

-For the part of the Encoder I used a "Number generator" with the "random generator" at 4 bit that uses ticks, a stop function and a filter that prevents the stop until a number between 0 and 9 in the sequence of numbers of the chosen suit. later I implemented a "Selector" which is simply an increment of the number at the position selected using multiplexers, D-type memories and adders, a zero reset button and a filter that it prevents the number from going beyond 9 by bringing it to 0. Finally I have implemented a "save choice" decoder which, using type D memories and multiplexers, blocks the digits selected preventing them from being changed during the game and thus starting the game (if not saves the choice, the Decoder cannot do any action), in order to modify the choice made yes the game must end or reset. finally I implemented everything under "Encoder Choice" adding 4 "Selector" for the 4 boxes and a "Switch Position to 4" to be able to select the 4 different boxes.

-For the Decoder part I have implemented 4 "Selector" and the "Switch Position at 4" as for the

Encoder. The Decoder has a total of 9 sets of 4 boxes that unlock as the player saves the choice and the result is shown (if the player guesses the combination not unlocks the next series), each series has a lock to prevent any changes until it comes unlocked, an isolated save ("Save Decoder choice") for each series and a "Hide Decoder Code" to keep unused boxes that are not yet usable. For the transition of series i used a "9 position switch" connected to a delayer which is a type D memory that uses a "Trigger: Falling Edge".

-For the comparison I have implemented a "Comparison Result" which takes the 4 numbers of the

Encoder and the 4 of the Decoder and compares them, as soon as the result is obtained the circuit itself

freezes and can no longer be changed until the game is reset. The "Block for" Result Comparison "" uses type D memories to keep the numbers entered by in memory until Reset

both parts and below through the AND gates and the comparators goes to check if there are numbers

equal to each other and then be checked by the various "Comparison N 1/2/3/4" which indicate whether the

number is in the right or wrong place or does not exist at all, finally we get to the part of indicator lights (green right place, red wrong place) and light up via the circuit

"Lights" going to illuminate the green lights in order from top right to bottom left (without indicate which position is right) and the red lights from the bottom right to the top left (also without

indicate the position you are talking about) using type D memories and AND gates e OR

-Finally in the "main" they are located at the bottom from left to right

-The circuit to indicate which box is selected by the Decoder

- The "9 arming block" to be able to move on to the next sequence with a type D memory inside with "Trigger: Falling Edge" as a delay
- The "Unequal Series" to be able to move on to the next sequence or indicate defeat with a type D memory inside with "Trigger: Falling Edge" as a delayer
- Finally a circuit with an OR that is activated if a sequence is right by turning on the lights for victory or to turn on the lights of defeat if the combination has not been found