In next table, you can watch the 6 different colors for each tittle the requirement corresponding.

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| --- | --- | --- | --- | --- | --- |
| Functional (Funcional] | No functional (No functional) | **Ambiguous**  (Ambiguo) | **Commentaries**  (Comentarios) | **Headers**  (Cabezeras) | **Recommendations**  (Recomendaciones) |

# Window lifter requirements:

Window lifter is the module responsible to control the window movement.

Window lifter is controlled by two switches that indicate the direction of the window movement.

## Window behavior:

For this purpose the window has to be emulated using a 10 led bar.

The color of this led bar has to be RED.

The movement of the window has to be simulated turning on/off the LEDS creating the animation of the window movement.

The time between each transition shall be 400 msec.

Window movement graphical description:

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CLOSED OPEN

There are two possible window movements:

-Up

-Down

Each window movement has to be indicated trough a led color. Depending on movement each led has to be turn on.

|  |  |
| --- | --- |
| Movement | LED indicator color |
| UP | BLUE |
| Down | GREEN |

## I Oswaldo García found an ambiguity because in the above requirements asks us that we use a bar of LEDs, then it says red color subsequently it is indicating its functionality. But this requirement is requested that the upward movement is blue and green below. We can interpret as apart from the red LED bar that is used to simulate the movement window we install a pair of LEDs (blue and green) to simulate when windows up and down as indicated by the latter requirement, but we feel we should indicate also that we use these 2 LEDs.

## Button Behavior:

In order to consider a validate button press; the button has to be pressed at least 10 msec.

I Oswaldo Garcia, do not understand with regards to Consider In order to validate press a button. And lack indicate how many buttons

were used, because we can assume that will only be two.

The module has to be able to detect fail button press. In that case the button press or button combination has to be considered as invalid.

In case than a valid button press is detected the module has to follow the next behavior depending on the button pressed.

|  |  |  |
| --- | --- | --- |
| Button Press | Time | Action |
| UP | >500 msec | The window shall UP until get totally CLOSED while the button keep press. |
| DOWN | >500 msec | The window shall DOWN until get totally OPEN while the button keep press. |
| UP | <500 msec | The window shall UP until get totally CLOSED automatically. (Function one touch) |
| DOWN | <500 msec | The window shall DOWN until get totally OPEN automatically. (Function one touch) |

## Anti pinch functionality:

Anti pinch is a feature than prevents accidents between window and some human body parts like arms, hands, head….

In this case the signal than indicates to the module the detection of a pinch will be a push button.

Anti pinch button press has to follow the same characteristics than UP and DOWN buttons for valid press.

This signal just can be considered as valid when the movement is UP.

If this signal is valid then the module has to stop the UP Movement and then DOWN the window until the window get totally OPEN.

After window is totally OPEN the module has to ignore during 5 seconds all button press.

After this time the module has to recognize every button press.

As the requirements of buttons still are not well defined, I think that when referring to a request from another point is not valid,

besides that the professor did not comment on a class, you should be very specific with each requirements even very repetitive.

María Isamar Saldaña Gálvez

Oswaldo García Cervantes