

Computer Games Laboratory

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Game Prototype



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Introduction

Why build a prototype?

It is considered a bad practice to start building a game based solely on a good story or a spontaneous idea. It can result in frustration when deep into development, wondering how it can be that everything works as designed but even the developer doesn't feel like playing their own game.

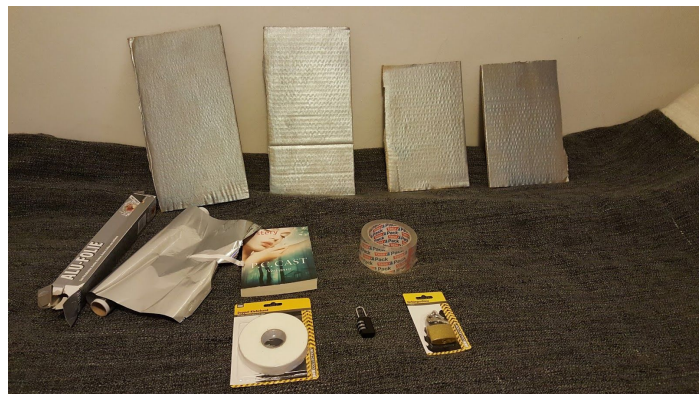
For that exact reason it is of extreme importance to test if the idea/core gameplay is fun and exciting since the very beginning. If it is proved, the development stage can be continued with confidence and all is needed from that point is hard work. Prototypes do exactly that.

A prototype can be anything, from a board game to a bunch of post-it notes stacked next to each other. The main purpose of the prototype is to test if the idea is entertaining at an early development stage and optimally to show to developers whether the team is moving in the right direction.

Physical & Digital Prototype

Ok. But why build 2?

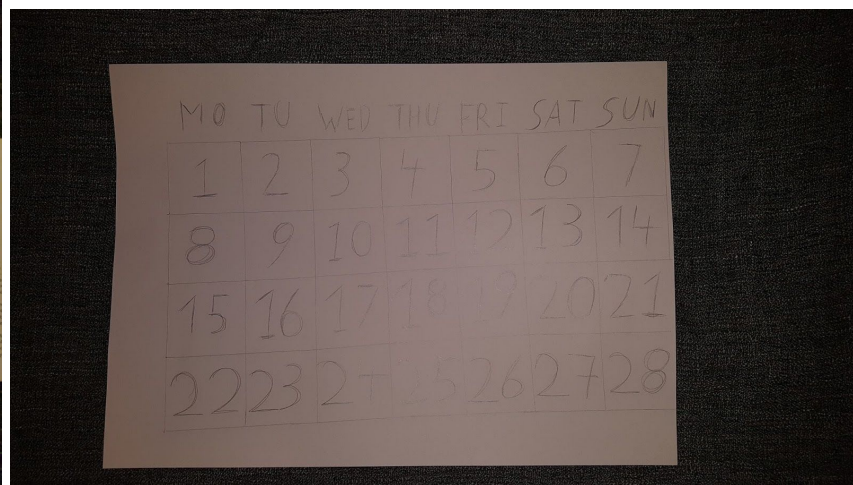
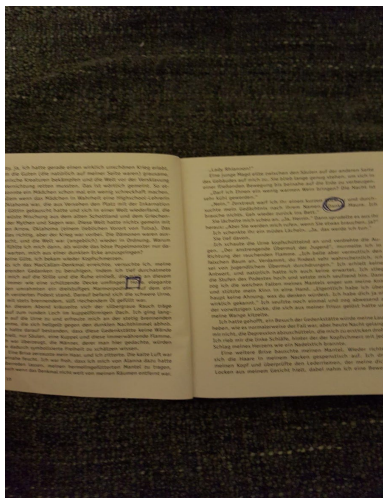
Our core gameplay can be divided into two different categories. Immersion through exploration and interaction with the environment, and riddle solving. The latter can be tested with small games between the team members by having one member of the team propose a riddle combined with some props and then the rest of the team trying to solve it. In that way, we were able to easily determine if our ideas were hard from a puzzle solving perspective and entertaining at the same time. After that we figured out the smaller details in order to improve them.



Physical Prototype

For the class presentation we came up with a physical riddle called "Hidden symbols". It consists of a box, 2 locks, a key, a book and a concealed message. We give the player a key and ask him to use his imagination for his surroundings.

He has just found a key and he is trapped inside a basement trying desperately to open the door which is locked by a padlock with a 3 digit code. Somewhere in the room lies a box, which he can open with the key we have provided him. Inside of it he finds an old book whose pages are marked by rectangles, triangles and circles. If he also inspects the box carefully, he finds a piece of paper that shows him how those shapes are connected. Our player has to mark each page that has a symbol on a wall calendar nearby. Once he does so and connects the appropriate symbols on that calendar, a strange pattern appears. If the player takes a few steps back, this reveals the 3 missing digits to open the remaining door.



Digital Prototype

For interaction and exploration, the only thing we can do is to look around, since our main focus is to create realism. This fact combined with our limited time, inspired us to use our first scene (the Office) as a sandbox to experiment in. We created a basic office with simple furniture and movement capabilities. We played it and then discussed what we could add into it to make it more realistic, from new models to new ways to interact with them.

A spinning globe or a street and some buildings seen from the office's window are small items that improved the feeling of immersing in the VR room. After that we also added a very simple riddle to get the user acquainted with the concept. Under a pile of documents there is a hidden key, which opens the locked cabinet underneath the desk. Inside he finds the case file and from then on we allow him to move to the next scene after a small cutscene. We iterated this process multiple times in order to achieve what you will see in the video.



Game demo Video

Feedback

Our experience with the prototype

Although it is tough to have a different point of view as we are both developers and testers in this particular case, this was a very creative and interesting experience. Having in mind that we have to create a realistic environment that the players could immerse themselves in, we put a lot of effort in realism as far as interactivity and objects are concerned. The first results show that we are moving in the right direction. The feeling of being in the room when introduced to the game and the first scene is really convincing and the player can interact with everything in the office, objects, lights and move freely around and start to feel like he belongs in the game. Also, despite the fact that this happened due to a bug, we found out that we could teleport to different locations outside the office. Standing too close to the window or even at the edge of our current map made us want to take a few steps back. Such a reaction at this early stage of development proves the immersiveness of virtual reality. The whole environment is realistic and, although there is room for improvement, we can say that the first testing was extremely fun and positive, a success.

Prototype outcomes and design revision

The prototype was really useful to understand the appeal of our game idea to the players and the complexity of development. The initial scene and the whole gameplay was interesting and realistic despite the limitations of the early stage of development. The physics part and the manipulation of the objects reacting realistically to actions is a tricky part that we have to overcome.

Based on our observations from the prototypes, we made some changes in our scheduled tasks. First, we removed one of the scenes from the end of the game and we replaced the time consumed for its development with more riddles and puzzles. Second, we discovered from the physical prototype that interacting with different objects lead to different hand postures. It means that if we want to keep the game as real as possible we have two options: 1) Limit the number of objects we can interact with. 2) Do the animation for every hand posture. If we go with the first option, we won't be able to add more riddles and puzzles. On the other hand, if we manage to hardcode all the hand posture for every object, we won't finish on time. So we decided to compromise some of the game realism in favor of having more interesting and engaging gameplay. If the hands are on their way to interact with an object, we will make one generic animation for all the interactions, but at the end of this animation the hand will be 10 % transparent. This will allow the player to see where his/her hands are and hide the artifact in some way. Our revision for the game tasks are oriented in a way to maximize the productivity with the limited amount of time.

Suggestions from other teams

We have got critique/suggestions from other teams.

1) Someone pointed out that we did not really talk about sound effects and background music. It should be improved to make the experience more attractive and immersive. Voice acting can be added at the very last stage of development provided enough time. 2) In addition, a very important task is to write a well-polished script for the game. Without a compelling story, the game can be boring and just a mere showcase of VR. 2) Furthermore, we should work on more riddles or smaller quizzes, so that the player is even more eager to explore and play the game and this will be our main focus. 3) On the other hand, as our time schedule is rather limited, we decided that we will reduce the number of scenes from the initial plan, so that the game can be completed in time. 4) Another tough issue of the development for this particular game is that due the nature of the game, there should be a vast amount of objects/models in all scenes. It could be a very time consuming process if we want to add animations or specific interactions since it is necessary for realistic feel that we are after.

Even though the first results are positive and promising, we still have a lot of ideas to put in the game and improve gameplay. We plan to compromise on the game length in favor of the game quality, putting effort on the further development of its core aspects (riddles/puzzles, realism feeling in VR, storytelling).