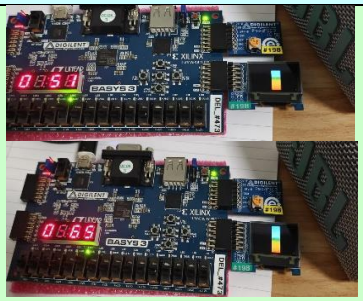
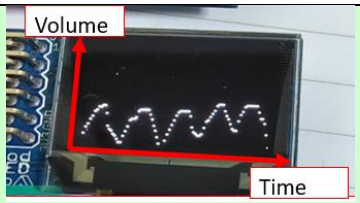
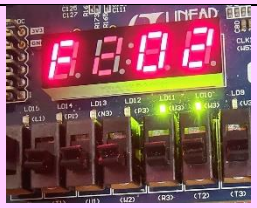
Feature Name	Feature Description	Images/Photos
OLED Task A	**Turning on SW2 with all other switches OFF** will cause the screen to display basic OLED Task A.	
OLED Task B	**Turning on SW1 with all other switches OFF** will cause the screen to display basic OLED Task B.	
AVI Task	**Turning on SW0 with all other switches OFF** will activate the functionalities of the basic AVI task.	
Pushbutton Morse-Code	-**Pressing and holding BTNC for**: **1 second**: LD7 lights up, also equivalent to a dot in morse code. -**At least 3 seconds**: LD9 lights up, also equivalent to a dash in morse code. -Current registered morse code will be displayed immediately on the leftmost anode. -Characters such as K, M, V, W, X, and Z cannot be displayed by the 7-segment display so, morse code inputs corresponding to these values will cause '0' to be displayed on the 7-segment display. -By **pressing BTNL** user can **clear** the current input of morse code and allows the user to input a new entry. -Morse Code Implemented with a bit-shifting algorithm to store the inputs.	 (a single dot represents "E" in Morse code)  (a single dash represents "T" in Morse code)  (Two dashes will show initial value "0" as it is a invalid input "M")
64-Level Audio Indicator	-In Unlocked Mode (LED10 lit up), **SW10 Activates the 64-Level Audio Indicator.** Volume indicator is improved to have **64 discrete levels shown on both the LED and the 2 leftmost anodes**. Anodes indicate volume from 1 (almost no volume detected) to 65(VERY LOUD). ----- -OLED Screen displays volume in a **smooth colour gradient** from red to blue. 64 levels are chosen to fit the whole OLED screen.	

Volume Waveform Plotter	-In Unlocked Mode (LED10 lit up), **SW11 Activates Volume Waveform Plotter**. -Using 64-level volume discretization, **peak amplitude output (y-axis) from the peak amplitude algorithm is plotted against time (x-axis).** Each volume data are stored and converted into a coordinate to be displayed on the OLED screen.	
Unlock Mechanism for Audio Functions	-When **Morse code letter "U" is entered and shown on the leftmost anode, the Right Pushbutton (BTNR) can be pressed to unlock the device.** -Once unlocked, LED 10 will light up. -Only when device is unlocked, SW10 and SW11 and SW15 will trigger the audio functions. Else, turning on SW10, SW11 and SW15 will cause AVI basic task to be disabled. Morse code entry is still displayed on the leftmost anode after unlocking.	
Fast Sampling for Audio	-Whenever **Morse code "F" is displayed** on the leftmost anode, LED11 lights up and peak amplitude will be evaluated at twice the speed (0.05s). This makes the audio system more sensitive to volume changes. -Once **"F" is not displayed,** the fast evaluation mechanism turns OFF.	
"Lock"/Reset mechanism	- To re-access basic tasks, **turning off SW14 will "Lock" the machine**. System returns to unlocked state and Morse code will be reset to zero. -When **SW14 is ON**, **the OLED will display a 'static' pattern to signify the reset**. The static pattern is done by doing a simple recurring addition on the oled_data across the x axis. -After SW14 is switched OFF, the OLED screen will **reset to a random uniform colour**.