

# USER MANUAL

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## **System Description**

The following is a user manual for a Binary Mental Math game. The game provides access control in order to access the game by the authenticated user and a logout feature which is given in the point 1 in the description. Once Authenticated, the user is allowed to access the game and the procedure to play the game is provided in the point 2 below.

### **1. Authentication of the device.**

This game is secured with a password and unless one of the players does not authenticate the ID, the game cannot start.

In order to start the game, use the toggle switches from 17-14 (17<sup>th</sup> switch being the MSB and 14<sup>th</sup> being the LSB) (Password is 4014)

The authentication requires 4 digits (last 4 digits of student ID) which are entered one at a time in the following fashion.

The first digit is entered using the given toggle switches, after it is entered, press the push button for the password, this is KEY[1] and similarly the other digits

Until the right password is entered, a red LED LEDR[0] is displayed

When the password is entered correctly the led LEDG[7] glows.

At any time if required to reset, press the reset button KEY[0]

### **2. Playing the game**

1. Once the password is authenticated, the Player needs to set the timer of the game play, this is done using 8 bit toggle switches. The first 4 toggle switches are for the tens digit which are SW[13] – SW[10] (MSB TO LSB) and SW[9] – SW[6] for the unit's place.
2. Once the timer switches are toggled press KEY[1] and the value will be displayed on the seven segment.
3. Press the button KEY[1] again to begin the game.
4. A random number is generated for the Player by pressing KEY[3].
5. Using the given set of keys player which are SW[3] SW[2] SW[1] SW[0] (msb to lsb) , the players can toggle the switches and after the digit's corresponding binary number is toggled, press the load button KEY[2] to load the value of the toggled switches
6. Until any of the player wins, red led LEDR[11] glows. Once one of the player wins green led LEDG[8] glows
7. Once the timer value is 0, the player has no access to RNG or the load button since it's the game over state. Press KEY[2] again.

8. Now to begin the Game again press KEY[2] again and toggle the timer switches to re-enter timer value.
9. At any point in the game begin state i.e. after the timer starts counting down, In case the user needs to pause the game, press KEY[1] once to pause the game.
10. If the user needs to adjust the timer in the game begin state, the user may double press the KEY[1] and then player 1 can re-enter the timer value as given in 1. And then press KEY[1] to start the game
11. If the user wants to log out in the game begin state, user can triple press the KEY[1] and will be logged out directly.

### **Example on how to play the game**

**Step 1:** This game is secured with a password and unless one of the players does not authenticate the ID, the game cannot start.

In order to start the game, use the toggle switches from 17-13 (17<sup>th</sup> switch being the MSB and 13<sup>th</sup> being the LSB) ( Password 4014)

The authentication requires 4 digits (last 4 digits of ID) which are entered one at a time in the following fashion.

At any time if required to reset, press the reset button KEY[0]

**Step 2:** The first digit is entered using the given toggle switches, after it is entered, press the push button for the password, this is KEY[1] and repeat it until all the digits are entered.

Suppose the password entered is incorrect, the red led keeps glowing, suppose you enter the correct password, at the end of the last load switch button pushed, red led turns off and green led glows.

**Step 3:** Once the password is authenticated, the Player needs to set the timer of the game play, this is done using 8 bit toggle switches. The first 4 toggle switches are for the tens digit which are SW[13] – SW[10] (MSB TO LSB) and SW[9] – SW[6] for the unit's place. Once the timer value is set, press KEY[1] to display the timer

**Step 4:** when KEY[1] is pressed again now the game begins. A random number is generated for the Player by pressing KEY[3].

Using the given set of keys player which are SW[3] SW[2] SW[1] SW[0] (msb to lsb) , the players can toggle the switches and after the digit's corresponding binary number is toggled, press the load button KEY[2] to load the value of the toggled switches

**Step 5:** To start loading the value of timer again, press KEY[1] twice.

As the sum becomes equal to '15' hexF, the red LED for failure disappears and green LED lights up

**Step 6:** If the user needs to adjust the timer in the game begin state, the user may double press the KEY[1] and then player 1 can re-enter the timer value as given in 1. And then press KEY[1] to start the game. If

the user wants to log out in the game begin state, user can triple push the KEY[1] and will be logged out directly.

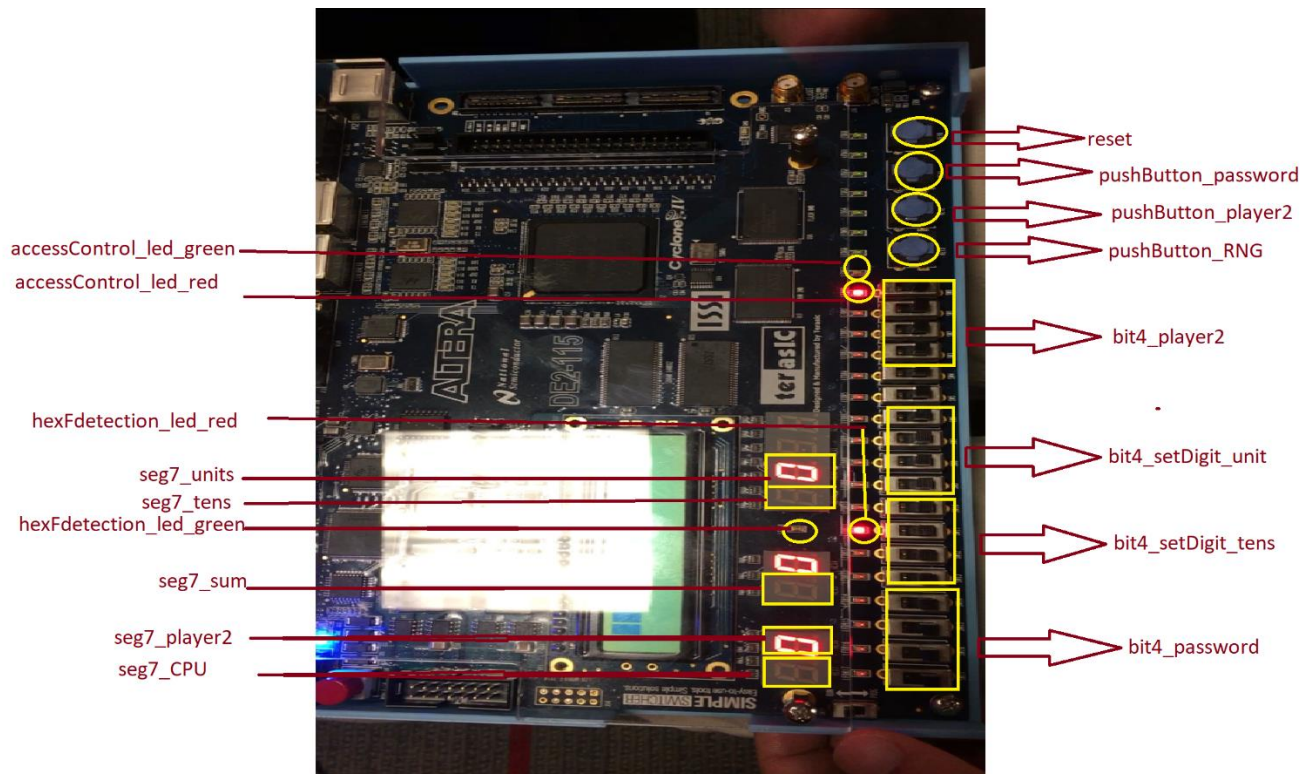


FIGURE 1