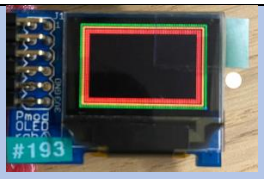
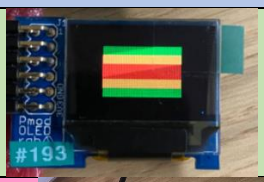
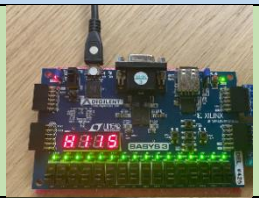
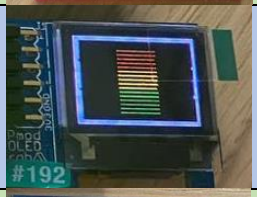
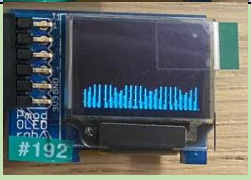
Student A: Ng Sihan, Ian A0231053X Student B: Liu Junhao A0230437M S1_04

Brief Feature Name	Feature Description	Images/Photos
Student A: Ian OLED Task A Borders + AVI2A	OLED Task A: SW[0] = 1 :Shows three borders (Red, Orange, Green) on the OLED btnL: Borders hidden AVI2A: Created 6 different ranges for the volume levels and represented them on LD0 to LD4	
Student B: Junhao OLED Task B Bars + AVI2B	SW[1]=1 : Creates three bars (Red, Orange, Green) on the OLED btnL : Hides the orange bar A value between 0 to 5 is shown AN0 of the 7-seg display	
Team AVI1 + AVI3	Finds the peak audio intensity value within 0.3s time intervals. Borders and bars are displayed on the OLED display as per the requirements.	
Student A: Ian Main Menu	btnU, btnC ,btnL, SW15 Main Menu: btnU selects the Volume Indicator feature, btnC selects the Oscillation feature and btnL selects the Workout Buddy feature. SW15: Reset: When SW15 is turned on, everything will reset to its original state, and it brings the user back to the main menu.	
Student B: Junhao Real-time audio volume Indicator	PmodMic3: 7seg display is able to display volume and classify the volume into range 0 - 5 as low e.g. LO 04, range 6 - 10 as medium e.g. ME 09 and range 11 - 15 as high e.g. HI 15. LEDs also light up incrementally from right to left depending on the volume detected.	
Student A: Ian Volume level display	PmodMic3: The volume levels on the OLED display are split into 16 levels, with each level corresponding to the volume detected by the input mic.	
Student B: Junhao Oscillations	PmodMic3, btnL : Displays a series of oscillations which has an amplitude corresponding to the input volume detected by the mic. btnL: Press to freeze the waveform on the screen for further observation and press again to unfreeze.	

<table>
<tr><td rowspan="4">Team
Workout Buddy:
Workout Intensity/Type of Workout Menus</td><td>btnU, btnC ,btnL

Workout Intensity Menu:
btnU selects Easy difficulty, btnC selects Medium difficulty and btnL selects Hard difficulty.

After selecting the workout intensity, the user will be brought to the ‘type of workout’ menu.
btnU selects Upper Body, btnC selects Cardio and btnL selects Lower Body.</td><td> </td></tr>
<tr><td>The user will then be brought to a ‘GET READY!’ screen which prompts the user to be prepared in the next 3 seconds.</td><td> </td></tr>
<tr><td>Each type of workout consists of 3 exercises and 2 breaks (work->rest->work->rest->work).

The exercises will begin with a count of 30 seconds on the 7seg display. As the count runs down, the LEDs will light up sequentially from LD15 to LD1 to simulate a progression bar for the current exercise. The start and end positions of the exercise will be displayed in an alternating fashion for the user for easy reference.

After an exercise has ended:
A break of 30/20/10 seconds will be allocated for users who selected the ‘Easy’/’Medium’/’Hard’ difficulty and the break will be counted down on the 7-seg display.</td><td> </td></tr>
<tr><td>After the last exercise has ended, a ‘CONGRATULATIONS’ screen will be displayed to signify the end of the workout.</td><td> </td></tr>
<tr><td>Student A: Ian
Workout Buddy: User-centric customisable workout</td><td>PmodMic3: The mic is calibrated to detect the user snapping his/her fingers which will introduce a break of 10 seconds. This can be triggered either during the work cycle (user feels drained but wants to complete exercise) or the rest cycle (take a longer break).

btnC: Implemented as a skip button to skip the current exercise if the user finds it too difficult, or to skip the breaks (works for both the usual rest cycle and the 10 second break from snapping fingers) if the user wishes to resume the workout immediately.</td><td></td></tr>
</table>

Feedback:

- Extension of deadline was greatly appreciated
- Flexibility in presenting our own ideas as an open-ended assignment
- Good experiential learning opportunity to pick up some uses of Vivado outside of what has been taught