***Etude 03 – Mind- It***

**Part One:**

For this etude, it was not really long to build the circuit. As a first step, I grouped the required components together. I started to build the circuit based on both the Fritzing schematic and the picture of the final result of the circuit. I started with adding wires. Then I placed the buttons on the breadboard, I added the LEDs right after. I putted the resistors. And finally I finished by placing the Piezo buzzer on the breadboard. At the first trial, I noticed the Piezo buzzer did not work. After some checkup, I found out the wires were not connected to the buzzer, so I change their positions. It worked at the second trial. However, I did not found the reason why my red LED is connected to the Piezo buzzer only when I press its button; this LED does not light up when the music sequence of the game is playing. I tried to change the components around this section, it did not solve the issue. I look if this part of the circuit is different from the others, and there is no difference with other LEDs setups

Une image contenant texte, équipement électronique, connecteur

Description générée automatiquement

A picture of the second step: connecting wires to the breadboard.

Une image contenant équipement électronique, connecteur

Description générée automatiquement

A picture of the third step: adding buttons to the breadboard.

Une image contenant équipement électronique, connecteur

Description générée automatiquement

A picture of the fourth step: adding LEDs to the breadboard.

Une image contenant équipement électronique, connecteur

Description générée automatiquement

A picture of the fifth step: connecting resistors to the breadboard.

Une image contenant texte, équipement électronique, connecteur

Description générée automatiquement

A picture of the seventh step: connecting Piezo buzzer to the breadboard

I tested multiple times the circuit to figure out how the game works. After a few trials, I fin ally understood what the games was actually. The purpose of this game is reproducing the asked music sequence generated by the Arduino on the circuit. To reproduce the generated sequence, the user needs to press the buttons connected to a specific LED. The game works by rounds. Each round a new note is added on the music sequence that you need to remember. If the user fails, the game starts over again. I feel there is no end to this game.

**Part Two A:**

**i)**

1. The game starts with a jingle implemented with the integer “ledButtonHalfPeriod”

2-To start the game, the user needs to press a button. This action is implemented by the Boolean “checkButtonPush”. This Boolean checks whether the button is pressed or not.

1. The first note plays and the selected LED lights up, this action is implemented by the void “displayLightAndSound”, this void activate the LEDs and the Piezo buzzer once the user’s trial is over. Another void called “startUpLightAndSound” concretely light ups the LEDs and start playng the notes in the Piezo buzzer.

4-The user need to press the button of the played note

5- If right, the music sequence repeats with a new note added on the melody

6- The player needs to press each round the button sequence of the selected lights until they got it wrong. This sequence of button presses is checked in the integer “getButtonPush”

7-If the player press the wrong button, the game stops and the player needs to start all over again

In the void loop, a random music sequence is generated by a for loop. Once the game sequence is setup, the game starts and a timer generated by a for loop starts too. Once the timer is over, the integer “getButtonPush” will check whether the right button sequence has been pressed or not during that round. If the player got it wrong, a sad music will start announcing that the game is over, generated by an if statement.

**ii)**

display light and sound

startup light and sound

setup

The void loop establish the gameplay. It generates the random music sequence that the player will need to figure out. It also sets the game over state when the timer is over.