



Test Plan

The Dot Light Canvas

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Test Plan

The Test plan below pertains to the prototype of the Dot Light Canvas system. Each test case must be passed for the prototype to be considered fully functional

Test #	Type	Test Case	Expected Outcome	Pass Fail
1	Smart Stylus	The power button is switched to the 'on' state	The Smart Stylus is powered on, indicated by the color indicator LED turning on. The stylus continually searches for a Bluetooth connection to the canvas until one is established	
2	Smart Stylus	The erase button is depressed	The stylus microcontroller correctly reports the pen is in 'erase' mode, indicated by a flashing white in the color indicator LED	
3	Smart Stylus	The erase button is not depressed	The microcontroller correctly indicates the smart stylus is not in 'erase' mode, indicated by a solid (non-flashing) color in the color indicator LED, which indicates which color is currently selected (default White)	
4	Smart Stylus	The tactile color selector button is pressed	The microcontroller correctly indicates the smart stylus is requesting a color selection event, indicated by the color indicator LED cycling through possible colors. The stylus should remain in this mode until the canvas notifies it a color has been selected.	
5	Smart Stylus	The tip of the stylus is pressed to a surface	The stylus microcontroller correctly captures and reports the pressure data from the pressure sensitive tip	

Test #	Type	Test Case	Expected Outcome	Pass Fail
6	Smart Stylus	The smart stylus' diameter and height are measured	The smart stylus measures no more than 36mm in diameter and 190mm in height	
7	Smart Stylus	The operational voltage of the smart stylus is measured	The smart stylus operates at 3.7V	
8	Canvas	The canvas is plugged into a wall plug	The canvas receives power the LEDs display a splash image or animation for a small length of time to indicate power is on. The canvas then continually searches for a Bluetooth connection to the stylus until one is established.	
9	Canvas	The canvas touchscreen is touched by something other than the smart stylus tip	No action takes place	
10	Canvas	The canvas touchscreen is touched by the smart stylus' pressure sensitive tip while in paint mode at a location where the LED is currently off	The color indicated on the smart stylus is written to the LED on the canvas at the location of the press, the canvas LED turns on but is dim	
11	Canvas	The canvas touchscreen is touched by the smart stylus' pressure sensitive tip while in paint mode at a location where the LED is currently on, and the color displayed by the stylus is the same as the color of the canvas' LED	The color indicated on the smart stylus is written to the LED on the canvas at the location of the press. The canvas LED becomes brighter, unless it is already at maximum brightness	
12	Canvas	The canvas touchscreen is touched by the smart stylus' pressure sensitive tip while in paint mode at a location where the LED is currently on, and the color displayed by the stylus is different than the color of the canvas' LED	The color indicated on the smart stylus is written to the LED on the canvas at the location of the press. The canvas LED trends towards the color indicated by the stylus.	

Test #	Type	Test Case	Expected Outcome	Pass Fail
12	Canvas	The canvas touchscreen is touched by the smart stylus' pressure sensitive tip while in erase mode at a location where the LED is currently on	The canvas LED gets dimmer by approximately 30%, unless it is at less than 20% maximum brightness, in which case it turns off completely.	
13	Canvas	The canvas touchscreen is touched by the smart stylus' pressure sensitive tip in the same location twice in a row	Only the first touch changes the canvas LED in any way	
14	Canvas	The smart stylus' color selection tactile button is pressed while the canvas is not in color selection mode	The canvas replaces the current painting with a color selection matrix	
15	Canvas	The smart stylus' color selection tactile button is pressed while the canvas is in color selection mode	The canvas dismisses the color wheel, the smart stylus maintains the previous color selection	
16	Canvas	The smart stylus is touched to the touchscreen at the location of a color in the color selection matrix	The canvas dismisses the color selection matrix, the smart stylus switches colors to the color that was touched	
17	Canvas	The Clear button on the Canvas is pressed at any time after startup	The canvas clears whatever is currently on the screen, the mode defaults back to paint or erase depending on the stylus, and the default color becomes white	
18	Canvas	The save button is pressed on the canvas when not in color select mode	The painting on the canvas is saved to the raspberry pi at the current save index, the displays a quick image indicating the save was successful	

Test #	Type	Test Case	Expected Outcome	Pass Fail
19	Canvas	The left button is pressed on the canvas at any time after startup	The canvas clears whatever is currently on the screen and replaces it with the painting saved to the left of the current save index, the mode defaults back to paint or erase depending on the stylus, and the default color becomes white	
20	Canvas	The right button is pressed on the canvas at any time after startup	The canvas clears whatever is currently on the screen and replaces it with the painting saved to the right of the current working index, the mode defaults back to paint or erase depending on the stylus, and the default color becomes white	
21	Canvas	The left or right button is pressed ten times consecutively any time after startup	The canvas cycles through all available save slots and returns to the original painting	
22	Canvas	The operational voltage of the canvas LEDs is measured	The LEDs operate at 5V	
23	Canvas	The Canvas' width, height, and depth are measured	The canvas measures no more than 790mm tall, 470 mm wide and 90mm deep	