Emil Erik Hansen
emha@itu.dk

User Experience and Prototyping

Final Hand-In: Candy Nightmare

2012-12-12

Emil Erik Hansen
emha@itu.dk

Emil Erik Hansen
emha@itu.dk

Table of Contents

Emil Erik Hansen
emha@itu.dk

1: Introduction

Constructing a game from scratch has always been a challenging feat, unless a sound idea, limitation or inspiration is in place first. Sometimes, these come out of thin air and some times they have to be sought after, fought for or given as more direct challenge. At certain times, several of these happen at once. This is one them.

In this paper, I will describe the process that turned out to create the game "Candy Nightmare", which is inspired by the thoughts, personality and preferences of the muse. I have chosen to primarily focus on my own design-thoughts and what has happened so far, at the cost of referencing course literature. While this might prove a rather fatal choice, I felt it more important to express what had gone through my head through the process, what inspired me throughout the project, why I made my choices, what inspired me and why I did as I did.

The structure of the paper, will as such be starting out with the gathering of the empirical data, how I gathered it and what methods I used. I will also be taking a look at what I could have done better, as well as how the usage could potentially be improved. This will mainly be covered in section 2.

Next, I will be describing the physical prototype which laid the foundation of the game, what was changed during the process of creating it, along with what and what was retained and/or changed towards going for the digital version. This also covers the inspirational points of the gathered data, that gave way for the ideas for the game. All this will be described in section 3.

Section 4 will focus on the development of the digital version, and how the major iterations went from an early adaption of the mechanics to a functional prototype of the game. I will also take a look at how that prototype derives from the original intention of the game.

Lastly, section 5 will sum up and reflect on the results and feedback given to evaluate the success of the process, development and creation of the game.

2: Empirical Data

Throughout this section, I will describe the process and thoughts I went through when deciding on my muse and will focus on my primary qualitative method – the Cultural Probe – as well as what I did to support the things that it could not do. As a last part, I will evaluate how I thought it worked out, the good and bad things about the method, and how I attempted to solve the things that did not work out as intended.

2.1: Finding the Muse

In order to design a game for another person, it is also important to find a person that you know can commit to the process, will be available to get in contact with quick, and – potentially – also be someone you know would appreciate being part of the project.

Besides the obvious requirements just mentioned, we were given a series of additional requirements about this person – our "muse" – as follows:

- The muse either had to be the opposite gender
- OR have an age difference of +/- 15 years of myself
- *Preferably* not attending ITU, a games related line of studies or likewise

Emil Erik Hansen
emha@itu.dk

I chose a good female friend of mine, which I have known for a while. She is as far from a "gamer" as it probably gets, but still on the "right side" of the technological barrier, so to speak. We have a few good things in common, which makes communication nice and smooth. I knew that it would be a challenge, especially because it was a person I knew, but I still did not have the faintest idea of the type of game that would come from the idea. It is always nice to have general data to reflect upon, but it was far from enough.

As such, I knew that I would have to try and gather data about her in another way than simply asking her questions, interviewing or guess away. On top of that, I wanted to try different methods, and try to obtain as genuine data as possible.

I knew this meant that I needed a method where I distanced myself from the muse, rather than being face-to-face with her all the time. Not only would that be impossible, but it would also – in my opinion – severely affect the gathered data. I wanted my muse to be just that: a muse: a source of inspiration, that I would do my best at pleasing with a polished piece of work, rather than a co-designer that potentially tried to live up to an idea that I liked.

2.1: Enter the Cultural Probe

When hearing about the idea of the *Cultural Probe*, I saw a great potential, and a creative way to gather the data. I knew that I would need to back it up with something else, at which I chose a passive *Content Analysis* method, which I will get more into later. The choices were based on two simple reasons:

1. The methods have to get data that is genuine and correctly reflects the person.
2. The methods should not feel stressing for either part.

The Cultural Probe is much more subtle that it sounds. Think of it as a little space shuttle arriving to a planet of aliens, having a list of tasks on board, which the receivers examine and starts performing some tasks for a while, not knowing exactly how the data would be used, only that this was a thing from another world set on gathering information about them. I might have stretched the metaphor a bit too far, but that is the gist of it.

The first iteration of the probe involves the muse doing a set amount of different minor open tasks every day for around a week. The goal was to catch those odd little things that catch our eye, makes us think or otherwise simply leaves an impression. Basically, you would most likely end up with an impression much different from actually asking what the muse feels is something that would impress or make her think twice? More importantly, the events and happenings is described completely by the muse, eliminating potential passive influences from the surroundings, that could potentially arise under an interview. The muse could feel pressured to answer what was on her mind at that very moment, which would not potentially reflect how she felt in general.

This would fit into the above mentioned list, as the tasks were not meant to be tedious in any way, as well as cover a different angle of perception that had *potential* overlaps with what the person shared with the outer world. On top of that, the tasks should also be something that could be done in a minute or two, so that it would not interrupt and feel taxing on the everyday life.

I also wanted to keep the list short and simple, to avoid something as complex and overwhelming as Bill Gaver et al. (1999) describes in their article. Not only did I find it too much work to force upon my muse – who was, after all, doing *me* a favor – I also wanted to make sure that I could grasp the feedback I would get back, as well as avoiding that my muse burned out. Naturally, it is close to impossible to properly compare two different probes, but for this scope, I felt it better to follow the good old "Keep It Simple, Stupid"-mentality.

Emil Erik Hansen
emha@itu.dk

The first iteration of the tasks were as follows:

1. Note down out-of-ordinary happenings that made an impression (1-3)
2. Same as above, just with taken pictures (1-3)
3. Jolt down little drawings/figures – specific theme perhaps? (3-5)
4. Describe a feat they want to accomplish (1 or more)
5. Feeling of the day

All of these would have to be accompanied by dates and times, to help me sort them correctly afterwards, and figure out potential connections between pictures, feelings and descriptions.

The two first points on the list speaks for themselves, and are probably the ones that relate the most to the reasons I have earlier as the less tedious and general tasks. The reason I chose the "out-of-the-ordinary" description, I was to refer to those little things that beats the everyday excitement of taking a bath or grocery shopping. For instance, that you made it home JUST in time before the rain started pouring down or a guy with a funny-looking hat walked past you - those little things you take notice of, but some people might not. They will later be forgotten again because they left an impression, but nothing life-changing. I felt that pictures here would prove to add a very nice dimension here, to support the general idea that people, when seeing something they find funny or out of the ordinary, would post pictures of it on various social networks like *Facebook* or *Instagram*. It is not a myth that pictures often say more than a thousand words.

The reason for the third point on the list, besides being an alternative idea, was to potentially have a fun little bonus to base the art/graphics and/or mood in the game upon. Something that could not quite be caught by writing notes or taking pictures, as well as giving the game a unique twist of personality. Additionally, it would be the aspect of the probe that was the closest to the idea of the muse wondering what it would be used for. In general, I was also very curious at how it would turn out, and if it would be able to yield any useful data at all. This approach also made my muse a *passive collaborator*, by potentially supplying me with art for the game, which was an interesting addition.

For the fourth and fifth points, their potential objectives was rather straight to the point. Feats is a good word for covering various accomplishments or achievements, but seeing as the word can be interpreted in various different ways, it could be a great way to figure out potential game objectives. For the feelings, it was more trying to capture the potential mood, which could influence the importance of the other inputs.

To present the probe, I wanted to empathize on the fact that the probe was a package that should be delivered as a physical object, rather than simply being a list of tasks delivered. As such, I wanted the probe to be a small package containing a small notebook, a pen and written "instructions". These would naturally need to be augmented by a smartphone camera, which I knew she had, and uses frequently. I knew there could be more personality in attaching a one-time camera, but the advantages of the smartphone highly outweighs the disadvantages of carrying around an additional object, the images would be poor quality, and it would take a lot of work – and money – to get the pictures in the end.

2.2: Backing Up the Probe

As earlier mentioned, the probe did not go alone, and was backed up by a more passive content analysis, which was done purely by myself, by looking at what she posted on *Facebook* and what she said when we talked together – without telling her I was doing it, nor what I picked up upon. The thing I hoped to achieve was a potential connection between what she showed to the outside world, and how that related to the content of the probe.

Emil Erik Hansen
emha@itu.dk

Everything shown deliberately to the outside world via social networks has a minor pitfall of being seen through the outsider's eyes, which means that some happenings of the person's life are left out, either because not everything is shown, or because the individual chooses to focus on a specific type of things to share with the world. This naturally varies from person to person, but seeing as I knew that she was somewhat active, I found this to be a potential good source of filling the information-gaps. This is exactly why this method has the potential of being a great compliment to the probe, as it unifies how the muse looks at the world – and how the world looks back at what the muse wants it to see.

As I mentioned when describing the probe, I had her note down the day and time for each note that was taken. This further helped me with comparing what she had written down to what she wanted to show the outside world, and could potentially relate to things that was not shown otherwise. Either way, it proved to be a great tool when I came to the point of collecting all the data.

2.3: Building and Polishing the Probe

During the last moments of finalizing the probe, I made a few alterations. As for the physical object, I got hold of a little white money-box. I originally did not plan for an actual box, so this proved to be a great find that added feeling and a sense of personality that could so easily be brought to the project. Furthermore, it allowed me to add a nice little detail that I originally did not plan for: the box could be locked. I would keep the key, thus making the muse unable to read the notes again, which would mean that she could not retract anything that was written, affected by what was previously written or drawn and – more importantly – not compare the contents. The box can be seen in Figure 2.1.

Besides the physical appearance and approach, I did a few alterations to the text itself, as shown below. The picture above misses a belated "maybe", which the attentive reader would notice by looking at the translation, which I added just in time.

1. Jolt down little drawings/figures – specific theme perhaps? (3-5) → Draw a little (maybe) cozy squiggle/drawing
2. Note down out-of-ordinary happenings that made an impression (1-3) → Note happenings or moments which are worth remembering
3. Same as above, just with taken pictures (1-3) → Same as above, pictures
4. Describe a feat they want to accomplish (1 or more) → Describe something you want to achieve (big or small)
5. Feeling of the day → Feeling of the day

As it can be seen, only the last point on the list remained completely the same. I simplified it by removing any kinds of restrictions, which specifically meant the numbers and a potential theme for the drawings. I knew that while this could come in handy, it was best not to direct the thoughts towards something specific. It would simply destroy the idea of having the input being completely unbiased, which was something I would hate to happen. I was gathering data, not forcing a person to think about something specific.

While the probe was away, I also decided to prolong the period from one to two weeks, to make sure that I would get a reasonable amount of data gathered. Seeing as I removed the quantitative limitations on how much would need to be done of each of the points, I figured that another week could not harm the process.

Emil Erik Hansen
emha@itu.dk

Figure 2.1: The Cultural Probe, in all its glory.

2.4: Method Reflections: Opening the Box and Pitfalls

Two weeks later, the probe was returned to me, and I followed this act up by asking some more direct questions regarding what games she actually liked, by checking what she had on her phone and trying to compare with the various assorted types of games I had myself. I knew that it would be a meaningless task to get her to play "proper" video-games on a desktop computer or console – as she has neither of those – so I knew at that point that it should be something that could work on a smartphone. From that, I learned that all she really played was "social" games, such as *Wordfeud*, *DrawSomething* and *SongPop*, as she liked the combination of social interaction and competitiveness. Easy decision to make.

Sadly, I also figured out that the task about drawing little scribbles had be completely neglected, as she felt she was not creative enough to complete it. That made me come up with an emergency solution, which involved in a bonus challenge of simply drawing as much as she could over the next two days, with whatever that popped into her mind. It would not be as effective as the original, and potentially stress her a bit, but I ensured her that they would in no way be any requirements in terms of any kinds of standards. Luckily, this task turned out quite well, and a great amount of 10 drawings was sent to me over the next days.

Emil Erik Hansen
emha@itu.dk

Figure 2.2: The Cultural Probe opened.

The other tasks had been going quite well, as can be seen in Figure 2.2. The box was rather stuffed with notes, but when considering the fact that it had been away for 14 days, the number of 18 notes was rather low. She did add beforehand that she had cut down on activity over the last week, which I expect was because the period might have been too long. Along with that, a total of 13 photos had been taken, which was also a rather low – yet a more fitting number. Still, it was a lot better than not getting anything back at all. Unlike drawn pictures, a task like this was one that was not simply recoverable over a weekend, without feeling very forced upon you.

I figured that discipline is a huge factor in this kind of task, as I had minimal control over the process. This is probably the largest pitfall of the probe compared to other methods, in addition to the above mentioned potentially discouraging thoughts the muse could get, by wanting to live up to a certain standard. I think that it helped a lot by cutting off the requirements of how many of each things that needed to be done each day, and by looking at the activity in comparison, I could see that I had made the right call.

Seen in retrospect, I could have also followed up, and asking more direct questions regarding how everything went, but I chose not to, as I felt it would invoke the sense of unease and make the muse think too much about what she wrote, considering it a tedious chore rather than a fun activity to do on the side. On the other had, I could potentially have averted the lack of pictures and low amount of notes.

A last minor thing to mention on the minus side, is the classic "lost in translation"-argument, as I chose to write the little guide-note in Danish, rather than English. This only really applies to point 4 on the list ("Describe a feat they want to accomplish"), but seeing as I elaborated it as either big or small achievements, I think the impact was minimal.

Emil Erik Hansen
emha@itu.dk

All in all, I do think the probe was very successful, considering all the negative points. I ended up with a good collection of a lot of different notes describing views, fun little things and pretty pictures and drawings, and an impressive part of them was used as inspiration for the game.

3: The Paper Prototype

The first real milestone for the project was when the first iteration of the game had to be decided, and a paper prototype constructed. For that, there was a few simple requirements:

- Should have core mechanic
- Should have procedures (things you can do, simple rules)

In this section, I will go through the things that inspired me to make the game into the current state, as well as the design-choices that was changed during the way.

3.1: The Inspirational Points

I have included a selection of the photographs and drawings which served as my inspirations on the following two pages, as figure 3.2 and 3.3, respectfully. Each of these contains 5-6 numbered images, which I will reference in the format of "figure 3.1-1" when referring to them in the remainder of this section.

I knew quite early that the game would have something to do with one or more of either music, patterns, art, traveling and/or candy, which I knew was things she liked quite a bit, simply from knowing her as a friend. When first proposing the idea of the whole project, the name "Münster Monster" had been mentioned. Not only does the two words sound alike, but "Münster" is also her last name, which is closely resembling the Danish word for pattern: "mønster". When looking over the large part of sounds name proposed much earlier was a nice focus-point, and turned out to be a subject that been quite consistent throughout all the various data. One of her photographs was of her name-tag she had just gotten at work (figure 3.2-1). I felt that was a good connection to serve as an immediate foundation.

I further realized that the pattern/art-theme had been a focus for both a few photographs as well (figure 3.2-2 through 3.2-4, as well as 3.3-1 and 3.3-4). The type of patterns gave me a good idea in terms of art-style to be used for the game, being slightly chaotic – yet very modern and stylish.

Edibles was also a recurring theme, and especially the frozen yogurt (figure 3.2-5) and drawn candy-pieces (figures 3.3-2 and 3.3-5 – and another picture of assorted colored circles), further strengthened my idea that candy *had* to be a major thing in the game. On top of that, when I had shown her a few games the day the probe was returned, she had liked the concept of the mascot of *Cut the Rope* which has a nice little monster that loves to devour candy, seen in figure 3.1. The pumpkin (figure 3.2-6) also had a nice resemblance, which sealed the deal for me – the game had to have a passive element of little monsters devouring candy. Given the name "Münster Monster", this turned out to be a great premise.

Figure 3.1: The mascot *Om Nom* from *Cut the Rope*.

However, there also had to be something evil and scary. While I doubt it was intended that way when it was drawn, I chose to use the character of "Birdman" (figure 3.3-3) to be the villain that wanted to take the candy away from the little kind monsters. He would also serve as a rather basic game mechanic, which I will get into later.

Emil Erik Hansen
emha@itu.dk

Figure 3.2: The 6 photographs that served as an inspiration.

Emil Erik Hansen
emha@itu.dk

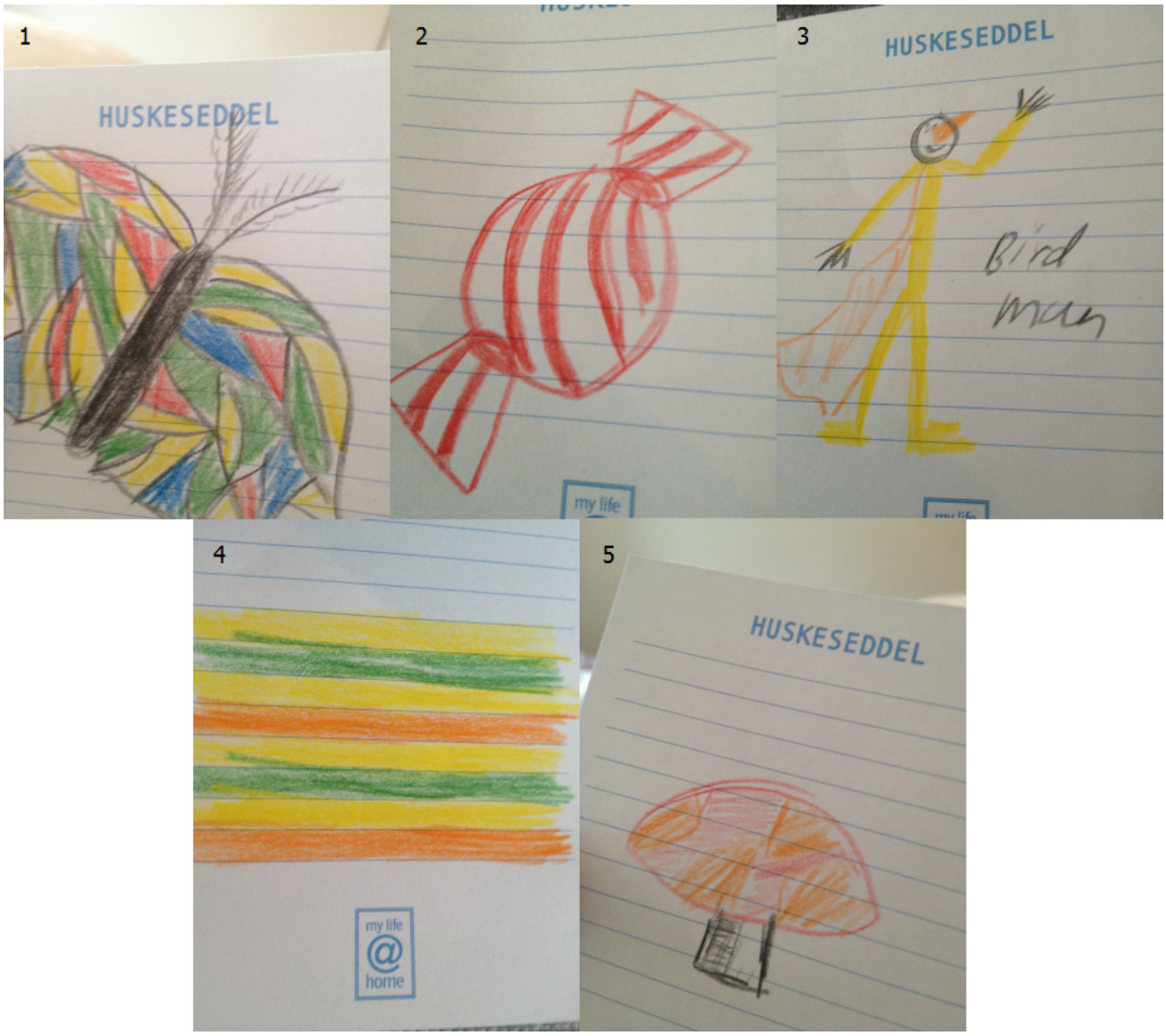

Figure 3.3: The 5 drawings that served as an inspiration.

Lastly, I went through the 18 notes from the probe, but sadly there was not much to draw from those. There was a high ratio of ones dealing with her looking forward to visiting friends and being joyful at the fact of it being Friday. It was obvious that the social aspect was very important to her, so while the notes did not provide any specific inspiration, it further underlined that the game really had to be based on the social aspect. I had plenty of inspiration anyway, so the time had come to come up with the very first version of the prototype.

Emil Erik Hansen
emha@itu.dk

3.2: First Look at the Game

Based on the inspirations, I came up with the idea of two monsters competing about which of them could locate candy the fastest on a board where it was quite difficult to spot the given piece of candy, as it would blend in with the background. If either of them were too slow, the bad *Birdman* would swoop in and snatch the candy right in front of them, which served as a simple mechanic to explain a time limit on each round.

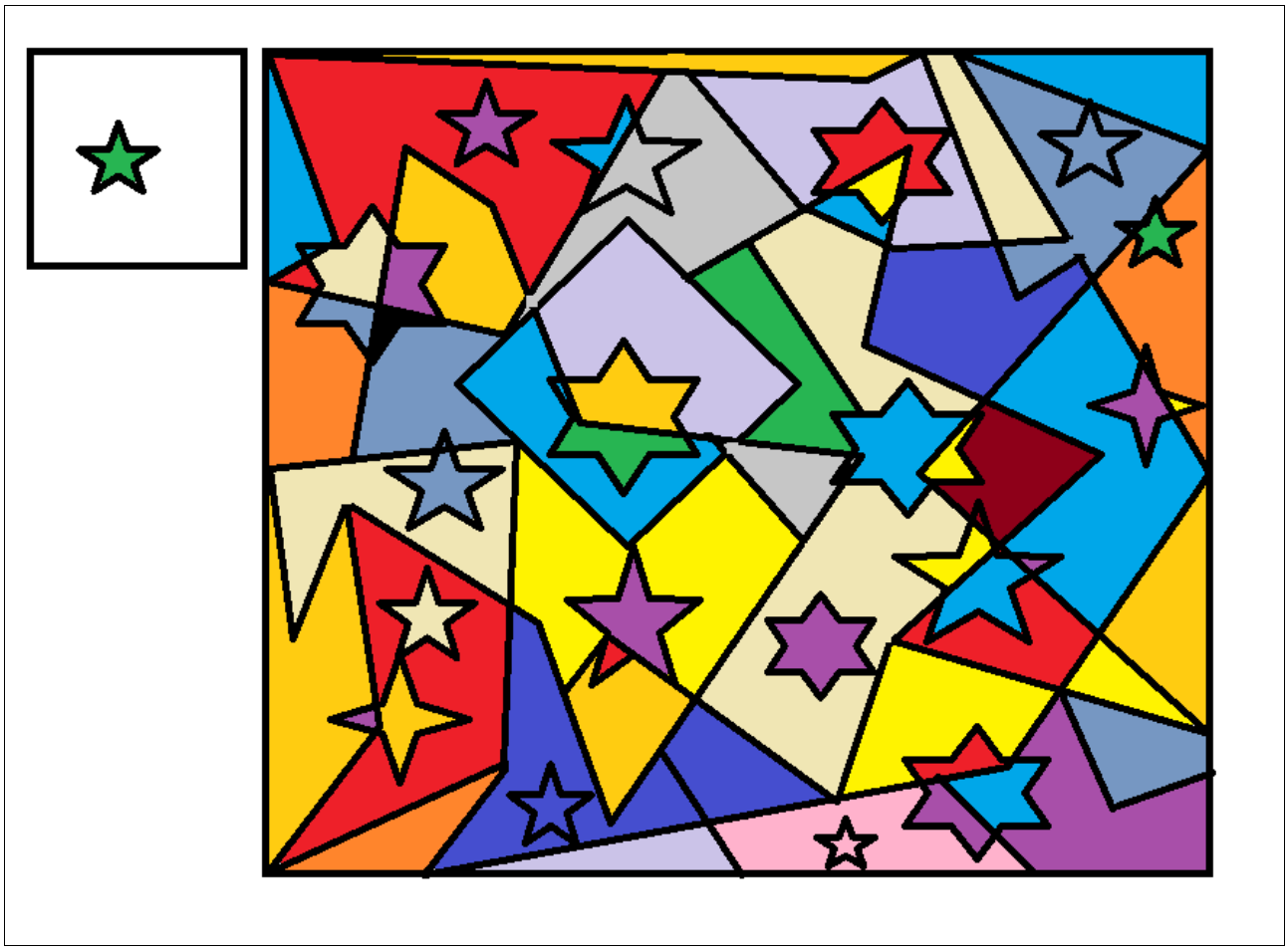

Figure 3.4: A very early drawing of the game.

On the more technical side, this would mean that the players would take turns on a randomly generated board of colors and shapes, where a given piece of candy, as seen in the top left of figure 6. To make things fair, they would have a turn each on the same board before a new one was generated. To put the rules on a more readable fashion, see the list below:

- The two players are given the same board.
- The one that finds the object displayed at the top left corner first wins the round.
- There will be pieces of candy closely resembling the different ones that needs locating.
- There would be a maximum time to finish a round, so they simply cannot last forever.
- If you miss-click, you are punished by getting an additional second added to your time.

Emil Erik Hansen
emha@itu.dk

The idea for the punishment was an idea the muse indirectly had proposed herself when I had spoken to her after getting the probe returned, as she mentioned the game *Wordseek* (seen in figure 3.5), in which players would take turns in finding as many legit words as possible. The game had the drawback of being exploitable by simply swiping your finger all over the board, getting words by sheer luck, rather than observational skill. As such, it was beneficial to not play the game as it was intended, which had led the game to become boring to her. This led me to add that rule to avoid spamming and guessing in order to win.

Figure 3.5: Picture of *Wordseek.*

It should be mentioned that I have not tried *Wordseek*, but simply took her word as I knew it could very easily be an issue given the way the game was structured.

3.3: Refining and Getting Closer

As I knew that it would be risky to simply toss a fully fledged idea at her, without her knowing anything at all about the game, I got a great idea to get some valuable feedback and reactions from her. The first tweaks to the game was obviously going to be the biggest ones, seeing as the game would never be successful if she did not like the idea behind it. As such, I posted the following text to my muse the day before I revealed the first real take at the game:

> *"Candy Nightmare. The sweets have been stolen by the evil Birdman, the Münster Monster's archenemy! They must be located before time runs out, and Birdman swoops in to eat them!"*

Suffice to say, the reaction was rather good, as she replied with "HAHAHAHAHAHAH YAAAYYYY" and followed up with "AWESOME" once I further revealed that the "Münster Monster" was on the good side, and "COOOL" once I confirmed it to be a social competitive game.

With that, I wanted her to get an idea of what she would guess the objective of the game would be, just to see how different my idea was from hers, and have a good base for tweaking the gameplay to her liking. After all, it was *her* game I was designing.

Emil Erik Hansen
emha@itu.dk

The next day, I posted the picture (figure 3.4, mentioned in the previous section) along with the rules to her, to see what she thought of the idea, after knowing so little about it. Her reaction was – once again – very positive, which was a great relief.

When asked what her immediate thoughts had been, she said that she had expected it to be something about gathering things, and nothing quite as advanced as what I had proposed. This turned out to give an opportunity to tweak the gameplay a minor bit in a way so that it had an even deeper layer of competitiveness, as well as removing the potential luck of spotting the object at random, rather than actually being good at locating them and quick to point them out. In the end, the following turned out to be the rules for the Physical Prototype of the game:

- The two players are given the same board.
- The goal is to find the highest amount of the 7 possible candy-pieces, as fast as possible.
- You have 20 seconds in total, at which point *Birdman* swoops in and eats the remaining pieces.
- There will be fake bad pieces of candy closely resembling the different ones that needs locating. Neither you nor *Birdman* like these.
- If you miss-click, you get a second subtracted from your total time, to avoid spam-guessing.
- The player who manages to find the most pieces of candy before time runs out wins.
- In case both players finds all 10 pieces, the winner is the one who have found them the fastest. That is, you are given points based on the amount of remaining seconds.

A good side-effect of this refinement was that I could introduce steps that would make it easier to generate as a digital game later on. The best example here is the figures that the player needs to locate would be drawn ahead and be known objects that appeared in a random sequence each game, rather than simply being randomly generated. This would lead the player to get a "relationship" with the candy, and wanting to find them all.

This modification also had the advantage of not altering the look of the game, and thus I had a really good foundation for what turned out to be the final version of the physical paper prototype. I decided to add *Birdman* as a way to show how much time would be available, and as a way to show how I imagined the user interface would look in the digital version.

Figure 3.6, shown below, shows this finished prototype, along with the 7 different pieces of candy that needs locating. The idea is that the cards are stacked in the top left of the board, and removed one by one once the piece of candy has been located. A manual stopwatch is, however, needed on the side, if one were to attempt to play the game as it is meant to.

I showed the finished version to my muse to allow her to play it, as well as seeing how her reaction was to it, and check if the time was fitting. It turned out to be a very fun experience, and she tried it quite a few times. She empathized that the punishment for missing or picking the wrong piece of candy should be a requirement, but for natural reasons this was very difficult to properly implement on a paper prototype, given the nature of a standard stopwatch and normal observation methods. She did, however believe in the potential of the game, which was both a great ego-boost and a solid green light to properly start working on the digital prototype.

On top of that, I tried out the game with a few other people to see how long it took them to locate all 7 pieces of candy on the board, and everyone made it within the 20 seconds given – which was also the intention.

Emil Erik Hansen
emha@itu.dk

Figure 3.6: The finished physical prototype of "Münster Monster".

3.4: Final Notes from the Paper Prototype

The way the game looked at the point of the paper prototype gives a lot of good ideas of how to grasp the digital version. Seeing as the candy-pieces can be reused, it is graphics that only needs to be made once. In regards to the background, I thought about randomly generating that as well, by adding a large amount of polygons with random amounts of sides and colors. In the end, I chose to let that idea go, as the gain was too small compared to how easy it was to consistently use the background I had already made, which had been incredibly effective.

Regarding mechanics, it is quite trivial to determine if the player has clicked on the correct object or not, as well as randomly placing them on the board. A timer is likewise an easy task, and saving locations of the various objects (for when another player wants to attempt the same level) should be doable as well.

The game can also potentially be played by more than two players – a thing that I later have regretted not trying out directly. Speaking against it, however, is that these types of social games are usually played in pairs. While this is often because it would be difficult to convert the given game to suit more than two players, it also cuts down on potential waiting time before it is the players' turn again. As such, I stuck with keeping the game being intended for two players, but I have a good feeling about the potential both social and competitive angle by having more players competing.

Emil Erik Hansen
emha@itu.dk

4: The Digital Prototype

It was finally time to delve a bit into the last part of the development process – going digital. I ended out with three major iterations, each of which focusing on various steps of going towards a game that resembled a digital version of the paper prototype as possible.

I had decided on using Processing as the development tool quite a while before even building the paper prototype. With a game of such simple mechanics, there was no reason to find a more advanced tool, especially seeing as the game is meant to be a prototype. Furthermore, I had experience working with it, as well as three very good reasons for using it.

1. **Easy to make quick things happen:** With the nice setup and tons of easy-to-use commands, it becomes very quick and easy to do simple mock-ups.
2. **Easy getting inputs:** In the same way, there are quite a few good ways to get input from the mouse and keyboard, making it easy to make it interactive.
3. **Quick to share:** By being a Java-based, Processing-results are easy to share, by being viewable in browsers or simply as a standard executable file.

Combining all those really speaks for itself. It does require some coding, but that is to be expected either way, but seeing as it is basically a higher level of Java, it is hardly something you would see as anything negative.

All things considered, it actually took quite a while since I started working on the prototype before I started the actual coding. All in all – if we disregard time spent fixing dumb errors – I believe I spent around 40% of the time planning how to construct everything, so that would not have to figure out how things should function while I sat and implemented them. This made it much easier to plan and approach the different aspects of the game, how to approach bug-fixing and avoiding pitfalls that would force me to undo stuff I had already made. This turned out to be a highly efficient approach, and soon led to a fully functional first iteration.

4.1: Iteration 1: The Mechanics

What I ended calling "the first iteration" was the result that was turned in for a hand-in that simply had to show an early digital version of the game. As such, I found it vital to focus on getting the mechanics working, and then spend time on adding the more time-consuming graphics later. Before taking a look at figure 4.1, which shows how that turned out, take a look back to figure 3.6 a few pages back. As mentioned, I already had the main user interface worked out, so it was very easy to get a simple version represented.

The way the game works, is that it has a pool of image files of of a fixed size with the names "symbol_[number]", with the game knowing both the total amount, and the amount needed in order to complete the game – in the case of the first iteration those numbers were 16 and 7, respectfully. This method of using symbols made it incredibly easy to potentially add more, as that could be done by simply adding more files, and increasing the number in game preamble. The only real limit, would be that in case things were getting cramped on the playing field, the game could potentially go into an infinite loop, as the placement was done by picking a random coordinate set and checking if placing a symbol there would overlap any of the already existing one. As can be seen, that was far from being a problem at all.

Emil Erik Hansen
emha@itu.dk

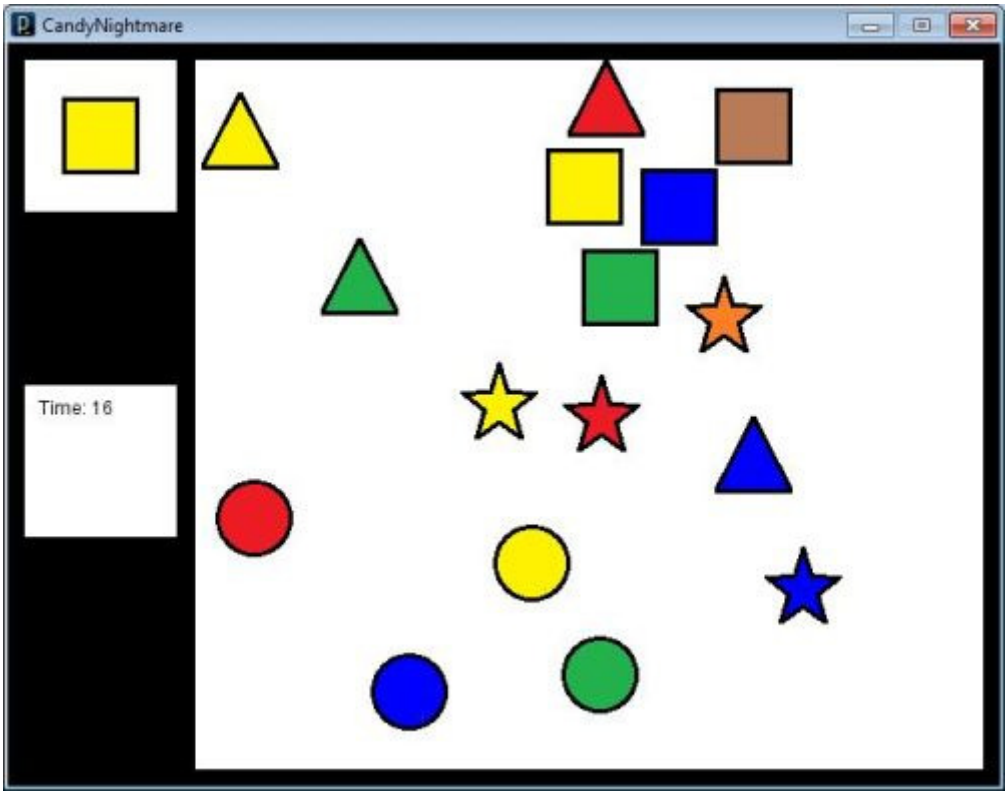

Figure 4.1: First iteration of "Candy Nightmare".

The first thing that probably springs to mind is that the background is missing, which I decided to add in iteration 2. Besides that, the order you had to find the symbols (or, as was the intention of the game, candy pieces) was fixed, as I had some problems with finding a proper method of shuffling them.

The most important thing was that there was a reaction when pressing the correct symbol, and a new one could be picked. Furthermore, the symbols on the board would be randomly placed between each played game, and would never overlap, which would obviously make it too silly with a background as well, potentially making it impossible to spot a given symbol). There was also no penalty yet when clicking the wrong piece. This was, however, incredibly simple to add, as that would be what would happen when not clicking the right piece. Either it was right – or it was wrong, after all.

At this point, I got a few people to test how long it took to locate the figures, and was slightly amazed at how fast that was possible. People generally averaged around 1 second per figure, which was around double as fast as in the paper prototype. While I took mental note of this, I chose not to put too much into it yet, as the background, after all, was missing.

4.2: Iteration 2: A Digital Paper Prototype

Now, as it was quite obvious that the game had proven to be very easy without a proper background, I figured that adding one at this point would be a crucial addition, to see if it was simply a result of going digital, because a mouse was simply that much faster than pointing with your fingers – or simply because of the missing background. Either way, the result after adding the background can be seen at figure 4.2.

Emil Erik Hansen
emha@itu.dk

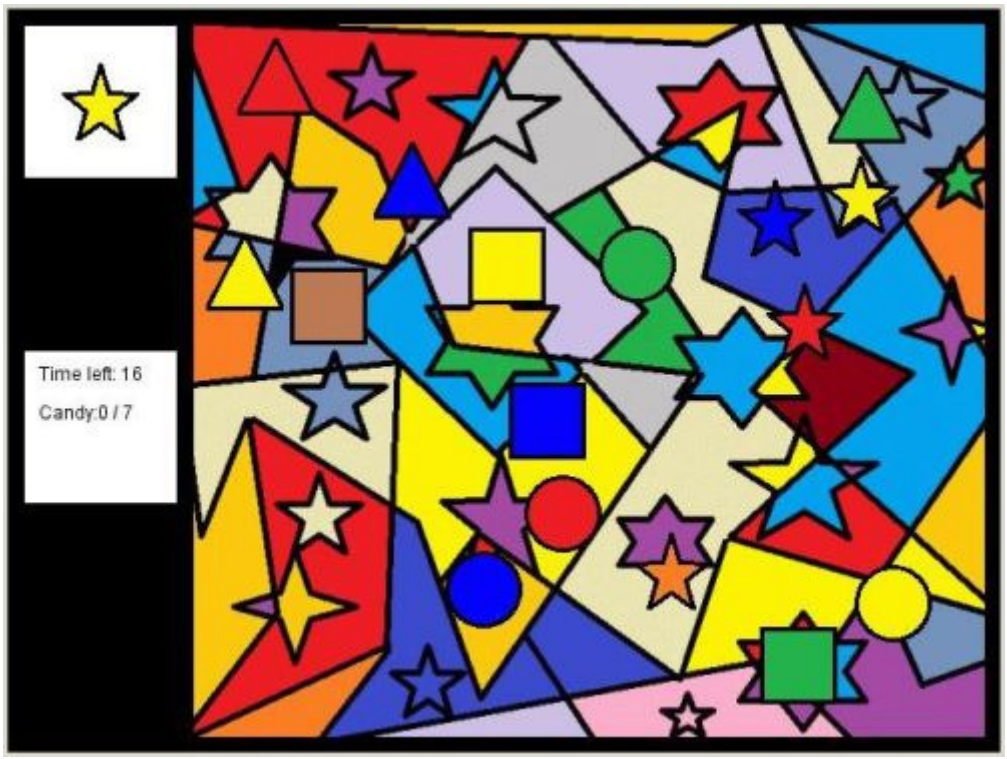

Figure 4.2: Second iteration.

I, admittedly, chose the easy way out and simply fitted in the background I had earlier used. However, by running some user-tests, it seemed that most people averaged 4 seconds left, which was surprisingly close to how the general times were in the paper prototype. That is, people would generally spend slightly more than two seconds per figure.

Along with that, not much else was changed from the first iteration, seeing as the mechanics were in place. However, the random order of symbols was fixed to actually be random, and I had added some descriptive text to the splash-screen to explain the rules of the game. I got quite a few little odd bugs located from people deliberately trying out various things to break the game. Considering so few things could potentially be broken, a few bugs were found, which was always good. They could easily be fixed. All that was left now was some more polished graphics.

4.3: Iteration 3: The Final Product

I actually ended up making a minor mechanics change in the final version, as the timer had previously been going in seconds with no digits. Being a competitive game, it was even better to be able to say that you had beaten a player with a tenth of a second. I could have gone all out and make it 2 decimals, but found it slightly overkill. Either way, it would take a matter of seconds to change.

The major part of this revision was obviously the graphics. As I wanted to get back to the personalization of the game, I got my muse to pick which of the original types of candy pieces she had liked the most, to give me a foundation to create the final set of pieces upon. She ended up choosing the round ones, stars and hearts, which let me to create the pieces seen in figure 4.3. This also increased the number of candy pieces from the two previous iterations' 16 pieces to 20 pieces. And, as mentioned earlier, this would be easy to increase even further.

Emil Erik Hansen
emha@itu.dk

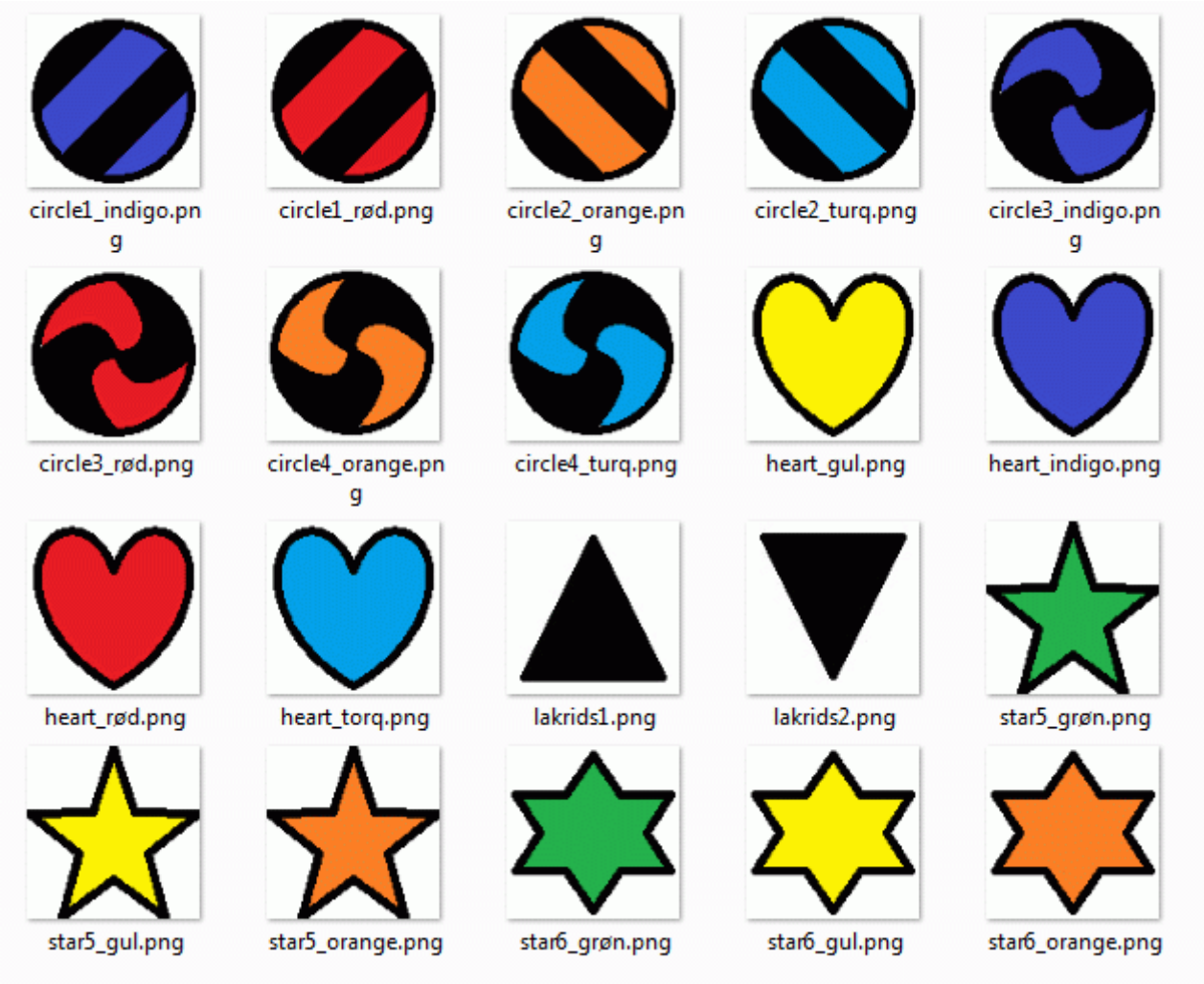

Figure 4.3: Overview of symbols in game.

As it can be seen, the very closely resembles the pieces used in the paper prototype, with the added intention of trying to make them seem slightly familiar, to force the player to spend the extra second to think twice. After my first attempt of playing the game with the new pieces, I caught myself realizing that I had made a fatal error, which I knew I would hate any other game developer for doing with a game like this: the pieces were not colorblind-friendly! It seemed that the shades of orange and green I had chosen messed with my own red/green-colorblindness, which meant that I either wasted a critical amount of time to tell them apart, or fail because of clicking the wrong icon. Obviously, being "handicapped" should not affect game-play when it could be avoided. I got it easily fixed by coloring the green stars turquoise.

As a last touch of polishing, I added a few simple sounds to give the game a bit of depth: A crunching sound when picking up a piece of candy, a buzzer-sound to inform that the given click was wrong and finally some semi-scary ambiance to empathize on the "nightmare" part of the name. Simple, yet effective, and reactive feedback is always a good thing. It was certainly better than the game being completely silent.

Emil Erik Hansen
emha@itu.dk

Figure 4.4: Third and final iteration of the game.

As can be seen in the final game, the Münster Monsters also finally makes a proper appearance. A dangerous and menacing one greets us upon the game start, and either a sad or very happy one shows up depending on whether or not the player manages to find all 7 pieces towards the end.


Figure 4.5: Münster Monsters (vicious, sad and happy, respectfully).

All in all, the polished graphics turned out to make a nice addition to the game and raised the polished look quite a bit. Still, it is far from being exceptionally pretty, but I never bragged about being an amazing graphical artist. Regardless, it turned out to look very close to intended result, and that was the most important thing.

Emil Erik Hansen
emha@itu.dk

5: Summing Up and Looking Forward

As for the last few words on the game, I thought it would be fun to look at what could be in store for the future, when looking at what the "pitch" for the idea was. It was intended as a "social competitive" one-on-one game, intended to be played on smart phones or likewise devices, where the two (or, as briefly mentioned earlier, more) face off on a given randomly generated level. The player who got the fastest time or the most pieces of candy within the time-limit would win. Simple and quick.

Seeing as the multi-player element was something that was never properly tested, I cannot say if that would have been a success. While the feedback from my muse strongly states that she is pleased with the results and believe in the potential, it is obvious that the amount of replayability is low as a single-player game, without introducing various new gameplay elements or game modes.

Either way, I share my muse's enthusiasm about the project, and I hope to some day return and make it a reality, so that the Münster Monsters will be able to battle for candy domination and keep *Birdman* from snatching it from their hands across hand-held devices all over the globe.

As a very last note, I felt I would include a little quote, which I felt have reflected the game quite well.

"Perfection is achieved, not when there is nothing more to add,
but when there is nothing left to take away."
- Antoine de Saint-Exupery

Emil Erik Hansen
emha@itu.dk

6: Literature

List of literature referenced throughout the paper.

- Gaver, Bill et al. (1999): "Design: Cultural Probes". Interactions 6. pp. 21 – 29.

Appendix: Blog Posts

A total of 10 blog posts, totaling 16 pages.

1. Game Jams and the User-centric Approach
2. Participating in Design
3. Lost in the Void: A Paper Prototype
4. Data: The Gathering
5. The Packet and the Victim
6. Processing Digital Prototyping Thoughts
7. Return of the Probe
8. Yet Another Prototype
9. Do I Dare To Go Digital?
10. Candy Dream

While each of them has a link to their individual blog posts, they can also be accessed at this URL: http://gnub.com/category/ueap2012.