

Reporte de Testeo Entregable

Test Plan

Nombre: Spirit.1

Objetivo: Arreglar fallos potenciales

Tipo de Testing: Caja negra-Desarrollador

Criterio de Entrada: v1.0.0

Criterio de Salida: Test completados y, en caso de fallas, corregidas.

Componentes por probar:

Comunicación Serial UART

- Correcto envío y recibimiento de mensajes
- Respuesta correcta de motores a pasos

Movimiento de motor a pasos

- Correcta respuesta usando comandos manuales
- Correcta respuesta llegando a coordenadas deseadas.

Mecanismo Core XY

- Calibración de pasos para llegar a distancia deseada
- Alcanzar una velocidad adecuada
- Mecanismo se mueve a una posición deseada

Interrupciones de software

- Interrupciones para la tarea en ejecución del SPARC

Mecanismo de Touch

- Solenoide se extiende cuando se desea.
- El toque del solenoide se registra en una pantalla touch.

Componentes eléctricos

- Circuito electrónico sirve en protoboard
- Circuito electrónico sirve soldado

Configuración de ambiente de testeo: Pickit 3, PIC18F4550, NEMA17 motor a pasos, MPLAB X, DuckLight, YP-05 UART receptor.

Estimados de esfuerzos en testeo: 2 personas, 12 horas

Número estimado de ciclos de testeo: 15 ciclos.

User Story / Requirement ID	User Story/Requirement Under Test		
01	Core XY Calibration		
Is it valid?			
Yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10	Correct Movement from Core XY		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected Core XY Mechanically Assembled		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	
1	Relate distance to each step the motor takes.	Each step from the stepper motor should equate to the solenoid moving less than a millimeter.	
2	Get solenoid cart to move smoothly	Distances should match across the system and close to no vibration should be recorded.	
3	Move cart with manual commands.	The solenoid holder should move in 4 directions with no problems.	
Estimated Time	5 hours	Real time	

User Story / Requirement ID	User Story/Requirement Under Test		
02	Core XY Calibration		
Is it valid?			
Yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10	Correct Movement from Core XY		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected Core XY Mechanically Assembled		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	
1	Relate distance to each step the motor takes.	Each step from the stepper motor should equate to the solenoid moving less than a millimeter.	
2	Get solenoid cart to move smoothly	Distances should match across the system and close to no vibration should be recorded.	
3	Move cart with manual commands.	The solenoid holder should move in 4 directions with no problems.	
Estimated Time	3 hours	Real time	

User Story / Requirement ID	User Story/Requirement Under Test		
Stepper_XY	Nema Stepper Response		
Is it valid?			
yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10.1	Correct response from stepper motors		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Get Stepper Motor to move in any direction	Stepper motor should move when the terminal commands it to.	System recognizes specific commands to move
2	Get Stepper Motor to move the desired steps	The stepper motor should move exactly as the terminal tells it to.	X axis an Y axis are inverted
3	Get two Stepper Motors to move independently	Each motor should move independently according to the Core XY Mechanism.	Motors move on the opposite way
4	Get two motors to move to a desired location.	Both motors should work together to get to desired location.	Motors move together but not in the Correct way
Estimated Time	5 hours	Real Time	0.5 hours

User Story / Requirement ID	User Story/Requirement Under Test		
Stepper_XY	Nema Stepper Response		
Is it valid?			
yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10.2	Correct response from stepper motors		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Get Stepper Motor to move in any direction	Stepper motor should move when the terminal commands it to.	System recognizes specific commands to move
2	Get Stepper Motor to move the desired steps	The stepper motor should move exactly as the terminal tells it to.	X axis an Y axis are correct ut the Movement is not correct
3	Get two Stepper Motors to move independently	Each motor should move independently according to the Core XY Mechanism.	Motors crashed, the movement is Unpredictable.
4	Get two motors to move to a desired location.	Both motors should work together to get to desired location.	Motors moves randomly
Estimated Time	2 hours	Real Time	30 min

User Story / Requirement ID	User Story/Requirement Under Test		
Stepper_XY	Nema Stepper Response		
Is it valid?			
yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10.3	Correct response from stepper motors		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Get Stepper Motor to move in any direction	Stepper motor should move when the terminal commands it to.	System recognizes specific commands to move
2	Get Stepper Motor to move the desired steps	The stepper motor should move exactly as the terminal tells it to.	X axis an Y axis are correct
3	Get two Stepper Motors to move independently	Each motor should move independently according to the Core XY Mechanism.	Motors are inverted, the movement Goest into the inverted way
4	Get two motors to move to a desired location.	Both motors should work together to get to desired location.	Motors move together but not correctly
Estimated Time	1 hours	Real Time	15 min

User Story / Requirement ID	User Story/Requirement Under Test		
Stepper_XY	Nema Stepper Response		
Is it valid?			
yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
10.4	Correct response from stepper motors		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Stepper Motor and Driver Connected		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Get Stepper Motor to move in any direction	Stepper motor should move when the terminal commands it to.	System recognizes specific commands to move
2	Get Stepper Motor to move the desired steps	The stepper motor should move exactly as the terminal tells it to.	X axis an Y axis are correct
3	Get two Stepper Motors to move independently	Each motor should move independently according to the Core XY Mechanism.	Motors work in a correct way
4	Get two motors to move to a desired location.	Both motors should work together to get to desired location.	Motors move correctly together
Estimated Time	1.5 hours	Real Time	30 min

User Story / Requirement ID	User Story/Requirement Under Test		
Velocity_XY	Core XY speed test		
Is it valid?			
yes			
If not valid, what is the new/Extra information from Marketing/Product Owner?			
Test Case ID	Test Case Name		
11.0	Core XY achieves desired speed within a reasonable timeframe		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Core XY system mechanically set up		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Stepper motor speeds up in time	System gets to top speed fast.	Motors cannot reach top velocity
2	System reaches reasonable speed	System reaches a speed of 50 mm/s	System reach a good velocity; the team cannot measure
3	Stepper slows down fast	System slows down as it is getting to where it's going.	The system stops radically.
Estimated Time	2 hours		

User Story / Requirement ID	User Story/Requirement Under Test		
Velocity_XY	Core XY speed test		
Is it valid?			
yes			
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Test Case ID	Test Case Name		
11.1	Core XY achieves desired speed within a reasonable timeframe		
Preconditions	Open Serial Terminal in Computer Circuit Connected Appropriately Serial Communication Module Connected Program Compiled and Debugged Core XY system mechanically set up		
Inputs	Keyboard to Serial Terminal Serial Communications Module		
Test Case Steps			
Step Number	Step description	Expected Result	Real Results
1	Stepper motor speeds up in time	System gets to top speed fast.	Motor reache top velocity but is impresice
2	System reaches reasonable speed	System reaches a speed of 50 mm/s	System reach a good velocity; the team cannot measure
3	Stepper slows down fast	System slows down as it is getting to where it’s going.	The system stops radically.
Estimated Time	2 hours		