

THE ROOKIE THIEF

CPZenon Games - Yolanda Cruz Girona & Antonio Ríos Vila

MAKING OF



We knew that being game developers is a hard profes. However, also we took into account that the results at the end always, way or another, are satisfactory. The experience that have lived during this month developing a game for the CPC RetroDev 2018 has been complicated and rich at the same time. Without any doubt, it has been something interesting to relate. We are Yolanda and Antonio, known in this field like CpZenon Games. We are students of Multimedia Engineering Degree in the University of Alicante, and this is our small history.

1 – A CHALLENGE AND AN IDEA

Everything began on 11 September in class of Videogames I, a subject of our degree. The teacher, Francisco Gallego (it isn't necessary to present him in this field), did not repair in detours in the hour to present us the activity that would occupy us all this month: develop a game for an Amstrad CPC 464 and present it on 31 October in the CPC RetroDev 2018. Of course, all a challenge was to develop a game during little more than a month! For this provided us a possible calendar that was, what less, intense.

Besides, the game had to fulfil two conditions: it had to be programmed in Assembly Language and contain basic Artificial Intelligence. It is evident that, apart from working in the development of our game, we would have to devote long time to the learning and understanding of the language Assembler of the Z80.

However, it does not suit to go so quickly. A video game cannot be conceived without a previous idea. Our aim during that afternoon was to decide what we were going to develop. After conversing different ideas and proposals, we thought that it would be fun to create a similar game to *Kung-Fu Master*. In spite of this, we had to rethink the concept of game, since this reference lacked an interesting Artificial Intelligence.

At the end, after conversing with the professor, decide to create a video game with the mechanics of Kung-Fu Master beside the exploration and Artificial Intelligence of the second part of *Navy Moves*.



The idea was already clear and the challenge established. Of course, that to be ours first game of Amstrad, beside the little experience of programming in Assembler and the limitations of the machine, the challenge was considerable. But we did not have fear, it was time to develop!

2 – PLAYER MECHANICS AND MAP NAVIGATION

During the period of learning, we decided that our game would tell the story of a thief that goes in to steal in a house to carry all the money and the jewels that could. The policemen would patrol the house. If a policeman found the thief, this would have the opportunity to escape or combat. Besides, we wanted to do a demanding fight, that is to say, that the player only had a life and fell off by one single blow, as it is used to be in the reality.

Beside this proposal, we defined the following list of mechanics that interested us include:

- The player had to move left and right.
- The player could jump to avoid enemies.
- The player could hit enemies.
- The player had limited blocks to resist the enemies attack.
- There would be objects that.
- The player could navigate alongside the map.
- The player could use doors to traverse rooms in order to avoid it's enemies.

- The player could hide in some wardrobes in order to avoid to be persecuted.

The first that developed, after our period of learning, were the mechanics of the player and how establish the navigation by the map in a coherent form.

The first week of development already had of a first prototype with the player and the loaded maps in memory.

On the other hand, we also achieved to develop the objects that the player could collect to win punctuation. Finally, we achieved to release also during this same week some doors by which the player could displace and a prototype of enemy that pursued and killed to the thief. It was a productive week!

However, this development speed of all these mechanics brought us a lot of problems in the hour of implementing new functionalities. In concrete, the double buffer to avoid the blink of the images that displaced by the surroundings caused a problem of collision with the battery of program that delayed us four days of our plans. We saw us forced to throw a lot of code during the process. All this delay affected to the development of the video game.

3 – GUARDS ARE ORGANIZING THEMSELVES

As we mentioned before, our game had to use a basic Artificial Intelligence that posed a challenge to the player. The key of our Artificial Intelligence would be based in two main points:

Enemy behaviours:

There are two kind of enemies in this game:

- *Stalker* : This enemy will not attack directly to the player, but it will devote himself to pursue him and keep to a prudential distance of this. After several seconds, will change of behavior to one more aggressive, in which it will attack to the player and will pursue it by the distinct rooms.
- *Persecutor*: This enemy is the most aggressive, since in what it detect to the player for the first time, will pursue him through the rooms to kill it.

If they have not detected to the player, both will happen to a state of patrol, in which they will move of a room to another.

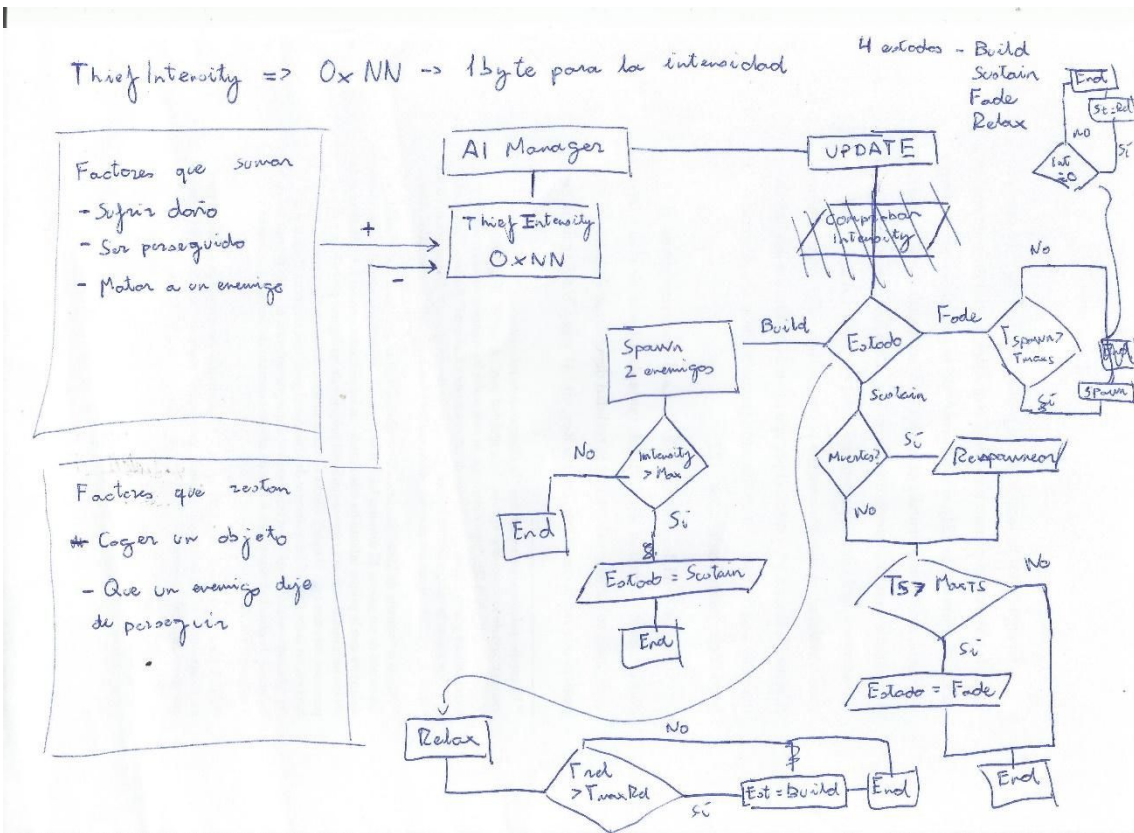
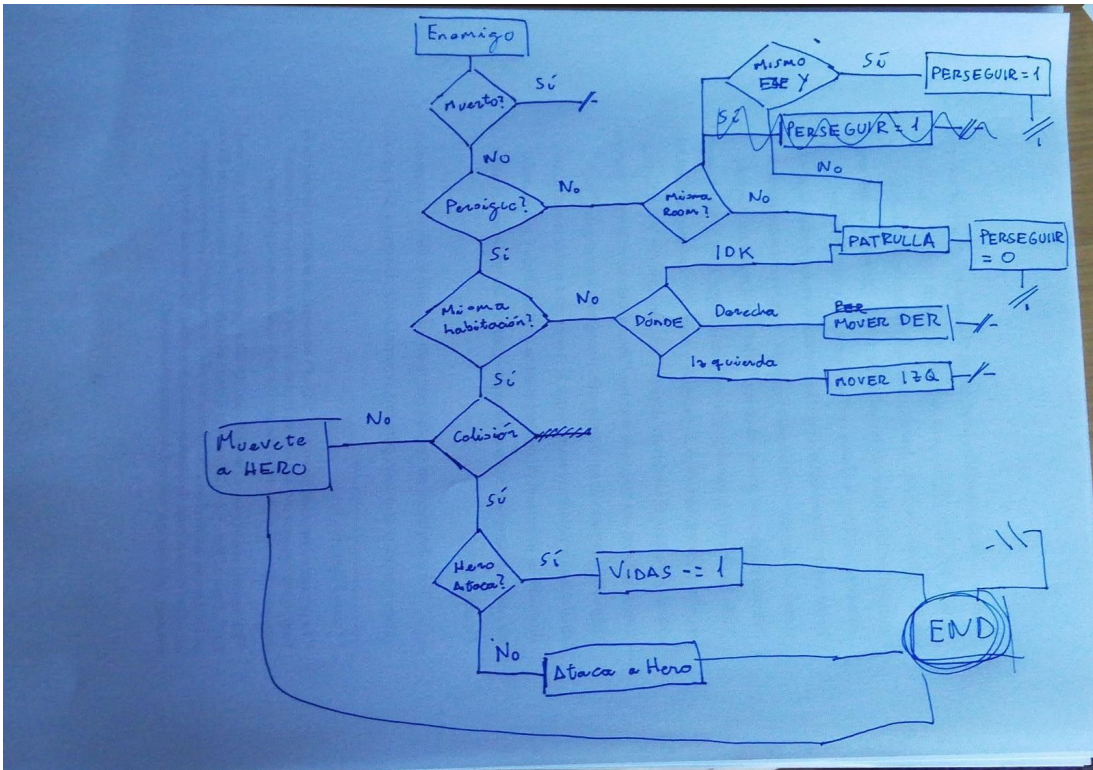
AI Director approach:

Beside the specifications that have commented in the Artificial Intelligence of the enemies. We have tried to make an approximation of a system for the apparition and distribution of enemies by the map.

This system has been called the *AI Manager* and is inspired by the *AI Director* proposed by Valve in a presentation about the Artificial Intelligence of *Left 4 Dead*.

Our *AI Manager* takes the part of generation and apparition of enemies according to the intensity that is living the player during the moment. Said intensity is measured with a variable that increases when you go in in a fight or persecution and decrements in the moment that escape of said scuffles or collect objects.

According to this intensity the manager of enemies will evaluate distinct situations in which it will generate more or less enemies, always in the continuous rooms to the player. All this system resumes in the following flow diagram:



4 - TIME TO BRING LIVE TO OUR PROJECT - ART AND MUSIC

In spite of having not implemented the mechanics of stealth with the cupboards posed previously, gave by the end of the the development of functionalities of our video game to a week and average of the final delivery of the product.

When being two people of distinct disciplines, Yolanda has experience in art so much 2D like 3D and Antonio had some knowledges of musical composition and experience with programs of audible design, divided to make each one of the facets commented previously. Therefore, now we will divide the voices of this document so that each one comment his experience:

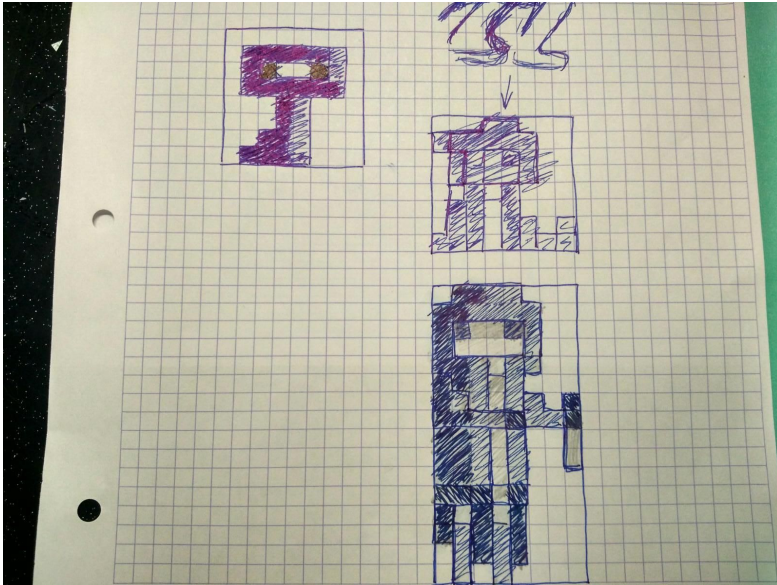
Arte 2D – Yolanda Cruz

At the beginning, we wanted to give a retro style to the game using the palette of colors of the Game Boy classic. However, this supposed us a lot of problems since, in a very advanced state of the development, we realized that we were working in Mode 0. Of the same way, the screens of each teammate had different color settings. Once we tested it in an Amstrad CPC, we knew that we had to change the palette of colors.

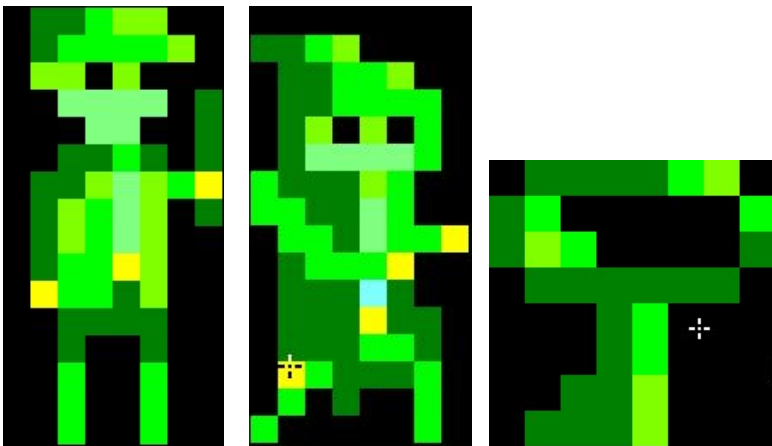
We decided finally to use a palette of blue and purples.

Regarding the resolution, always have worked with resolutions of 32x32 pixels or more, by what save memory and make sprites of less resolution that had form and went really hard to distinguish of the rest of objects supposed a challenge for me.

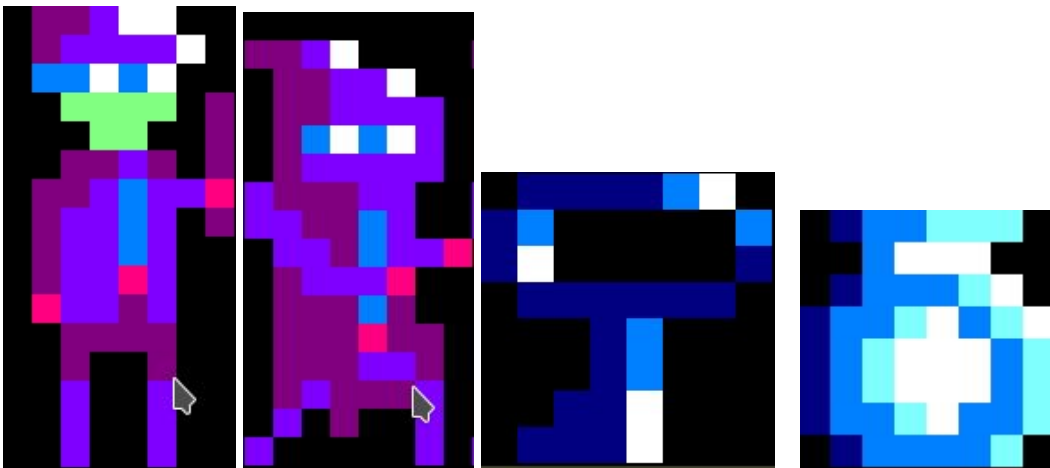
First outlines of the sprites:



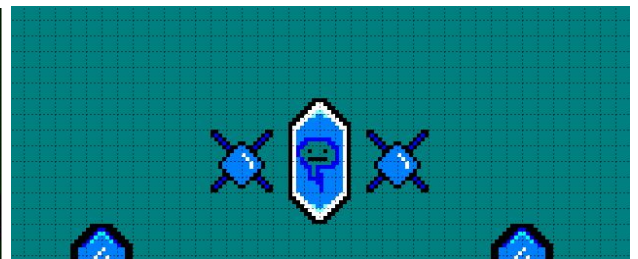
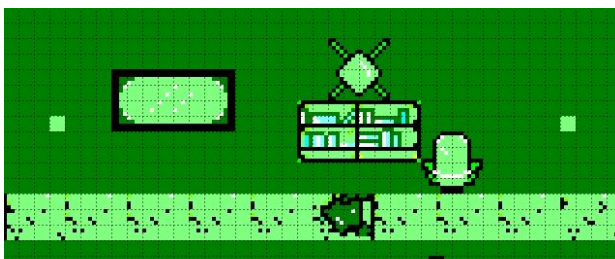
First version:



Final version:



Comparison:



Final touch:



Soundtrack – Antonio Ríos

My experience in subjects related with the musical composition is practically null. It is true that I have some basic knowledges of sol-fa and musical production. However, I realized that the soundtrack of our video game was all a challenge.

In the first place, I gave me account that had of few resources to make the melodies that would encourage our game our game. Therefore, the aim was clear: it had to compose a simple and striking melody. As in all creative process, one has to inspire and take references. In my case, read diverse scores. In concrete, centered my focus in video games of the period: *Castlevania* and *Mega-Man 2* in particular. Also, I observed reinterpretations of games retro like Shovel Knight. Beside these references, wrote the first score of the game: The rookie's challenge, which I attach to continuation:

The rookie's challenge
The rookie thief main theme Antonio Rios

The image shows a musical score for 'The rookie's challenge' by Antonio Rios. The score is in F major (one flat) and 4/4 time. It is divided into two systems. The first system contains measures 1 through 17, and the second system contains measures 20 through 30. The melody is primarily in the bass clef, while the accompaniment is in the treble clef. A blue box highlights the final measure of the piece at measure 30.

In it, we can observe that it invests the logic and the notes that sound in F key compose the melody. Whereas the notes in key of Sol limit to do an accompaniment at the beginning. All this is organized on purpose to indicate that the game treats of a dark character with a challenge.

On the other hand, also I attach the scores of the melody that sounds in the level, which tries to represent this feeling of danger and hope of the thief to achieve his aim, and the one of the end of the game, that is very simple to give him some context and texture.

Into the house
The Rookie Thief Soundtrack Anto

The musical score for 'Into the house' is presented in five systems. Each system consists of a treble and bass clef staff. The first system starts with a treble clef staff containing a melodic line and a bass clef staff with rests. The second system begins at measure 6 and features a treble clef staff with a melodic line and a bass clef staff with rests. The third system starts at measure 11 and continues the melodic line in the treble clef. The fourth system begins at measure 15 and shows a more complex texture with chords in the treble clef and a melodic line in the bass clef. The fifth system starts at measure 21 and concludes the piece with a final melodic phrase in the treble clef and a bass clef staff with rests.

The Rookie Thief
Game over screen Anto

The musical score for 'The Rookie Thief' is a single system in 4/4 time. It features a bass clef staff with a melodic line and a treble clef staff with rests. The piece begins with a mezzo-forte (*mf*) dynamic marking. The melody consists of eighth and sixteenth notes, with a key signature change to one flat (B-flat) in the second measure. The score ends with a final measure of rest in the bass clef.

To all this have to add, for my surprise, that the last day that test the game in the Amstrad CPC 464, found to several mates singing these melodies that finish to present. The music sounded well!

5 – Un final problemático, pero con orgullo

For now we have only spoken about the concepts that, in principle, had gone out well of the video game.

However, everything has a dark face.

Obviously, with the level that have and the little experience in the development of video games that have, was to expect that we suffered failures and errors that would delay our work. Between the most stood out are:

- **Stack management errors**
- **Memory management errors.**
- **Planning errors.**

All these problems conditioned of drastic way the development and final delivery of the product. However, we think that in these three questions could resume all our experience.

It is *The Rookie Thief* all what we wanted to develop? No, we wished we had had more time to have polishing detail that we have not concreted.

The game is extent of failures? Of course not, surely there are a lot of bugs that have not achieved not even detect.

We are proud of what we have done? Of course! In spite of all what have suffered to make it real, are satisfied with what we have attained and, of course, that the way to make better things is only starting.