

ECE411 Team 2
Evan McClelland
Dimitri P. Fotin
Benjamin Crall
John Michael Mertz
Doc rev 1.0

ExploSnake Test Plan

Unit Tests:

Test that:

- VBUS is around 20V when connected to a suitable USB-C PD supply, 0V otherwise
- 5V rail is at 5V when connected to computer
- 5V regulator is outputting at least 4.5V when powered by USB-C PD
- ATmega32u4, OLED, and notifier all receive 4.5-5.5V in both power situations
- “capacitor boom” pin to ensure no voltage is present

Verification Tests:

Verify that:

- Microcontroller is operational
 - Bootloader can be loaded by ICSP
 - Firmware can be loaded over USB (after bootloader is burned)
 - “Blink” sketch blinks the light
- OLED screen is outputting game correctly
- All 4 buttons are generating correct input to game
- Snake grows after eating Scran
- Game over screen appears and capacitor explodes on loss

Validation Tests

Validate that:

- Game is playable as intended
- Game is responsive to input
- Game ends when either snake hits itself or any walls
- Capacitor explosion occurs when prompted

Test Author: Evan McClelland						
	Test Case Name:	Snake Button Test	Test ID #:		1	
	Description:	<i>Simulate input from user for gameplay of snake. Verifies button functionality and game playability</i>	Type:		<input type="checkbox"/> white box <input checked="" type="checkbox"/> black box <input type="checkbox"/> _____	
Tester Information						
	Name of Tester:		Date:			
	HW/SW Version:		Time:			
	Setup:	<i>System should be reset and the game should be awaiting first input</i>				
S T E P	Action	Expected Result	P A S S	F A I L	N / A	Comments
1	Strobe SW3	Snake body starts to move upward				
2	Strobe SW4	Snake body starts to move downward				
3	Strobe SW5	Snake body starts to move left				
4	Strobe SW2	Snake body starts to move right				
	Overall test result:					

Test Author: Benjamin Crall						
	Test Case Name:	Power Supply Functionality	Test ID #:	2		
	Description:	Tests the USB-C PD and power regulation functionality by connecting to several different power supplies.	Type:	<input type="checkbox"/> white box <input checked="" type="checkbox"/> black box <input type="checkbox"/> _____		
Tester Information						
	Name of Tester:		Date:			
	HW/SW Version:		Time:			
	Setup:	System should be powered off and unplugged. Unplug for at least 15 seconds between tests				
T E S T	INPUTS	EXPECTED OUTPUTS	P A S S	F A I L	N / A	Comments
1	USB-PD power supply w/ 20V capability	<ul style="list-style-type: none"> D1, D4 should be lit. D3 dark. 5V rail \geq 4.5V VBUS rail \geq 19V 				
2	USB-PD power supply w/o 20V capability	<ul style="list-style-type: none"> D1, D3 should be lit. D4 dark 5V rail \geq 4.5V VBUS rail $<$ 1V 				
3	Non USB-PD power supply	<ul style="list-style-type: none"> D1, D3 should be lit. D4 dark 5V rail \geq 4.5V VBUS rail $<$ 1V 				Does not work with some USB A ports and some USBC-A adapters. If D1 was lit during other tests, try a different supply.
	Overall test result:					