

## **PART 1**

### **UNIT TESTS**

1. Power - check that everything is on
  - a. Measure the 5V pin on the ESP32-S3
  - b. Make sure that USB-C port powers the ESP32-S3
2. Sensor - buttons
  - a. Test if the a button press can affect the OLED display
  - b. Test if the ESP32-S3 can register a button press and release
3. Actuator - OLED
  - a. Test if the OLED can output an image
  - b. Test that the I2C protocol is communicating properly
  - c. Test if the OLED can change images with a button press
4. microSD Card Reader
  - a. Test if a file in the microSD card can store at least 10 passwords
  - b. Test if files are readable from the microSD card
  - c. Test if file are writable from the microSD card
5. ESP32-S3
  - a. Test that the GPIO pins can input and output data

### **VERIFICATION**

6. Test the PCB to make that traces are routed correctly
7. Two buttons must be able to switch between passwords
8. OLED display must be able to display different names
9. microSD card reader must be able to read a CSV file
10. microSD card reader should to able to read the encrypted password file
11. The ESP32-S3 should identify as a keyboard
12. The ESP32-S3 should navigate the password file sequentially

## **Validation**

13. Must output and enter a password into a text field via button press
14. The SD card should store more than 10 passwords
15. The password manager device must fit into a pocket
16. Must input password through the UI
17. UI must display passwords and websites

## Example Test Case

<b>Test Author: John Yang</b>						
	<b>Test Case Name:</b>	microSD card reading test	<b>Test ID #:</b>	1		
	<b>Description:</b>	Test if the ESP32-S3 is capable of decrypting a file from the microSD card. This tests mainly if passwords can be correctly stored and outputted to the OLED display.	<b>Type:</b>	<input type="checkbox"/> white box <input checked="" type="checkbox"/> black box <input type="checkbox"/> _____		
<b>Tester Information</b>						
	<b>Name of Tester:</b>	John Yang	<b>Date:</b>	12/3/24		
	<b>HW/SW Version:</b>	1.0	<b>Time:</b>	5PM		
	<b>Setup:</b>	Needs a fully assembled device with an encrypted password file.				
<b>S T E P</b>	<b>Action</b>	<b>Expected Result</b>	<b>P A S S</b>	<b>F A I L</b>	<b>N / A</b>	<b>Comments</b>
1	Encryption	CSV will have encrypted hex passwords	X			
2	Reading	ESP32-S3 should have loaded encrypted file to memory	X			
3	Selecting password	Websites will be displayed on the OLED	X			
4	Decryption	Password will output on the website on the PC. Correct website name should be outputted to the OLED display.	X			
5						
6						
7						
8						
9						
	<b>Overall test result:</b>		X			Repeat until password file exhausted

### Example Matrix Test (for varying parameters)

<b>Test Author: Ria</b>						
	<b>Test Case Name:</b>	Maximum number of passwords	<b>Test ID #:</b>	2		
	<b>Description:</b>	What is the maximum number of passwords we can input in the SD card	<b>Type:</b>	<input type="checkbox"/> white box <input checked="" type="checkbox"/> black box <input type="checkbox"/> _____		
<b>Tester Information</b>						
	<b>Name of Tester:</b>	John Yang	<b>Date:</b>	12/4/24		
	<b>HW/SW Version:</b>	1.0	<b>Time:</b>	7:33PM		
	<b>Setup:</b>	Needs a fully assembled device with an encrypted password file. 5 encrypted password files will need to be created.				
<b>T E S T</b>	<b>INPUTS (# of Passwords)</b>	<b>EXPECTED OUTPUTS</b>	<b>P A S S</b>	<b>F A I L</b>	<b>N / A</b>	<b>Comments</b>
1	0	Ready to store new passwords	X			
2	1	Stores one password	X			
3	3	Keeps track of multiple passwords	X			
4	10	Meets the requirement and satisfactorily stores 10 passwords	X			
5	15		X			
6	25		X			
	<b>Overall test result:</b>		<b>X</b>			Also outputs title on OLED screen

