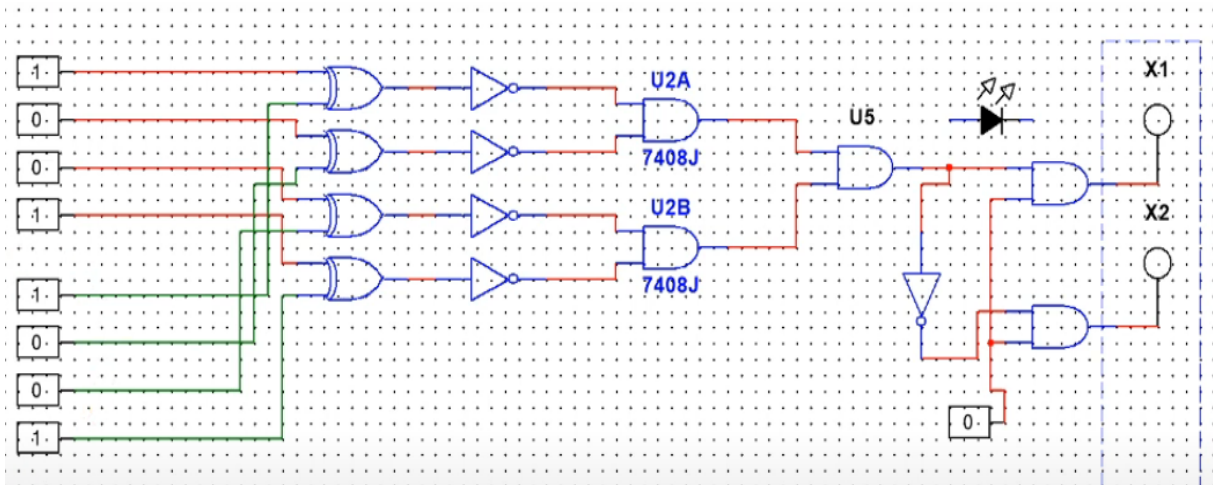


# Digital Lock System

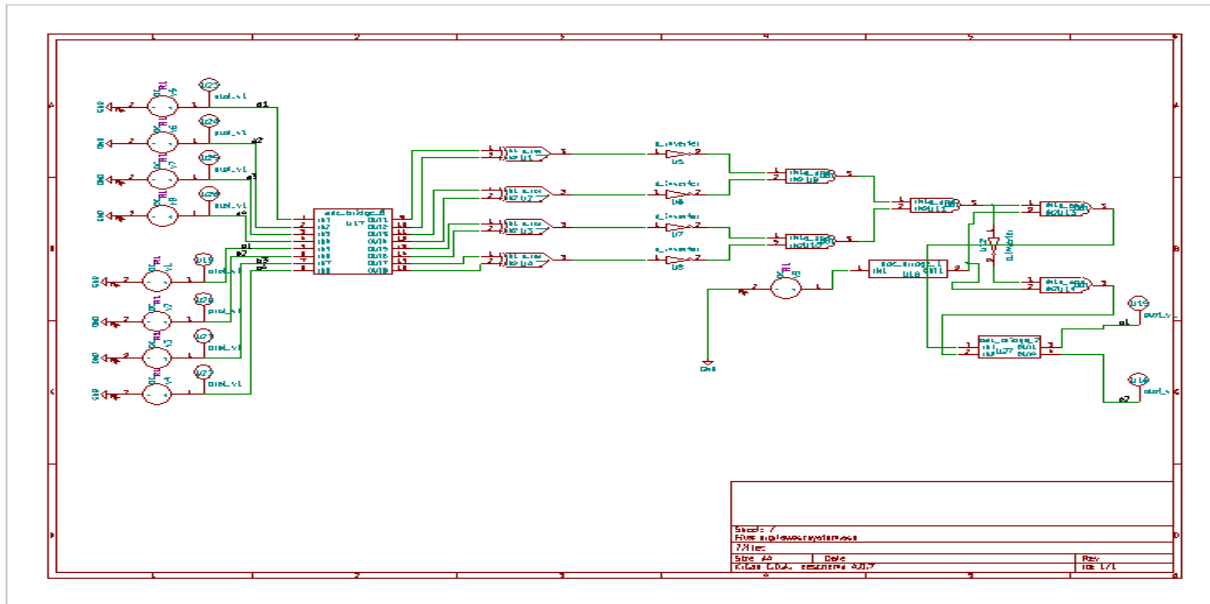
## Introduction

This project focuses on the design, simulation, and analysis of a digital lock system using the open-source electronic simulation tool, eSim. The digital lock is a robust, password-protected system implemented using a combination of digital logic circuits and pulse generators to replicate real-world input signals. The digital lock circuit is designed using basic electronic components such as logic gates to validate the user-defined password. The functionality is simulated in eSim, where pulse sources are employed to mimic button presses and control signals. The system ensures access only when the correct password sequence is entered, demonstrating a high level of accuracy and reliability in a secure environment.

## Block Diagram



## Schematic



## Output Waveforms

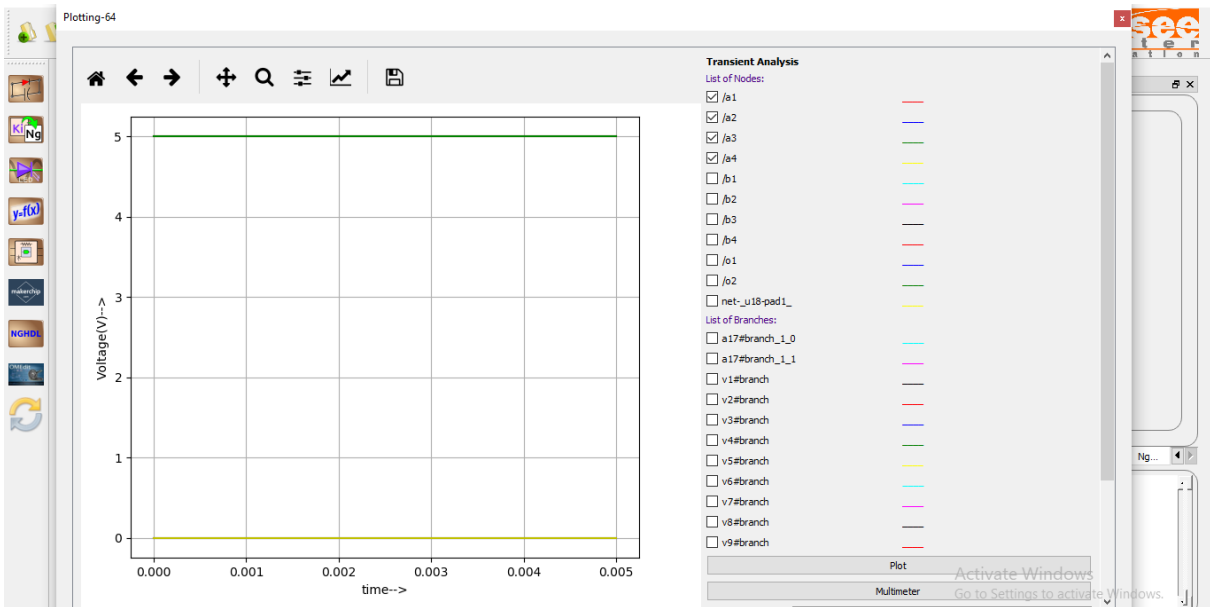


Figure 1: a1 a2 a3 a4%

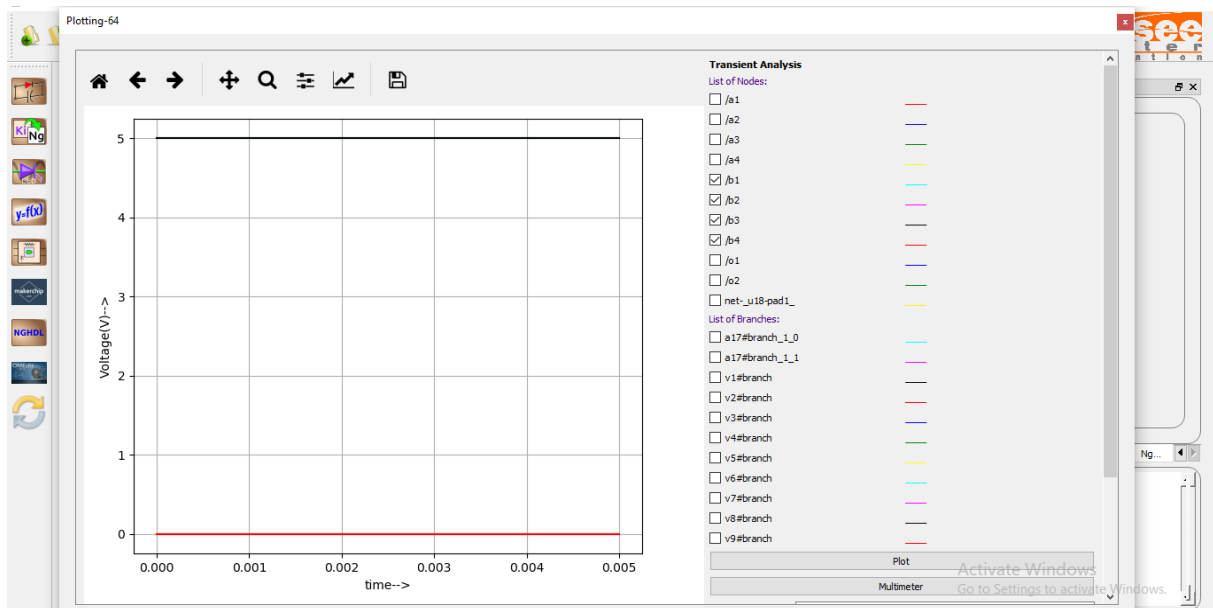


Figure 2: b1 b2 b3 b4

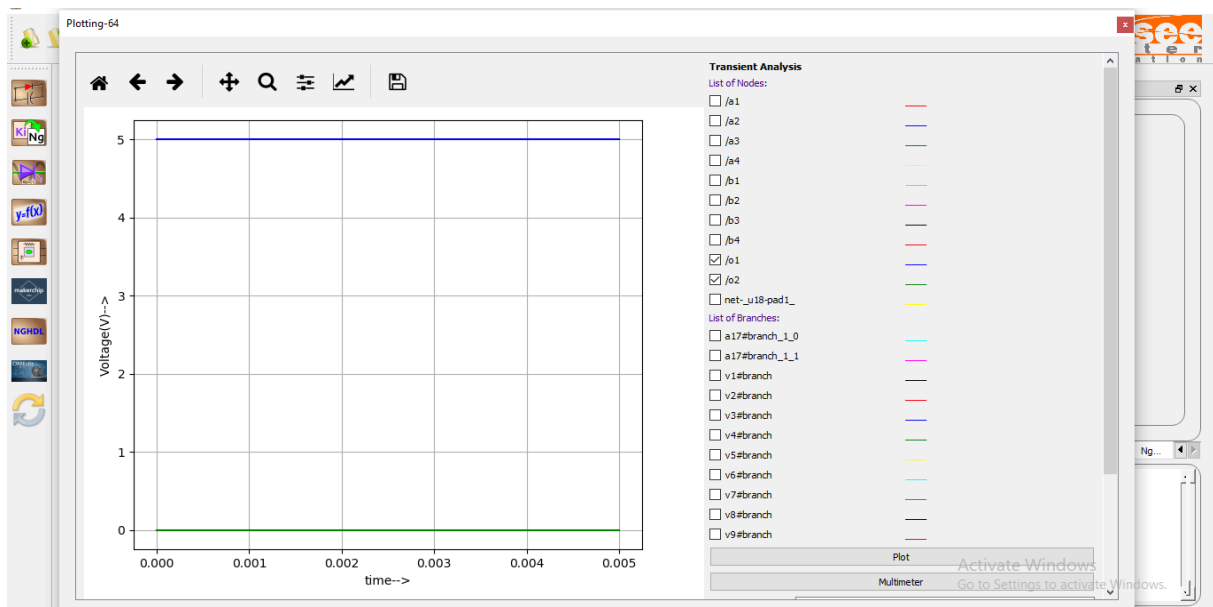


Figure 3: o1 o2

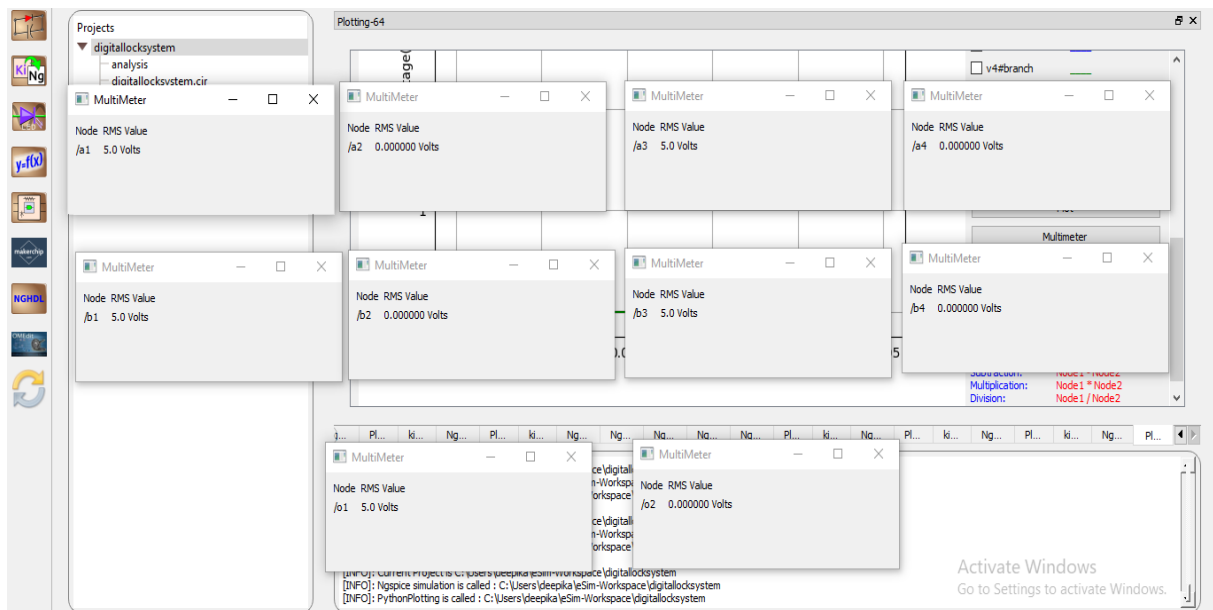


Figure 4: If correct password is entered then the values will be

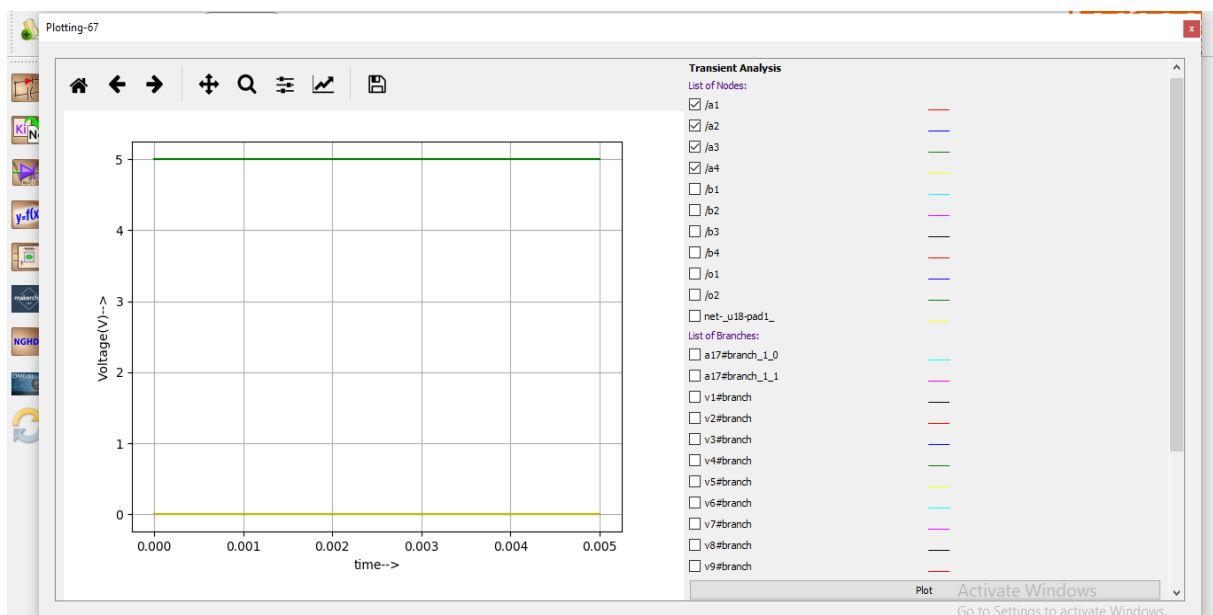


Figure 5: a1 a2 a3 a4

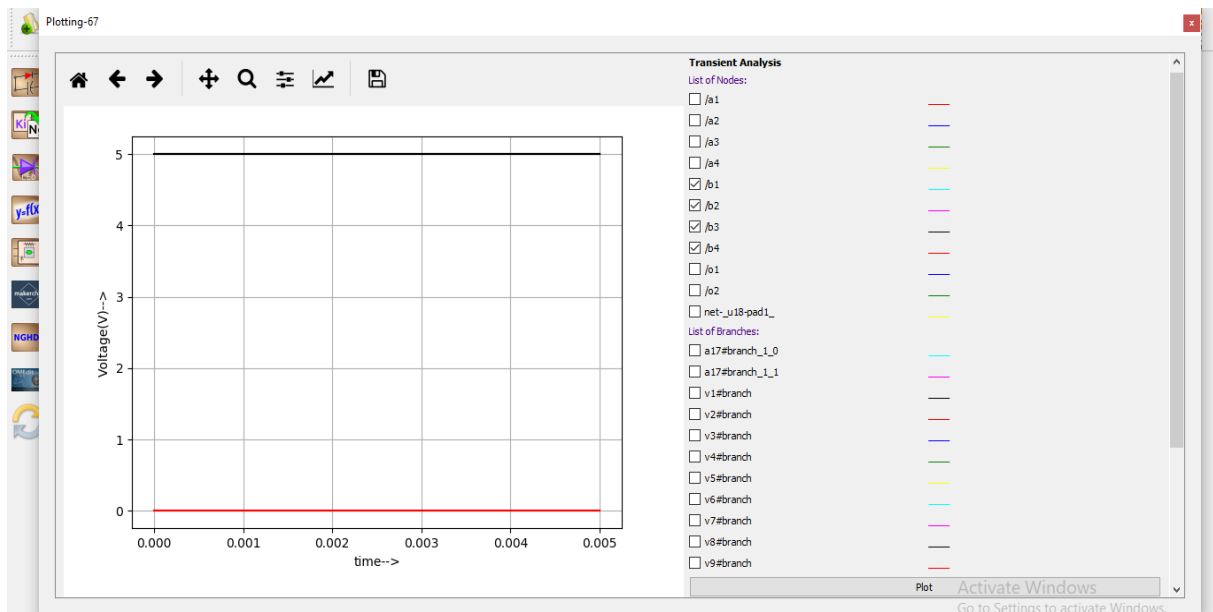


Figure 6: b1 b2 b3 b4

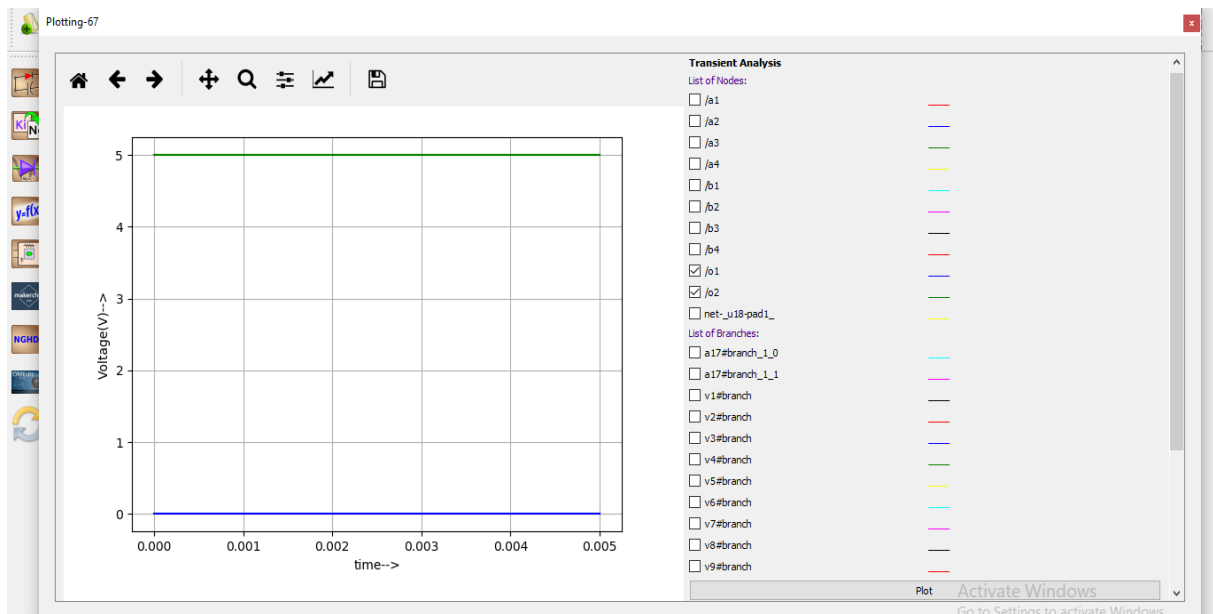


Figure 7: o1 o2

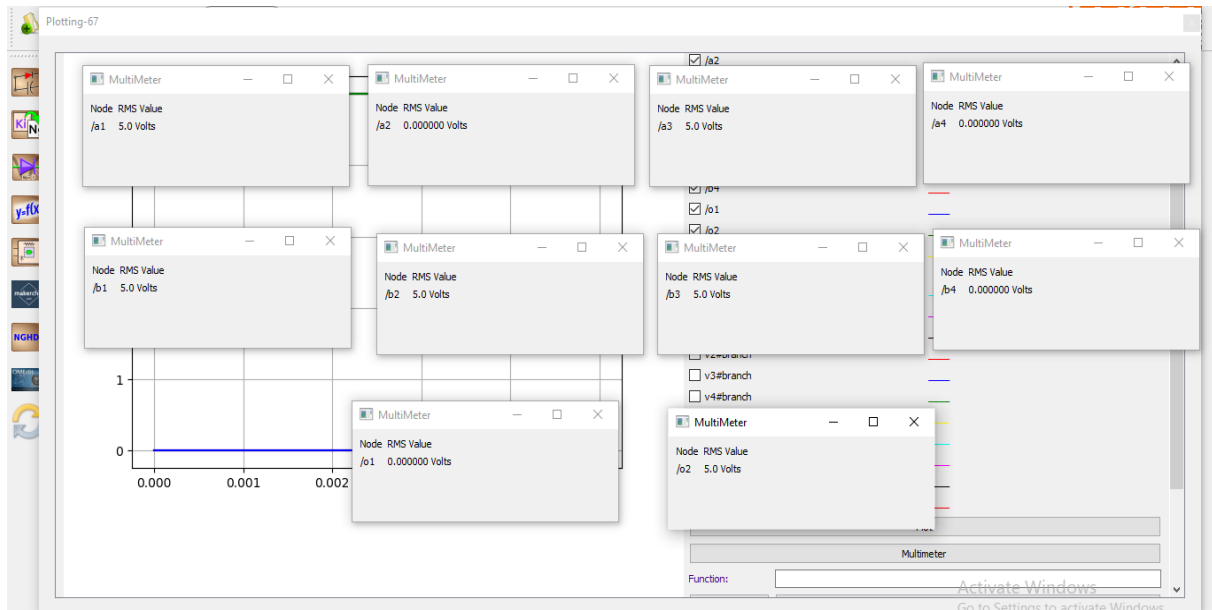


Figure 8: If incorrect password is entered then the values will be

## ● Reference

- <https://journal.uniten.edu.my/index.php/ijecct/index>
- <https://www.allaboutcircuits.com/textbook/experiments/chpt-7/simple-combination-lock/>

## ● Conclusion

Thus Digital Lock System was designed and output waveform is obtained successfully using eSim software

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