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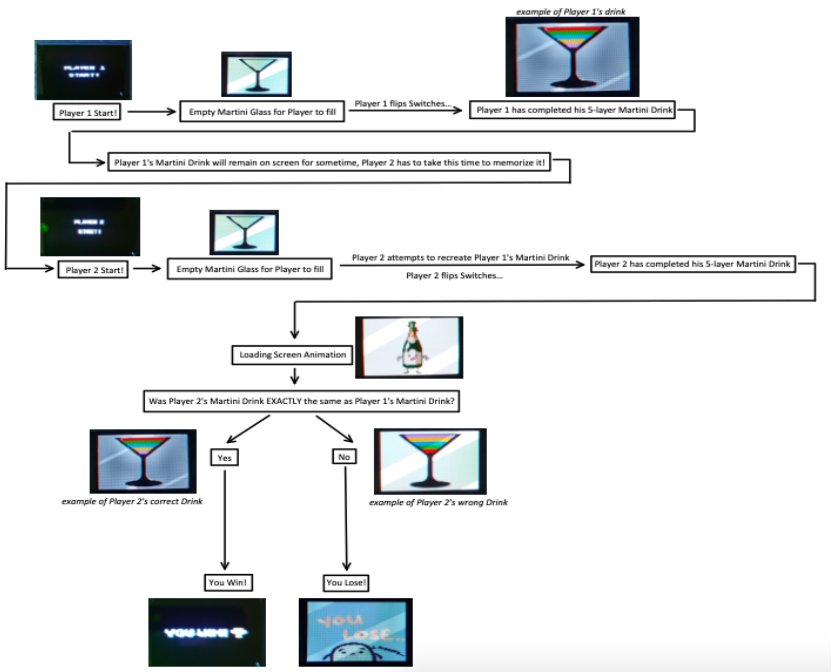
Student B (Graphical) : Damien Lim Yu Hao A0223892Y

Thursday A.M
Group ID S5_02

Feature	Feature Marks For	Input Devices	Feature Description	Images / Photos
Graphical Visualizations and Configurations	Damien	SW9 SW8 SW7 SW6 btnL btnR	SW9 is 0 : Basic Color Scheme SW9 is 1 : Alternative Color Scheme SW8 is 0 : Border Width of 1 pixel SW8 is 1 : Border Width of 3 pixels SW7 is 0 : Border is displayed SW7 is 1 : Border not displayed SW6 is 0 : Volume Bar is displayed SW6 is 1 : Volume Bar not displayed btnL pushed : Volume Bar moves left btnR pushed : Volume Bar moves right SW4 and SW5 must both be 0, to enter this Feature	 Alternative Color  One Pixel Border  Three Pixel Border  Border not displayed  Volume not displayed  Bar shifted left  Bar shifted right  Low Volume  Medium Volume  High Volume
Bartending Game	Damien	SW4 btnC SW15 SW14 SW13 SW12 SW11	SW4 is 0 : Exits Bartending Game SW4 is 1 : Enters/Resumes Bartending Game btnC : Resets Bartending Game SW15 is 1 : Layers a Red Drink once SW14 is 1 : Layers a Green Drink once SW13 is 1 : Layers a Blue Drink once SW12 is 1 : Layers a Yellow Drink once SW11 is 1 : Layers a Purple Drink once Flipping above Switches from **OFF to ON**, will layer the appropriately Colored Drink inside the Martini-Glass **ONCE** (**Bottom-Ups manner**). • The Martini Glass has 5 layers of Drinks, each Player must utilize all 5 layers • There are no restrictions on number of times each color can be used Please consult Flowchart below for details on game	Consult Flowchart for images
Guitar Tuning Display	Team	SW5	SW5 is 0 : Exits Guitar Tuning SW5 is 1 : Resumes Guitar Tuning	Examples shown below (Fig 1 and Fig 2)



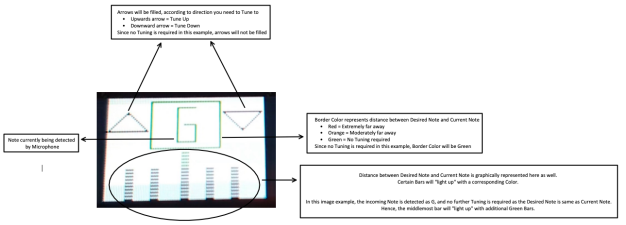


Figure 1 - No Tuning Required

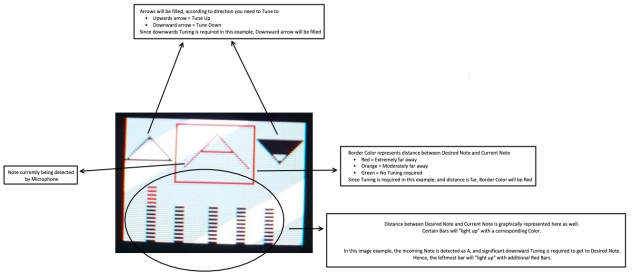
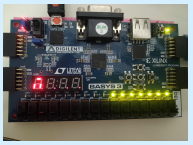
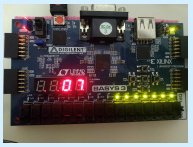
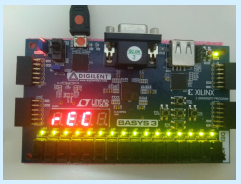
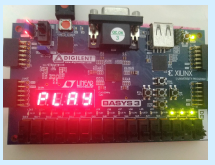
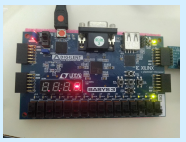
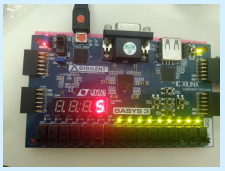


Figure 2 - Significant Tuning Required

Feature	Feature Marks For	Input Devices	Feature Description	Images / Photos
Real-Time Audio Volume Indicator	Xuan Liang	SW0	LED array refresh from 0 to 15 at 10Hz, indicating intensity SW0 is 0: L/M/H shown on 7-segment SW0 is 1: Volume from 0 to 15 shown on 7-segment	 
Audio Recorder	Xuan Liang	SW1, PBU, PBD	LED array displays the audio input and playback intensity PBU: start recording for up to 1.5 sec. Click again to stop recording. PBD: playback the recording. LED will be empty after playback ends. Click again to return to initial state	 
Audio waveform smoother	Xuan Liang	SW2, PBU, PBD	The waveform input is smoothed through the use of a moving average to reduce the effect of random noise, as well as acting as a low-pass filter. 7-segment shows the amount of smoothing from 1 to 5. '-' indicates a 180 degree phase shifted waveform PBU: increase smoothing up to 5 PBD: decrease smoothing to '-'	 
Frequency Identifier	Team	SW3	Usage of autocorrelation to determine the frequency of the mic input. Autocorrelation compares a snapshot of an audio signal with delayed copies, recording the magnitude of similarity between them. This is then used to determine the minimum period before the waveform is repeated. In order to increase accuracy, the peak of the waveform must be used to calculate the period. As such, quadratic peak interpolation is used to calculate the peak more accurately.	No image, used in tandem with Guitar Tuning Display (SW5). All effects shown on guitar tuning display

Feedback

Project's open-ended components allowed for creativity, and enabled us to experiment with ideas.

Project Assignment was good, pairwork forces us to realize the importance of integrating ideas well together.