

Limit Switch

- Overview: Create a program that detects the limit of travel for a motor. You are to detect when the motor has turned to the clock wise limit (Right Most) , or the counter clock wise limit (Left most)
- Inputs:
 - leftLimitSwitch
 - rightLimitSwitch
 - startPulse
- Outputs:
 - motorEnable
 - motorSpeed
 - motorDirection

Operation

- Power on system
- Reset position: here you will turn on the motor in a “left” or counter clock wise direction until you reach the left most limit.
 - Turn off the motor
- Wait for a “startPulse”
 - When you detect a startPulse
 - Check right most position: turn on motor to find the right most position. You will turn on to motor in a clock wise direction and turn until you reach the right most position.
 - Then stop for 5 seconds
 - Then turn back to the left or counter clock wise to the center most position (make your best guess based on motor time on / speed etc
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Input Signals

- The “startPulse” will be a signal on pin 2 that goes low to high, and then low again
- The “leftMotorLimit” will go from low to high on pin 3
- The “rightMotorLimit” will go from low to high on pin 4

Output Signals

- “motorEnable” not used yet, but will be on pin 5
- “motorSpeed” will be on pin 9
- “motorDirection” will be a code on pin 7 and 6 where
 - 10 is clock wise, and 01 is counter clock wise

Program Output

- At each change in operation or limits, print status
 - “System Powered On”
 - “Start Pulse Detected”
 - “Motor turning Left” or “Right”
 - “Left Limit Detected”
 - “Right Limit Detected”