Prototype: qubi

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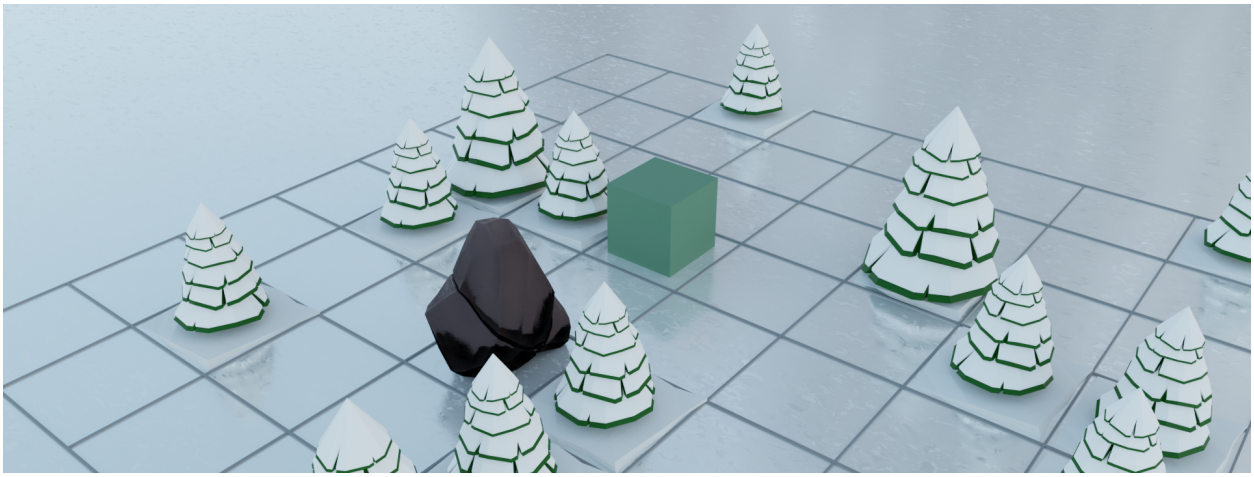

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1 Prototype Description

For the physical prototype of the second milestone we decided to use paper, domino tiles and wooden cubes. We first used a six sided Pokemon-themed die as the player-controlled cube to test in our sample level. The dominoes were used as the map barrier while the wooden cubes performed the task of the collidable objects in the level.

For each of the three game mechanics that qubi has – sliding, flipping, unfolding – we implemented a physical test level to showcase the respective mechanic. The layout of the first sample level, featuring sliding, together with its physical implementation can be seen in Figure 1.

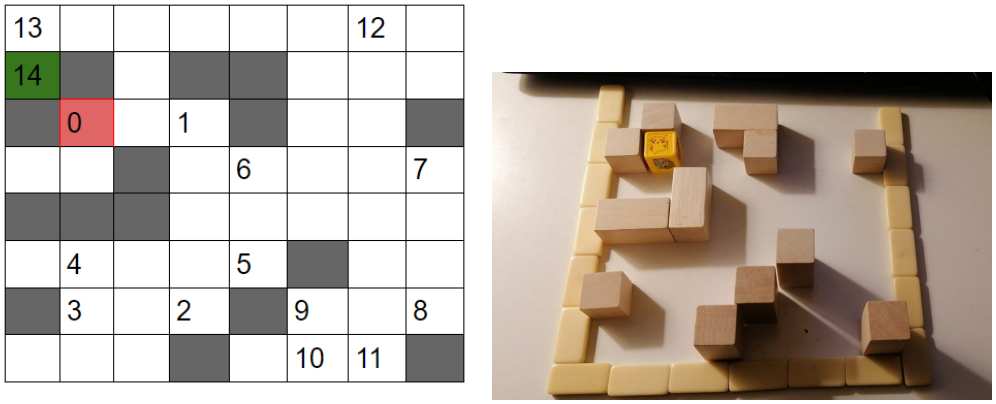

Figure 1: Layout and physical prototype of the first sample level

In order to test out dry tiles a second prototype was created which was supposed to resemble the second sample level. For the representation of the dry tiles we used colored strips of paper as pictured in Figure 2. The different colors do not carry a specific meaning, they were just used to make the it clear where each tile starts and ends.

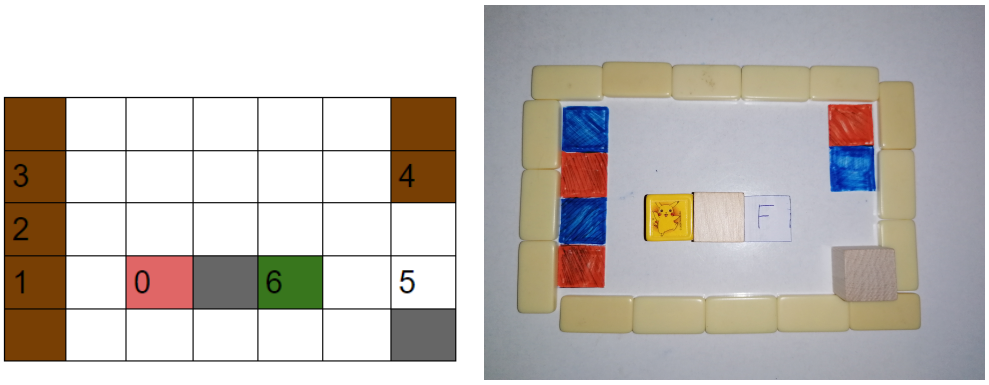

Figure 2: Layout and physical prototype of sample level 2

Furthermore we created a foldable prototype from paper to test the third major game mechanic, the unfolding of the cube, in a third simple test level. Due to the physical limitations the cube can obviously not freely unfold and only use the pre-determined cuts.

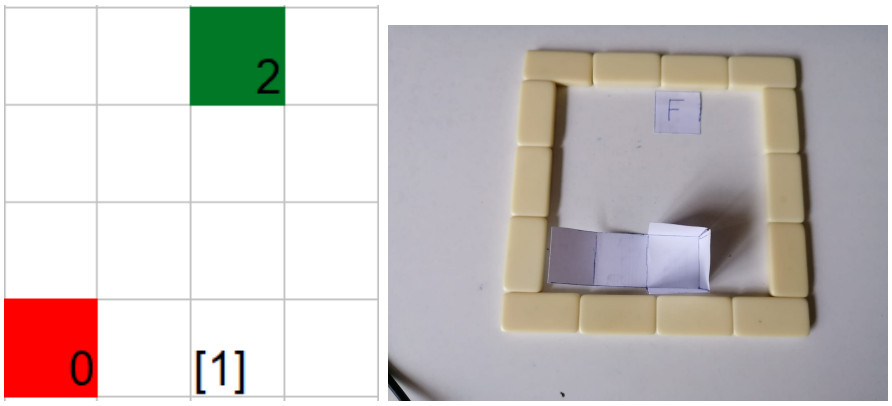

Figure 3: Layout and physical prototype of the rudimentary unfolding test level

2 Observations & Revisions

Since our prototype does not accurately simulate an actual slippery surface, we cannot make statements about the enjoyment of our game. That said, during the creation of the physical prototype we realized several attributes, problems and design possibilities that we did not think about before. In the following sections we will highlight the most significant new perspectives that we gained in the prototyping process.

2.1 Transition from slippery to dry tile

Testing the prototype for the second sample level (Figure 2) brought up the question of how the cube should behave when moving from a slippery surface onto a dry one and vice versa. Both possibilities of a sliding transition and a flipping motion seemed equally plausible as both options have a similar influence on designing levels. That being said, we made the decision to have the cube always flip by 90 degrees when transitioning between slippery and dry tiles. This seemed like the more consistent and "realistic" option to us.

2.2 Number of differentiable cube surfaces

With the concept of dry tiles, on which the cube would move by flipping by 90 degrees, we introduced new finish tiles. In order to complete such levels the cube would have to land on these finish tiles in a specific orientation.

A further observation that was made in the second prototype (Figure 2) was that this initial concept would cause levels to become too complex if all six surfaces of the cube mattered. As a result we made the change to reduce the number of different surfaces down to three. We feel that this lowers the complexity to a more reasonable level, as it would be too hard to plan out the correct combination of moves to land on one specific side.

2.3 State of finish tiles

When testing our prototype one of the first things that we realized was that there is a significant difference whether the finish tile is slippery or dry. We see this aspect as a new angle in the level design as we can create levels that seem simple on the first glance but are more complex as the direct route would let the cube slide beyond the finish tile. This type of level design is especially suited for the first tier where the only mechanic available are the sliding tiles.

2.4 Unfold direction of the cube

The player is supposed unfold the cube in order to reach a tile they would otherwise slide over or not reach in the first place. In the initial attempt of the sample level (Figure 3) in which we tried the unfolding mechanic, we made the mistake of having the remainders of the partially unfolded cube stick to the starting tile instead of moving forward. Having made this mistake it made us further consider whether the player should be able to unfold the cube anywhere as long as they are standing still or if the cube can only be unfolded on dry tiles.

If the player could unfold the cube anywhere, even when standing on a slippery tile, the player could just "walk" everywhere, and it would be impossible to design interesting levels.

2.5 Game Speed & Animation Locking

While watching our recorded footage we noticed that the animation/game speed was slower than what we initially envisioned for this game. The movement of the cube has to feel responsive while still engaging the animation locking that we want to implement due to gameplay reasons. We believe that one effective way to balance these aspects is to implement input buffering, which allows the user to input a new command while the cube is still locked in its current animation. This new command will then be executed as soon as the last animation has finished thus creating a smoother input experience.