

CSc230 Demo Test Sequence for the Traffic Light Simulation

Each bold line separator in the table indicates the start of a new stage in the program capability. No credit is given for stage $k+1$ unless stage k was fully implemented, i.e., testing stops at a solid bar if the previous tests are not working reasonably well. ('Reasonably well' = about 80% of marks awarded.) Please note that changes may be made to this testing sequence.

Note 1. The button names in the specifications are similar, but not exactly the same, as the labels shown ultimately on the screen. In the testing sequence below, the labels as shown as reminders on the screen are used for simplicity, together with the blue button number as shown in the ARMSim# GUI to ease the testing. For example, a request to go up from floor 2 is labelled F2UP in the specifications, while it shows as FU2 on the screen corresponding to blue button (1,1).

#	Action	Things to Observe	Marks	Total
0	Load the program (if failure, stop and grade = 0)	• Initial screen is displayed with name and student number, both LEDs ON and 8SEG has point only.	0	0
1	Press Right Black Button.	• Initial screen is displayed and then program exits.	1	21
2	Reload; press Left Black Button.	• Simulation starts and goes through States S1 to S7.	20	
3	Press Right black button during State S1.	• Exit from traffic light program <i>at the end</i> of State S1.	3	6
4	Restart and press Right Black Button any time in States S3 to S7.	• Exit from traffic light program <i>at the end</i> of State S7.	3	
5	Restart and press Right Black Button during State S2.	• Exit from traffic light program <i>immediately</i> in S2.	6	6
6	Restart and press any blue button 8-11 during State S1.	• Pedestrian cycle starts <i>after the end</i> of State 1, going through P1 to P5 and then back to S5.	9	19
7	Press any blue button 8-11 any time in States S3 to S7.	• Pedestrian cycle starts <i>after the end</i> of State 7, going through P3 to P5 and then back to S1.	9	
8	Press any blue button except 8-11.	• No pedestrian cycle, nothing happens.	1	
9	Press any blue button 8-11 during State S2.	• Pedestrian cycle starts <i>immediately</i> during State 2, going through P1 to P5 and then back to S5.	6	6
10	Press Right Black Button any time during a pedestrian cycle.	• Exit from traffic light program <i>at the end</i> of State P5.	2	2
11	BONUS: The above tests appear to all work on the Embest board. Student must show that they can build a project and download it to the board. (Full testing is unnecessary.)		5	5
Total = 60 marks for correct execution (from above) + 40 marks for code evaluation (documentation, structure, correct use of subroutines, adherence to specifications, design, etc.)				

Bonus. Up to 10 marks (10%) if the display on the LCD is enhanced and the LEDs are blinking during the “Yellow” lights.