Smart abdominal binder system test plan

Test	Pass	Fail
When the power is connected to the system, the system does not turn on.		
The system turns on when the power switch is enabled.		
The LCD is displayed immediately when the power switch is enabled.		
System will not start without BPM connected.		
LCD will show connection port error message on the second row when BPM is not connected.		
The LCD will show in the first column the target time, and when the system is enabled and the binder is actuated: time elapsed.		
The LCD will show in the second column the target pressure and actual pressure.		
The LCD will show in the third column the BPM status, showing either OK for okay status or otherwise an error code ERR to indicate an error.		
Default target time duration is set to 10 minutes when enabling the power switch.		
Default target pressure set to 20 minutes when enabling the power switch.		
After blood pressure measurement is taken by the BPM, the LCD will show the systolic, and diastolic pressures, and pulse.		

Pushing the rotary encoder knob will toggle the targeting indicator * between the duration and pressure parameters.		
By adjusting the rotary encoder knob, the maximum allowed target times duration is 60 minutes and the minimum is 1 minute.		
When the target time duration is adjusted to below the current duration, the motor will unwind.		
By adjusting the rotary encoder knob, the maximum allowed pressure is 30 mm Hg and the minimum is the idle pressure obtained when the user presses the start button.		
Motor will activate if the BPM measures below 125 mm Hg for testing for systolic or 70 for diastolic. (The actual value is supposed to be 95 mm Hg and 60 mm Hg but for demo purposes, a higher threshold is set.)		
If the systolic and diastolic blood pressure is above the thresholds 95 and 65 respectively the system should not start winding the motor.		
Every 5 minutes the BPM will activate and measure blood pressure if the system is enabled. (Real life purpose, actual is 10)		
After the power switch is enabled, pushing the middle system enable button activates the system.		
When the system is enabled by pressing the middle button, the blue LED is on.		
The BPM enters communication mode when middle button is pressed.		
The BPM will start measuring 1 minute after entering communication mode.		

The LCD will show the readings from the BPM after measurement is complete for 10 seconds.		
The time duration will not be shown if the system is not enabled.		
The time duration will be shown after measurement is taken and the blood pressure is below 125 systolic or 70 mm Hg diastolic		
When the system is disabled by not pressing the middle button, the blue LED is off.		
When the motor is active, pressing the middle button will reverse the motor back to its original starting position.		
After the motor is reversed by pressing the middle button when the system is on, the blue LED is off after the unwinding is complete.		
After the motor is reversed by pressing the middle button, the time duration is cleared.		
If the power switch is disabled, the LCD will not display anything and the middle button and knob will not cause the system to perform any actions.		
If the BPM is taking blood pressure measurement and the middle button is pressed, the motor will reverse to its starting position.		
BPM will measure blood pressure 1 minutes after pressing the middle button and enabling the power switch if there is no communication error.		
If the BPM returns an error to the system when activate, the system will be disabled and the pressing the middle button will enable it again.		

If the BPM is not connected when the system is powered on, the red LED will blink.		
When the system is not powered on, the BPM can take a measurement if the user presses the blue button on the BPM.		
The LCD on the BPM shows the clock.		
Pressing the clock button on the left of the BPM can adjust the time.		
When adjusting the clock, pressing the blue button will toggle to the next option, year month date and time.		
When motor is winding counter clockwise the abdominal belt is compressing.		
When the motor is winding clockwise the abdominal belt is loosening.		
The fan inside the enclosure next to the Arduino and moto driver spins when the power switch is enabled.		
The system can be integrated with a wheelchair.		
The motor enclosure is stable when attached to the wheelchair.		
Minimal wiring showing.		
The power supply is connected to the system and the power switch turns on the system.		
When the power switched on, the motor will not move.		
When the motor is winded and the user breathes, the motor will unwind when breathing out and wind back when inhaling.		

The wires from the abdominal binder is connected to the spool on the motor.		
The pressure sensor is coming out from the back side of the binder.		
The wires do not tangle when being rotated around the spool		
The abdominal binder can close properly.		