**Guidelines for Prototype Datasheet**

**I Provide a level 1 block diagram, schematic diagram, flowchart, data flow diagram, and/or comprehensive function list of your block.**

* Make sure that ALL arrows on your block diagram are labeled with enough information that someone reviewing your block diagrams is able to measure the signals/data/power represented by each arrow.
* Label all test point positions.
* Make sure instruments do not obscure the schematic.
* Label all inputs and outputs on the schematic with names that are consistent with the tables below.
* If giving a function list, provide the names, descriptions, inputs, and return values of each function.

**II List all software and hardware inputs to your block.**

* State the types of signals and the expected ranges of signals entering your block.
* If you are doing code development provide test inputs used to verify functionality. Provide all function names, a description of each function, input parameters, and each function’s return value.
* You may add more lines to these tables as needed. Please expand message boxes as required for detail.

|  |  |  |
| --- | --- | --- |
| Input Name | Description of Signal | Expected Range |
| mageCombo[4] | 4 keys specifying the correct combination | 1-4 |
| userCombo[4] | 4 keys entered by the user | 1-4 |
|  |  |  |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Function Name | Description | Input Parameters | Return Value |
| startProgram(void) | The only thing in the main() while loop. For organization, to limit clutter. | Void | Void |
| checkCombo(void) | Checks the user’s inputted combination against the MAGE’s | Void | Char 1 or 0 |
| getByteUSART(void) | Waits for the user to send a byte of data and returns it. Usually used to simulate a RFID key read. | Void | Char |
| getKeys(char timeCheck) | Function to receive the 4 keys from the user | Char timeCheck | Void |
| getMAGECombo(void) | Simulates receiving a random sequence of keys from the MAGE server | Void | void |

**Provide graphs of time dependent signals at each input in the space below. Make sure the graph is formatted professionally and readable. If your project is code then provide a table of example input values with explanations and recorded test output.**

**III List the outputs to your block.**

* State the types of signals and the expected ranges of signals leaving your block.
* If you are doing code development please use dummy functions as test outputs. Provide all function names, a description of each function, input parameters, and each function’s return value.
* You may add more lines to these tables as needed. Please expand message boxes as required for detail.

|  |  |  |
| --- | --- | --- |
| Output  Name | Description of Signal | Expected Range |
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|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Function Name | Description of expected outputs to function | Input Parameters | Return Value |
| displayTime(void) | Displays the current time for the countdown timer | Void | Void |
| displayCorrectKeys(void) | Displays the number of correct keys the user entered. | void | void |
| unlock(void) | Unlocks the Box | Void | Void |
| lock(void) | Locks the Box | Void | Void |
| putByteUSART(char data) | Sends a byte of data on the UART. Usually used to simulate audio type indicators and some visual. | Char data | Void |
| displayAttack(void) | Blinks the Firing LEDs to indicate they are being fired at. | Void | Void |

**Provide graphs of time dependent signals at each output in the space below. Make sure the graph is formatted professionally and readable. If your project is code then provide a table of example output values with explanations and recorded test output.**

**IV Signals at test points.**

* State the types of signals at each of the test points of your block. Provide a minimum and maximum range for these signals.
* If you are doing code development please use debug statements to test values. Provide locations and the expected values for each of these statements.
* You may add more lines to these tables as needed. Please expand message boxes as required for detail.

|  |  |  |
| --- | --- | --- |
| T.P.  Name | Description of Signal and measurement conditions | Range of  Values |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

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| --- | --- | --- |
| Debug Location | Description of signal and debug statement method | Expected outputs. |
| startProgram() | Contains multiple functions that transmit messages on the UART to a computer to indicate where in the program you are at and to instruct the user. | Words on |
| displayTime() | Transmits the countdown in UART to show the timer is working | Seconds, from 30 to 0. |
| displayCorrectKeys() | Transmits the number of correct keys through UART to show it’s getting the right number. | 0-2 (3 if you put the same number twice) |
|  |  |  |

**Provide graphs of time dependent signals at each test point in the space below. Make sure the graph is formatted professionally and readable. If your project is code then provide a table of example internal/test values with explanations and recorded test output.**

**TA Scoring Sheet**

Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

TA Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Demonstrated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **Points Awarded** | **What Evaluator is Looking For** | **Possible Points** |
| ######## | **I Diagrams, flowchart, and/or pseudocode** | **15** |
|  | * Level 1 Block diagram | 5 |
|  | * Inputs and outputs and testpoints clearly labeled? | 5 |
|  | * Is diagram sufficiently detailed and correct? | 5 |
| ######## | **II Inputs** | **15** |
|  | * Are all inputs from block diagram and schematic listed and are values backed up by measured data? | 10 |
|  | * Are inputs measured and graphed/tabulated? | 5 |
| ######## | **III Outputs** | **15** |
|  | * Are outputs from block diagram and schematic listed and are values backed up by measured data? | 10 |
|  | * Are outputs measured and graphed/tabulated? | 5 |
| ######## | **IV Test points** | **15** |
|  | * Are test points from block diagram and schematic listed and are values backed up by measured data? | 10 |
|  | * Are “test points” / “dummy function” graphs/ values given in a manner they can be used for system debugging? Software execution times listed? | 5 |
| ######## | **Overall: System Works** | **40** |
|  | Does the system function as it is supposed to? | 20 |
|  | Does the student have a clear path to correct/improve this block? | 10 |
|  | Is the student knowledgeable about their project? | 10 |
| **\_\_\_\_\_/100** | **Overall Evaluation** | **100** |

Comments: