**Software Requirement**

**Specification**

for

Case Study 1:

Light Controlled Window Blinds

v01.01

1. **Project Revision**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Revision**  **(SVN version)** | **Details** | **Programmer** |
| June 29, 2013 | v00.00.01 (00001) | MP1: Mealy Architecture | Ranil Montaril |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Project Description

<Show a short Description of the Project demostrated in this paper. Mentioned the Chip used and the operation of the HW>

Ex:

This paper presented by the author will demonstrate a prototype of an automatic car parking system with Mealy State Machine architecture. The project will consist of proximity sensors to check the presence of a car on a particular slot. The prototype will be controlled by MCU and 3-digit seven segment display.

The state will check continuously and count how many cars not present in the slot this will show the current number of unfilled slots in the seven segment display.  State transition will be in microseconds so as to display real time numbers of unfilled slots in the parking.

1. Functional Block Diagram





1. Algorithm Discussion

<Applicable Discussion to be placed here>

1. State Diagram/Flow Chart



Truth Table

|  |  |
| --- | --- |
| States | Input x=1 (car present) x=0 (no car) |
| S1 = Slot 1 Car Checking | X=1,0 |
| S1 = Car count in slot 1 | X=1 |
| S2 = Slot 2 Car Checking | X=0 |
| S2 = Car count in slot 2 | X=1 |
| S3 = Slot 3 Car Checking | X=0 |
| S3 = Car count in slot 3 | X=1 |
| S4 = Slot 4 Car Checking | X=0 |
| S4 = Car count in slot 4 | X=1 |
| S5 = Slot 5 Car Checking | X=0 |
| S5 = Car count in slot 5 | X=1 |
| S6 = Slot 6 Car Checking | X=0 |
| S6 = Car count in slot 6 | X=1 |
| S7 = Slot 7 Car Checking | X=0 |
| S7 = Car count in slot 7 | X=1 |
| S8 = Slot 8 Car Checking | X=0 |
| S8 = Car count in slot 8 | X=1 |
| S9 = Display of Available Car slots | X =1,0 |
| S10 = Reset Car Count Car=0 | X=1,0 |
| S1 = Slot 1 | X=1,0 |
|  |  |
|  |  |

1. Simulink Design
   1. Simulink Block Design
   2. Block Properties
2. Pictorial Diagram

<Paste here the actual Photo of the items>

1. Software Details
   1. Definition of Variables and Levels

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable Name** | **Data Type** | **Description** | **Range** | **Initial Value** |
| i16\_VoltageSense | Int16 | Monitors Vout | 13V-16V | 0 |
| b\_PowerGood | bool | Flags for Power Good | 0-1 | 0 |
| u16\_OVP | UInt16 | OVP level | >= 100V | 0 |
|  |  |  |  |  |

* 1. MACRO declaration

|  |  |  |
| --- | --- | --- |
| Macro Name | Description | Value |
| Hazard\_ASSERT | PORTB=0xFF | 255 |
| STOP | PORTB = 0x01 | 1 |

* 1. SVN **Logs**

|  |  |
| --- | --- |
| **Revision** | **Details** |
| 2 | $baseline\_int v00.00.01  $Change: Remove blinking 1 sec routine |
| 1 | $Base r0 |
| 0 | Add Folder Meely |

* 1. MATLAB SCRIPT

function [x1,x2] = quadform(a,b,c)

d = sqrt(bˆ2 - 4\*a\*c);

x1 = (-b + d) / (2\*a);

x2 = (-b - d) / (2\*a);

end

1. Source File Information
2. Programming Tools

**Programming Software** : MATLAB

**Programming Interface/Tool** : N/A

**Compiler** : N/A

**Compiler Version** : v2008

1. Hex File Description

**Filename** : MP1\_BaliwasE.m

**Version No.** : Version 01.00.00

**Date of Build** : 13 November 2012

**MD5 Checksum** : 0x1BE8204B

**Size (KB)** : 168 KB

1. Submission Checklist

| **Description** | **Responsible** | **Done?** | **Signature** |
| --- | --- | --- | --- |
| Perform Code Review |  |  |  |
| Verified SVN Compliant |  |  |  |
| Verified Checksum |  |  |  |
| Updated SRS |  |  |  |

1. Simulation Test Results

<Paste Sample Simulation test result with conditions>

>> [r1,r2] = quadform(1,-2,1)

r1 = 1

r2 = 1

1. References

<Placed in APA format or IEEE format>.