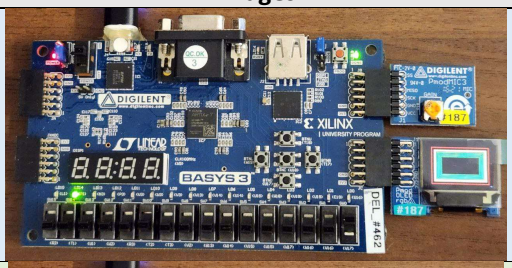
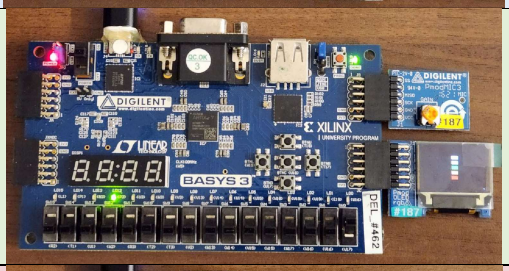
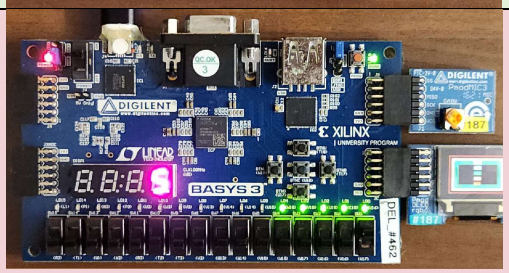
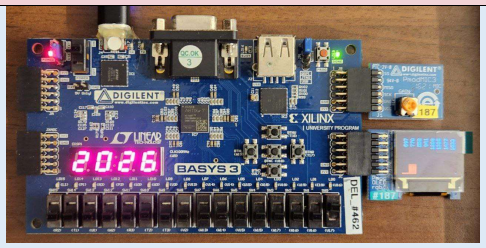
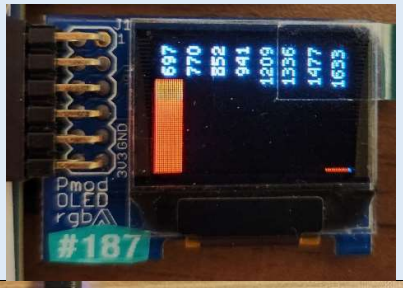
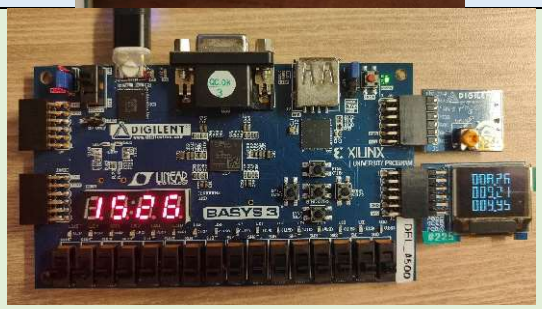
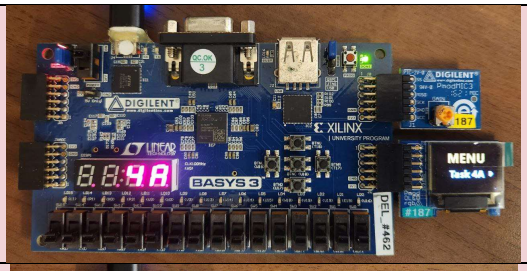
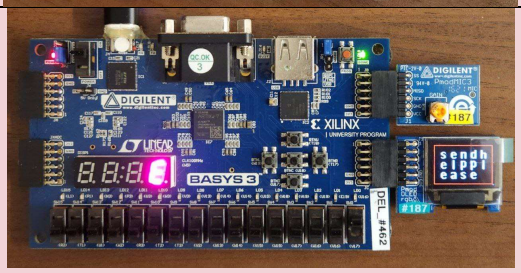
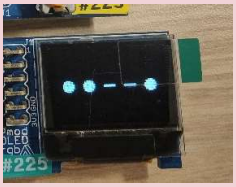
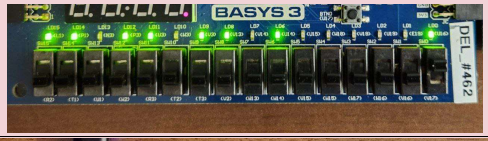
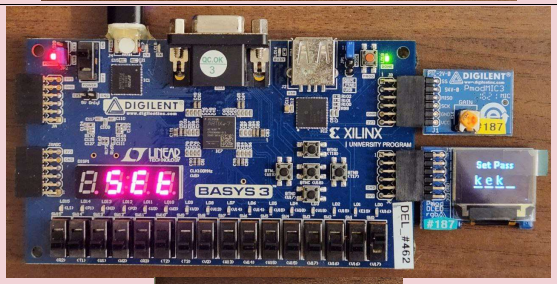
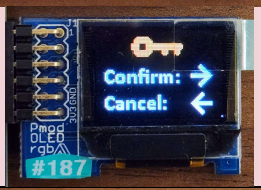
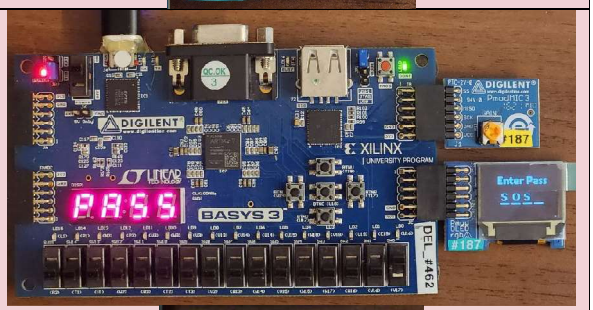
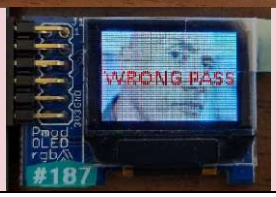
Feature Name	Feature Description	Images
Student A: **Tze Han** OLED Basic Task A	Enabled through menu (4A) LED turns on for 3s after each button press **BTNU:** Cycles through 5 stages **LD14:** BTNU is ignored when LED is on	
Student B: **Yan Zaiya** OLED Basic Task B	Enabled through menu (4B) LED turns on for 5s after each button press **BTND:** Cycles through 4 stages **LD12:** BTND is ignored when LED is on	
Team AVI	Enabled through menu (4C) Audio volume indicator **OLED:** Combined visualization from basic tasks A and B **7-segment**: Volume as digit 0-5 **LEDs**: Volume intensity	
Student A: **Tze Han** DTMF Classifier	Enabled through menu (DTMF) **Classifies DTMF tones using 32-bit fixed-point Goertzel Filter @ 20kHz sampling** **OLED:** Power visualization of each frequency bin **7-segment:** Scrolling display of interpreted signals **LEDs:** Index of symbol on the DTMF grid **BTNL, BTNR:** Change width of bars **SW[0]:** Toggles frequency overlay – visible (**1**) / hidden (**0**)	 
Student B: **Yan Zaiya** Stopwatch	Enabled through menu (TIME) A stopwatch that counts in the form of XXX.YY seconds up to 999.99 seconds **OLED**: Shows the split time (latest three) **7-segment**: Shows the real-time stopwatch counts **BTNU:** Start / continue the stopwatch **BTND:** Stop the stopwatch **BTNL:** Split the time **BTNR:** reset the stopwatch and split time	

Team Menu Navigation	**7-segment:** Task selection **OLED:** Task selection **BTNL, BTNR**: navigate through menu items **BTNC:** Select task/navigate to menu from task	
Team Morse Code	Enabled through menu (MORS) Microphone **samples morse code** and classifies into respective symbols based on **duration of the beep** (Farnsworth timing) **OLED:** Text box showing previous characters **7-segment:** Last symbol converted **LED[0]:** Shows state of input **LED[15-2]:** Shows dot/dash pattern **SW[0]:** Toggle between input methods – microphone (**0**) / BTNU (**1**) **SW[15]:** Toggle between OLED displays – decoded message(**0**) / actual morse code(**1**) **BTNU:** Alternate input method **BTNL:** Clear OLED text	  
Team Menu Lock (Locking)	Enabled through menu (LOCK) User can set a **4-character password** using the morse input methods shown above **OLED:** Shows the interpreted characters At confirmation screen, **BTNR:** Confirm password **BTNL:** Re-input password	 
Team Menu Lock (Unlocking)	When board is locked, the user must enter the correct password using the same input methods. Menu and the tasks cannot be accessed in this state