CDA 4203L

Computer System Design Lab

Lab 4 Report

Vending Machine FSM

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| --- | --- |
| Today’s Date: | 2/20/2022 |
| Team Members: | Thomas Bivins |
| Patrick Cook |
| Josue Lugo Roldan |
| Work Distribution: | Briefly explain the tasks completed by each team member  Thomas Bivins: Debugging and Report  Patrick Cook: Implementation and Debugging  Josue Lugo Roldan: Debugging and File Organization |
| No. of Hours Spent: | 7 hours |
| Exercise Difficulty:  (Easy, Average, Hard) | Average |
| Any Other Feedback: | N/A |

**Problem 1:** Show the state diagram of your vending machine controller. Briefly explain how the design works. *Use as many pages as needed.*

Chart

Description automatically generated with low confidence

**Problem 1:** Include the Verilog code of (a) FSM; (b) Testbench; and (c) Simulation waveforms. *Use as many pages as needed.*

*a. FSM*

*Graphical user interface, text, application

Description automatically generated*

*A picture containing graphical user interface

Description automatically generated*

*A picture containing graphical user interface

Description automatically generated*

*A picture containing graphical user interface

Description automatically generated*

*Graphical user interface, application

Description automatically generated*

*Graphical user interface, text

Description automatically generated with medium confidence*

*Graphical user interface, text

Description automatically generated with medium confidence*

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*b. Testbench for (45 cent case)*

*A picture containing graphical user interface

Description automatically generated*

*Graphical user interface, application

Description automatically generated with medium confidence*

*c. Waveform 1: 55 centsDiagram

Description automatically generated*

*Waveform 2: 35 cents*

*Graphical user interface

Description automatically generated*

*Waveform 3: 45 cents*

*Graphical user interface, timeline

Description automatically generated*

**Problem 2:** Include (a) the **.ucf** file; and (b) synthesis report. *Use as many pages as needed.*

1. ***.ucf file***

Graphical user interface, application

Description automatically generated with medium confidence

1. Synthesis report

Graphical user interface, application, table

Description automatically generated

Table

Description automatically generated with low confidence