

Lab 2 COMPENG 3DQ5

Joshua Umansky, George Wahba

400234265, 400371904

McMaster University

COMPENG 3DQ5

Lab 2 COMPENG 3DQ5

To implement the case-changing method based on the MSB switch, we used brute force and created a series of if-statements that checks each of the switches by assigning them and implementing the position of each switch within the if-tree based off their position relative to the MSB.

```
// ROM for translate PS2 code to LCD code
PS2_to_LCD_ROM PS2_to_LCD_ROM_inst (
    .address ( {data_reg[15][8], data_reg[15][7:0]} ),
    .clock ( CLOCK_50_I ),
    .q ( LCD_code )
);
```

The code snippet above converts PS2 data to be displayed on the LCD, the first part of the address argument corresponds to the bit that controls the case level and the other 8 bits following it contain the make code that corresponds to the characters being inputted into the register.

Based off the switch corresponding to the MSB that is the most significant, the index of the switch is checked to determine whether it should be lowercase or uppercase based off the even/odd logic. The code to sense both “comp” and “3dq5” were designed by setting a conditional statement that raises a flag if the values corresponding to the characters that make up both phrases are sensed inside the last 4 registers and the corresponding LCD line value for the respective phrases. When their flag is raised as true, an instruction that contains the lighting sequence for both the green and red LEDs is activated and shown.