



What is Zwirn?

When was the last time you played with a piece of Zwirn (the German word for twine)? Centuries ago? Well, now's your chance!

Zwirn is a challenging puzzle game. The first four tutorial levels show you how to play, and the remaining 21 levels will help you to become a Zwirn expert! How do you play? It's very simple! All you have to do is guide the twine with your finger, touching the dots scattered across the screen, and then connect the end of the twine to an exit. There are a number of pins available that you can place anywhere on the screen to give your Zwirn the needed shape.

Does this sound too easy? Don't worry - the solutions aren't as simple as you think.

Requirements

iPhone/iPod touch 2nd Generation, OS 2.2.1 or later

Game Website with solutions database and Video

<http://www.zwirn-game.com>

<http://www.youtube.com/watch?v=17zbcguNJUg>

Goal & game elements

- Zwirn is a solo player puzzle game.
- Steer the twine with your finger.
- Use the pins to give the twine the needed shape.
- Connect the end of the twine to an exit.
- The twine has to touch all the spots without your finger holding it.
- A 'tick'-sound indicates that all black spots are touched and the twine is connected to an exit.

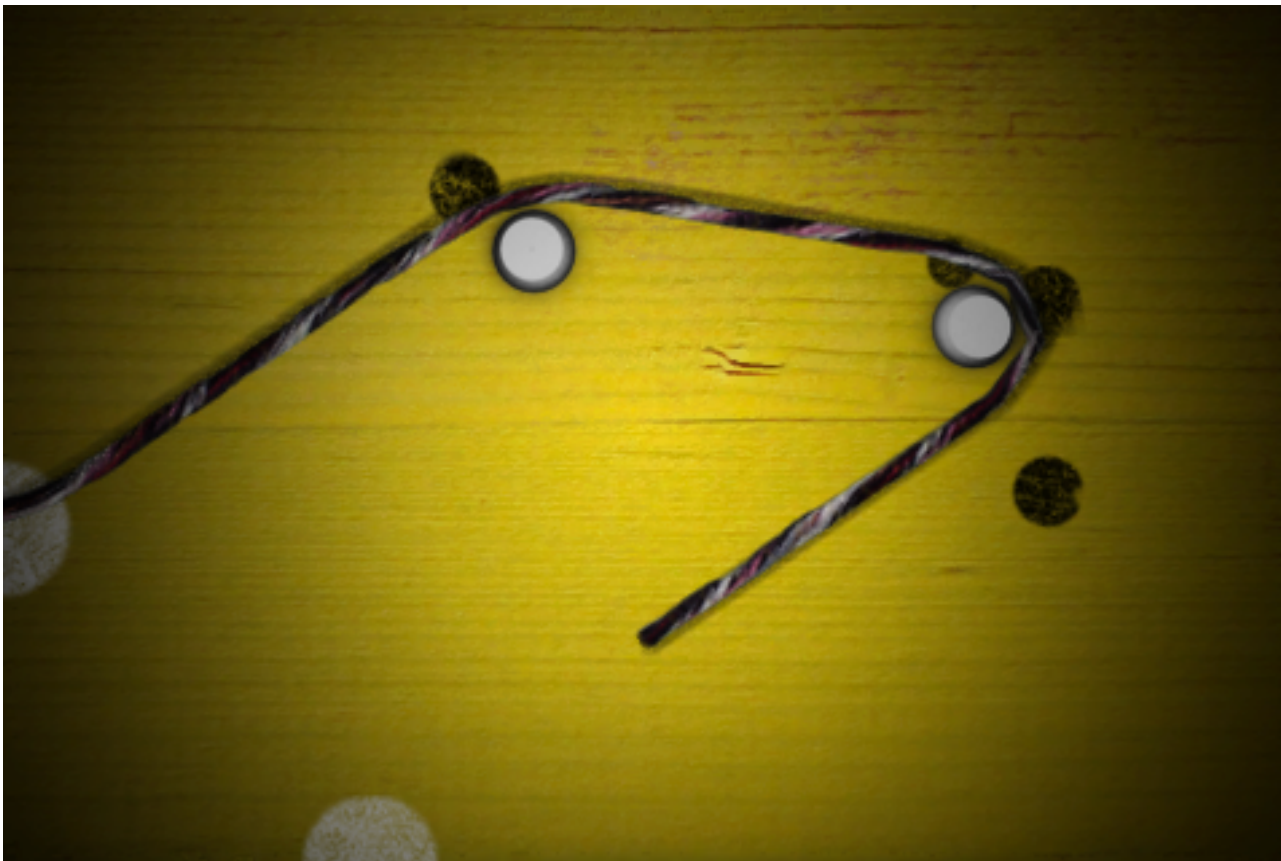
Controls

- Pull the twine to move it.
- The twine rewinds itself if you don't steer it.
- The twine rewinds itself faster when you touch the entrance.
- Tap a pin to pick it up.
- Tap a free space to place a pin picked up.
- Dragging a pin enables you to place it with more precision. The pin will move in the opposite direction.
- You can either drag a pin picked up or move it directly.
- Pull the twine to an exit and lift your finger to connect it.
- Tap the exit to disconnect the twine .
- Open or close the map with a pinch gesture. Directly jump to a level by tapping it.
- Use a two-finger scroll gesture to move to a previously played adjacent level.
- Control your own music by pressing the home button twice. You need to turn on the music before starting Zwiirn.
- By shaking your iPhone/iPod touch a pin will be placed correctly (hidden help function).

Game credits

Julian Kraan: Game Design, Graphics, Sound

Bruno Meilick: Game Design, Programming



What makes Zwirn special?

Zwirn is minimalist in design. The game has only two game objects to play with – the twine and the pins. In spite of this, these two elements create a wide number of interactive possibilities and combinations. Zwirn is a game you want to touch and we made it as consistent and intuitive as possible. To emphasize the fact that Zwirn is a interactive toy, only the basic controls are explained and the optional ones are left to be discovered by the player.

Each person can play Zwirn in his own manner. You can use the twine to sketch a solution and then use the pins to nail it down. Dragging the pins helps you to place and adjust them precisely.

We took special care to allow for various solutions for each level and to equalize them in terms of difficulty. The map helps you to visualize your progress and find unsolved levels. You can jump to them in case you get stuck in the current level.

We pushed the input recognition algorithm and the physics engine to the limits to make the twine feel real. But if something feels real it needs to look real too. Therefore the twine is rendered in detail and the spotlight creates a realistic shadow on both the pins and the twine. The transition between levels is smoothly animated to emphasize your progress and direction. The panning of the sound adjusts itself to the orientation of your device. You will need headphones to notice.

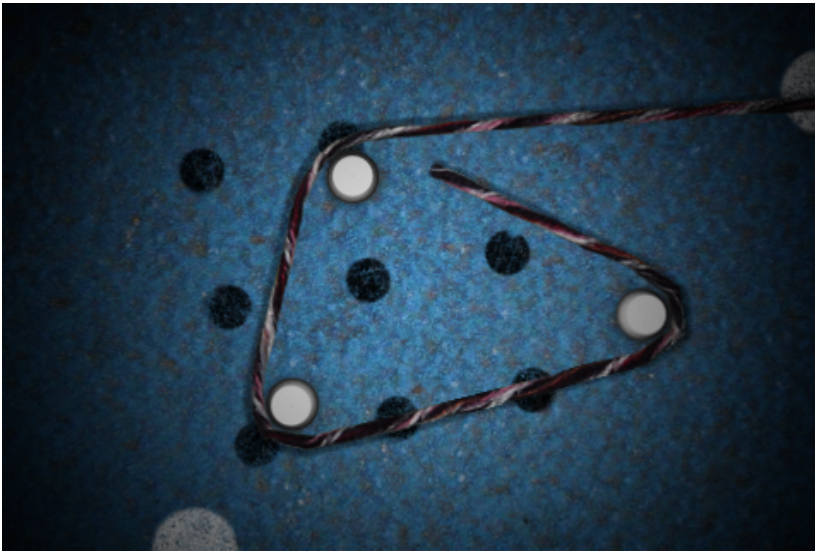


Backstage with the Devs

Engine We used Cocos2d and Box2d to build our own engine.

Texture size All textures but the backgrounds are grouped into three texture atlases (ground, twine, pins) and each is rendered in one pass. This makes the display update very efficient. The background images are compressed as pvrtc. When zipped this compression method reduces the file size by a huge amount.

Transitions We created our own transitions (slide-and-fade, fadeout-fadein) based on the examples provided. The foundation in Cocos2d is very solid and you can get pretty creative with it.



Physics A physically realistic rope is very cpu time consuming to simulate. Resolving the friction around the pins multiplies the time needed. When you just spawn the objects in Box2d on a 2nd gen iPhone or iPod touch these devices are able to simulate 40 chain links and 2 pins correctly. We spent a good share of our dev time to improve this. Our engine can display up to 120 chain links and use up to 4 pins in our game now.

Controls Getting the controls right in a game focused on physics is difficult. Especially if the object manipulated exists in the real world and the player knows how it should behave. We ended up using two state machines to track what is going on. One for what the user wants to do and one for what the twine is doing. This proved easy enough to extend and debug and good enough to get the job done.

Sound The soundscape adjusts to the orientation of the device. If you place a pin on the left side of the screen it will always sound like you placed it on the left side no matter the orientation of the device. You will need headphones to hear this.

Spotlight Even though all objects in Zwirn are 2D the spotlight creates a realistic shadow on the twine and the pins. The shadow of the twine is calculated at runtime. The texture of a pin is updated from the atlas based on its position, even if you drag it.



Version History

- 1.3 The tutorial is published in text form instead of graphically. Ingame tips added. Explanation of game elements and controls attached to the appstore text. Stricter evaluation of solutions. Soundtrack added in the highest quality. We have replaced the Zwirn because the old one broke from so many people playing with it.
- 1.2 Added soundtrack and settings
- 1.1 Improved performance and controls

If you have any comments or questions feel free to send us an email to support@zwirn-game.com. We are looking forward to your review and hope that you will enjoy Zwirn.

Julian & Bruno