

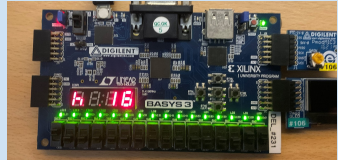
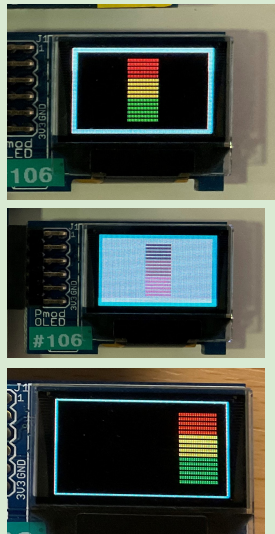
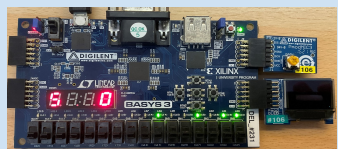
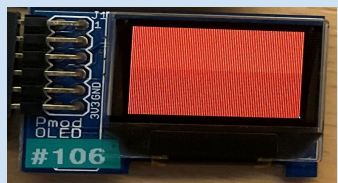
EE2026: USER GUIDE

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Lab Session: Tuesday A.M.

Group ID: S2_07

Feature	Feature Marks For	Input Devices	Feature Description	Images / Photos
Real-time audio volume indicator	Adeline	SW0, SW1, PmodMIC3	SW0 is 0: mic_in shown on 12 LEDs SW0 is 1: Peak intensity shown on 16 LEDs SW1 is 1: Low/Medium/High indicator is shown on 7 segment depending on volume (not shown when SW1 is 0) Volume indicator: Numerical value of volume from 0 to 16 is shown on 7 segment	
Graphical visualisations and configurations	Aditi	SW1, SW10, SW9, SW8, BTNL, BTNR	SW10 is 1: Displays the border on the OLED (Number of pixels depend on SW1 and color theme depends on SW8). SW10 is 0: Hides the border. SW1 is 1: It displays the border of width of 1-pixel on the OLED if SW10 is also on(1). SW1 is 0: It displays the border of width of 3- pixels on the OLED if SW10 is on(1). SW9 is 1: Shows the volume bar. The number of bars appearing on the screen at any time depends on the loudness of the sound as captured by the microphone. SW9 is 0: Hides the volume bar. SW8 is 1: Turns on the complementary color theme mode. SW8 is 0: Turns off the complementary color theme mode. BTNL: Press this button to move the volume bar to the left. BTNR: Press this button to move the volume bar to the right.	
Hands-free Passcode Lock	Adeline	PmodMIC3, BTND, BTNU	On Program Start: 7 segment cycles through digits 9 to 0. User is to clap at the instant that a digit is displayed to set that digit in the passcode. If the LED corresponding to the desired digit lights up, that digit has been successfully set in the passcode. BTND: When desired passcode is set, user should press BTND to confirm passcode. If user does not want to set a passcode, they should press BTND without setting any digits. Unlocking and locking device: At any point in time of the program, the user can lock the device by pressing BTNU. To unlock device again, user should clap at the correct digits according to their passcode. (7 segment and LEDs operate in the same way as when setting passcode to help user ensure that they have entered their passcode successfully)	
Rhythm Visualiser	Adeline	SW11, PmodMIC3, BTND	SW11 is 1: Enable Rhythm Visualiser Setting rhythm: Press BTND to go into set rhythm mode. User should see a white screen when setting rhythm. User can clap a rhythm up to a maximum of 7 beats. Visualising rhythm: Press BTND again to go into visualising mode. The rhythm that the user clapped	

			will be repeated on the screen by flashing different colors according to the beat.	
Save the drowning Robo	Aditi	SW13, BTND, BTNL, BTNR, PmodMIC3	<p>SW13 is 1: Enables the game mode.</p> <p>Gameplay: As the game begins, the Robo starts falling down. The player has to make sure he makes the robo land on the boat and prevent the Robo from falling into the sea. This can be done by controlling the movement of the boat as well as the Robo by using buttons and the mic as mentioned below. The user also has to make sure that the bullet does not hit the Robo. If Robo does not land on the boat (that is, Robo falls into the sea) or if the bullet hits the Robo, then the player loses the game.</p> <p>-> Bullet is generated at a random y-index using the linear feedback shift register.</p> <p>-> Robo is also generated at a random x-index which is generated using the linear feedback shift register.</p> <p>BTNL: This button can be pressed to move the boat towards the left side.</p> <p>BTNR: This button can be pressed to move the boat towards the right.</p> <p>PmodMIC3: The louder the sound received by the microphone the higher the Robo will rise.</p> <p>BTND(Reset): This button can be used to reset the game.</p> <p>Score: The number of the Robos saved from drowning will be displayed on the seven segment display as the score of the game. The score is also reset when the game is reset by pressing the BTND button.</p>	  
Average Volume + Rainbow Volume Visualiser	Team	SW12, PmodMIC3, BTND	<p>SW12: Enable Average Volume + Rainbow Volume Visualiser</p> <p>Start recording average: To start recording average volume, press BTND. When recording, concentric squares in colors of the rainbow are displayed on the screen according to the volume.</p> <p>Stop recording average: To stop recording, press BTND again. The average volume over the time period of recording is displayed on the 7 segment.</p> <p>→ Every time a new recording starts, the average is reset.</p>	 
Robo Run	Team	SW14, PmodMIC3, BTND	<p>SW14: Enable Robo Run</p> <p>Gameplay: Spikes are present on the top and bottom of the screen with heights randomly generated using linear feedback shift register. When sound is detected above a certain threshold, Robo flies up, and when no sound is detected, Robo falls down. The louder the detected sound is, the higher the Robo will rise. If Robo touches a spike, the player loses the game.</p> <p>Score: Score is displayed on the 7 segment. The further Robo travels, the higher the score.</p> <p>Reset: To reset the game, press BTND.</p>	 

References: [Linear Feedback Shift Register, electrocircuit4u.blogspot.com/2015/11/linear-feedback-shift-register.html](http://Linearcircuit4u.blogspot.com/2015/11/linear-feedback-shift-register.html).

