasn't sure if pushing the box onto the enemy worked

- Wanted to pick up or interact with the cloth

- Unity physics glitch (major glitch) (parenting glitch)

- Ended up inside the box

- Alcove too hard to see in the fire tunnel

- Stairs too narrow for the light puzzle

Playtester G

- Compared controls to *World of Warcraft* controls

- Found controls confusing

- Tried interacting with the cloth

- Enemies weren't charging at him

Playtester H

- Confused with level flow

- Wasn't sure what things were enemies and what things weren't

- Wanted to move backwards

- Found camera and controls confusing

- Solved Puzzle 1 by picking up the key, and dying, therefore respawning with the key

Appendix D

Meeting Notes

D.1 April

D.1.1 Monday, 30th April 2012

Programming Tasks to be Done:

- Camera (*Julian*)

- Character (*Julian*)

- Death & Respawn (*Andrew*)

- Transformation (*Andrew*)

- Puzzle 1 & 2 (Key) (*Andrew*)

- Level Transition between Wagon & Level 1 & Boss (*Virgil*)

- Enemy Death

- Light Puzzle Improvement

- Credits

- Menu

- Plane (Fog) (*Virgil*)

- AI

- Setting up Waypoints

- Camera Animation (Movement)

- Lights

Sound Tasks:

- Implementing Ambient Sounds (*Simon*)

- Chimes

- Main Menu music (*Simon*)

Graphic Tasks:

- Pillar (*Ioana*)

- Boss Scene (*Ioana*)

- Putting posters in the level

- Textures in Level

- Textures for Wagon

- Game Logo

- Team Logo

- Marcel Animations (*Giedrius*)

- Menu (*Kristoffer*)

- GUI for walking (*Kristoffer*)

- Cage (*Giedrius*)

- Glove (*Giedrius*)

D.2   March

D.2.1   Friday, 23rd March 2012

We have 5 weeks left till the Play Day, where we should have a playable version of our game. I'd like to have a playable version before that day, so that we can test and finetune some stuff. Greyboxing is done, and the metric tool that Julian has should be linked up to the game fairly quickly, so that we can upload the game to the Internet and test the path flow and the time taken for the player to get to the top of the level.

Note that we have 7 weeks till the actual hand-in.

Here is the list of tasks that people have committed to.

- **Kristoffer**: 2 posters. Talk to Ioana for more details on what is needed for the posters.

- **Giedrius**: Snail Boss + Animations. You might want to talk to someone (such as Thomas) as regards the Marcel animations if they're still giving you trouble.

- **Andrew**: Integrating player metrics, and integrating the light puzzle into the main file.

- **Virgil**: Ring of fire, Cannon, Box/es

- **Julian**: Finish off camera collision, boss AI, as well as merging everything into one project. Talk to Andrew, Virgil and Michele, since they have parts of the game scattered around. Michele uploaded Puzzle 1 onto the asset server, but Virgil has the latest version of the greybox, with the proper scale. Andrew will also be integrating the light puzzle into the game at some point too.

- **Ioana**: Finish off the wagon.

- **Michele**: Puzzle 2, Enemy AI

- **Simon**: Start Main Menu music

D.2.2   Friday, 9th March 2012

People present: Simon, Andrew, Virgil, Giedrius, Kristoffer, Julian

- **Giedrius**: Marcel

- **Virgil**: Grayboxing

- **Andrew**: Level Design

- **Kristoffer**: Leaflet, polished Poster

- **Julian**: Camera Collision, State Changer for Marcel, Pathfinding in Unity

- **Michele**: ?

- **Ioana**: ?

- **Simon**: Music, Playtesting

D.2.3   Friday, 2nd March 2012

People present: Simon, Andrew, Virgil, Giedrius, Kristoffer, Michele, Ioana, Julian

- **Julian and Michele**: Version control system. Other programming problems include camera collision and clipping, LOD, particle systems for fire/smoke, menu screen, custom button configuration, checkpoint systems.

- **Virgil**: Grayboxing the level

- **Giedrius**: 3D Model of Marcel

- **Ioana**: Concept art

- **Andrew**: Puzzle prototypings

- **Kristoffer**: Poster concept art, game narrative till level 1

- **Simon**: Sound design

D.3   February

D.3.1   Monday, 27th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Kristoffer, Michele, Ioana
    People missing: Julian

- Discuss individual roles

- Assets needed

- Direction needed to be taken for the prototypes

- Population of art bible and sound bible

- Population of design document

- Starting writing up some of the backlog

- Discussion of sprints

Prototypes

Puzzles

Lights	Pushing/Pulling	Magnets	Electricity
Fire	Water	Enemies	Timed

Pushing/Pulling: Sliding blocks, soften landing, destroy enemies, to jump higher, block stuff (like arrow traps), holding down buttons Lights: Turning on and off, burning wood/paper, magnifying glass, reflecting light, see the way, invisible ink, colour filters

We will need at least:

- Main character

  - 3D Model
  - Animation for Jumping, Running, Pushing, Pulling, Transforming

- Boss

  - 3D Model
  - Animation

- Helping Character (Metal)

  - Model

- Helping Character (to be saved) (Stone?)

  - Model

Things to consider (criticism from Alessandro and Mark)

- Camera moving through objects

- Level detail, levels should not look empty

- Camera clipping

Environments

- Understage (as a tutorial level) (will introduce player to movement, pushing/pulling mechanic, save metal guy)

- Main tent (will introduce other puzzles, boss, enemies?)

Friday, 24th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Kristoffer, Michele
    People missing: Julian, Ioana

Decided on narrative background, team name and other names.

- **Team Name**: Puppetmasters

- **Game Name**: Florian's

- **Character Name**: Marcel

- **Puppetmaster Name**: Florian Valker

Narrative background

To visitors, Florian's is a circus with a twist, a weird and wonderful world to delight and entertain. With a collection of mechanical animals and other oddities, it's no wonder that Florian Valker and his circus are highly requested!

But sometimes, there's more to things than just the show that is put up. Marcel, one of the puppets and part of the puppet show, has had enough of the constant mistreatment of him and his friends. He is determined to put a stop to it, and during the night, he visits the other puppets in order to come up with a plan to get revenge on their abusive puppetmaster. Things may not be as easy as they seem, however. . .

One night, Marcel finds out that he can no longer visit his friends, since Florian has locked them all up individually and scattered them around the circus, so as not to cause trouble. With his friends unable to help, he must visit each of them in turn to gain their powers and thus defeat Florian alone.

D.3.2   Monday, 20th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Ioana, Kristoffer
    People missing: Julian, Michele

Presented Ideas

Giedrius

- The following mechanics would be introduced in the tutorial level: *Pushing*, *Throwing*, *Activation action*.

- Also available transformation equipment:

    - *Spring role* - ability to jump
    - *Unicycle wheel* - balancing over the narrow obstacles
    - *Tracks (like Wall-E had)* - to overcome steep obstacles, pushing power.

Assuming our character is a steam-punk metal thing:

- Spin wheel of fortune to decide which path you will have to take. This explains interacting with things mechanics. The wheel is lit by a spot light. When wheel stops spinning new path is being lit by a spot light which is trampoline obstacle.

- Obstacle course:

  - When going to trampoline and metal boxes which you have to overcome you hit the trampoline and understand that you can't jump because of the tracks. Then we introduce options to change equipment - transformation mechanics. Player has to choose *Spring* to be available to jump. When wearing a spring player movement is constant jumping but not high enough to jump over metal boxes. Player has to jump on trampoline to jump higher and jump over boxes.

  - After jumping over boxes you land on *Catch net*, or soft surface so you no longer jump and have to switch to other available equipment (or straight on a hard surface, but you can't jump into steep hills so you still have to switch to *Tracks.*)

- On the third scene player will see a steep hill and gates on top, which are closed. The steep hill can only be climbed if *Tracks* are equipped. But the gates can be only by solving a puzzle, which is pushing a box in to elevator which controls gates. When the box is being pushed into a elevator, it will go down and trigger gates to open. Then player can climb steep hill and go through the gates.

- Fourth scene would begin again by choosing correct equipment. This time it is balancing mechanics. Scene will contain high ground with main stage and a balancing rope which player will have to go through. For this he will need to equip unicycle wheel. Balancing should be controlled by arrow keys and movement with up and down arrow keys. After completing the obstacle you will end up on a platform with. Here player will have to switch to *Tracks* again. There will be elevator to go down, but down on the ground there will be an enemy which will just move around or look at you but can't reach you. On top of the platform where you will be standing there will be a box which you will have to push on top of the enemy to knock him down.

- After knocking down the enemy player takes elevator down to the knocked enemy to take his fuel to continue. To end tutorial level player exits the arena.

Andrew and Virgil both provided sketches of puzzle ideas.

D.3.3   Friday, 17th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Michele, Ioana
People missing: Julian, Kristoffer
Design Document

- Vision, tagline

  - Comparions? (x meets y) Unique Selling Point

  - Gameplay summary

  - Art summary

  - Sound and music summary

- Audience

- Gameplay Description

- Character Description (including enemies, NPCs, etc)

- Narrative

- Locations and World Description

- Programming Requirements (camera, etc)

  - Tools Needed

- Reference Material

Gameplay

- Puzzles?

  - Physics (light, magnets, fire, water, balloons, electricity, steam, mirrors, sound)

- Inventory based?

- Bug's Life Gameplay

  - Creation of Trampolines, Objects to Navigate Through Environment (such as Moving Them)

- Distracting Enemies

- Medievil 2 Gameplay

  - Pulling Off Head?

- Combining Objects

- Indirect Combat

  - Dropping rocks on big enemies

  - Transforming and squashing enemies

  - Moving lights to burn enemies

  - Water to rust objects (sprinklers, leaks, puddles)

  - Fire to burn objects

  - Magnets to attack objects and enemies

  - Rope/weight, pulley puzzles

Brainstorming Ideas

Acrobatics	Carousel	Circus Cannon	Engines / Motors
Creatures	Silhouettes	Marked Enemies	Metal and Wood
Dials	Dice?	Jetpacks?	Blades
Stages	Caravans	Cages	Chairs, Ladders, Balls
Tightrope	Balance Puzzles	Vending Machine	Top Hats
Fire Geysers? (Steam)	String of Lights	Cash Machine	Gears
Mechanical Trunk (Elephant)	Weights		

D.3.4   Monday, 13th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Ioana, Kristoffer, Julian, Michele

Concept

One main character (puppets?)

- Different states -¿ wood, clockwork, stone, metal, fluffy, lantern,

  - Wood
    * interact with wooden animals
    * float
    * immune to electricity
    * catch fire
    * weak to spotlights
  - Stone
    * slow to move
    * immune to fire and electricity
    * more health
    * sink in water
  - Clockwork
    * stealth since enemies can't tell if you're friendly or foe
    * cannot jump?
    * can you wind down? can you wind back up?
    * create decoys (mechanics allies)
  - Metal
    * interact with spotlights
    * heat up under the light
    * charge up with light?
  - Lantern (scary! enemies moving in the dark)
    * collect light
    * enter dark tents
  - Fluffy
    * catch fire very easily
    * jump higher, run faster
    * low health
    * doesn't take environment damage

- One level per tent

  - Puzzles (big or small, may contain subpuzzles)
  - May be themed
  - Objective: To save different characters

- "Main map" to select between levels

    – Upgrade place (Maybe?)

- Puzzles vs Action (so no direct killing)

- Maybe enemies are helpful or friendly when you are in a similar state?

Puzzles

- push things on enemies

- shine light on enemies (kill, immobilize)

- push / pull blocks

- push "planks" for high places

- dangerous terrain

D.3.5   Friday, 10th February 2012

People present: Simon, Andrew, Virgil, Giedrius, Ioana, Kristoffer, Julian, Michele

Moods

trapped	awe	mystery	helpless
exploration	evil / destruction	frustration	horny
perplexed	delusion	confusion	surprised
dreamy	enjoyment	intrigued	sadness
jumpy	scary (blood)	silly	power
cautious	anger	transformation	reflected
curious	followed	thrill	in danger

Settings

future	wonderland	upside down	mountain
top of skyscraper	modern city	dystopian city	cyberpunk city
battlefield	snow	your house	different physics (elastic, mud)
forest	microscopic	mind	island
high gravity	cave	human body	space
moon	clouds	warehouse	ethereal
boat	shadows	vertical city	volcano
unknown	jungle	underwater	zero gravity
circus	endless vertical surface		

Combination of Moods and Settings

- ghost to scare people

- exploration, trapped on the moon

- evil genius in human body

- in danger in a microscopic world

- horny on the battlefield

- dreamy shadows

- transformation of setting

- transformation of landscape

- good things KILL YOU

- morphing -¿ liquid, rock

- jumping from skyscraper

- mysterious from skyscraper

- balancing game

- top of a falling skyscraper

5 Main Ideas

Virus, Host to Host, White Blood Cells

- rush, time limit

- goal focused, attacked

- duplication mechanic

- pile up, crowd of cells

- survival, duplicate enough to kill host

- spy cell? strategy to fight cells

- walls are shrinking?

Falling Skyscraper

- slow motion

- microscopic? (bird, brick)

- jumping off, thrill

- blurs, parkour

Circus Fantasy

- microscopic?

- parasite (for animals)

- lunar circus? low gravity?

- Escape!

- no direct enemies, obstacles

- puzzle / adventure

- backdrops and props

- illusions?

- fantasy elements

- surreal elements

- different settings -¿ different mechanics, different mood for creatures / NPCs

- directly change the setting

- weapons? specific to scenery?

- things only move when you're not looking at them

- things move in the dark

Moon

- transformation from real to shadowy

- ghosts, scare people, possession

- get off the moon

- shadows / morphing

- possess everyone

- moon in shadow

Superhero

- transforms into objects, materials

- transform into fluffy animals (decay, detective)

- comedy villain, steal, detection

- from darkness to light

- things become real at night

- belief in ghosts?

- materialize

- comedy!

- useless superpowers! (sneeze (time limit), bubbles (everything floats up), milk!, gum)