

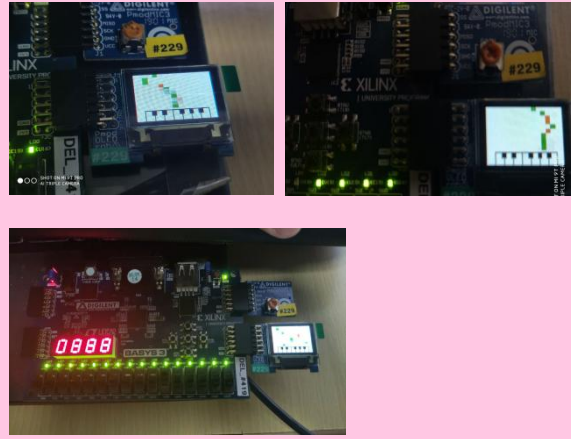


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 Lab Session: Thursday A.M.
 Group ID: S5_24

Quick Start Guide

Feature	Feature Marks For	Input Devices	Feature Description	Images/Photo
Real-time audio volume indicator	Hoe Jun Leong	Sw0, sw15	<p>Audio taken from the microphone is show on the LEDs and the 7 segment display</p> <p>Sw0 is 0: mic_in shown on 12 LEDs</p> <p>Sw0 is 1: Peak intensity shown on 16LEDs</p> <p>Sw15 is 0: 7 segment shows 00 to 15 depending on volume level.</p> <p>Sw15 is 1; 7 segment shows L/M/H depending on volume level.</p>	
Graphical visualisations and configuration (Of Volume indicator)	Gavien Pat	sw1, sw2, sw3, sw4	<p>Graphical visualisation of the volume indicator on the oled display. It features a 16 level volume indicator with a border. The volume indicator display can be further configured with sw1 - sw4.</p> <p>Sw1 : Changes width of pixel border, 1 or 3 pixels</p> <p>Sw1 : Turns On/Off border</p> <p>Sw3 : Changes color scheme</p> <p>Sw4 : Turns On/Off Display</p>	
Menu Slider	Gavien Pat	btnL, btnR, btnD, btnU	<p>btnL : Changes menu to screen on the left</p> <p>btnR : Changes menu to screen on the right</p> <p>btnD : Selects feature and changes screen to that of the feature</p> <p>btnU : Changes back to first menu (Volume Indicator) from whichever screen is on (regardless of menu or feature)</p>	
Shouting Power Up	Gavien Pat	Microphone	<p>Audio taken from the microphone helps to power up the avatar on the oled screen. The higher the volume level, the faster the avatar powers up. As the avatar powers up, the oled screen shows a visual</p>	

			representation of it.	
Frequency Indicator	Hoe Jun Leong	Microphone	By counting the number of times the sound wave exceeds a threshold volume (2175) in a 20kHz clock, we can determine the rough frequency of a pure sinusoidal sine wave. The frequency can be reflected on the seven segment by flipping sw5	
Instrument Tuner	Hoe Jun Leong	Microphone	This feature performs similar to an instrument tuner. Audio frequency taken from the microphone is then classified as a musical note. The note is graphically displayed on the oled. The difference in frequency is shown on a slider at the bottom of the screen. (Shows if frequency is too low/high depending on the arrow being on the left/right) If the arrow is not within the 3 marks, then it'll be red, else green.	
Music Midi	Team	Microphone	This feature acts as a Music Instrument Digital Interface (mainly for the piano). Audio taken from the microphone is then determined to be of a musical note. It is then displayed and shown similar to a midi. The sequence and duration of each note is easily seen. With the piano display at the bottom, it is easy to distinguish which note is which as well. It can decode the notes of a music piece up to about 180bpm (tried and tested with Kero Kero Bonito Flamingo and Russian National Anthem, both of which needed to be in pure sine waves and single notes)	

Feedback:

Project is effective in applying what we learn during the module, effectively being a very large assignment. Project is good at allowing students to express their creativity in their learning and implement features that they would like themselves.

Provide both microphone and oled modules for each student in the pair. Coding without the use of the module to check on the overall is hard as there is no feedback on what may be wrong.