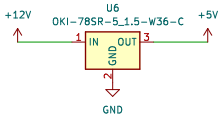
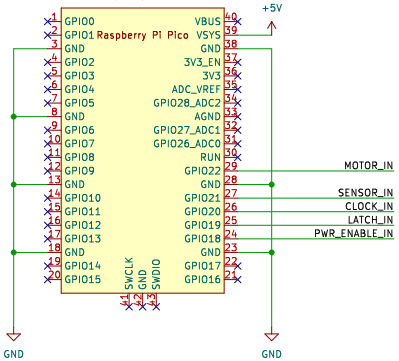
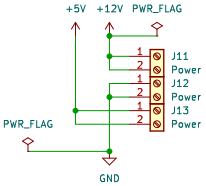
PCB is designed for the 3d printed split flap display:
https://www.printables.com/model/69464-split-flap-display

Each PCB can power four modules. Modules can be chained together to build larger displays

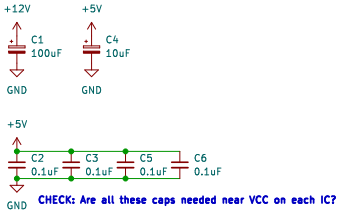
The Raspberry PI Pico and OKI_78SR DC-DC regualtor are optional, and should only be installed on the first module in the chain



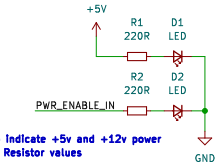




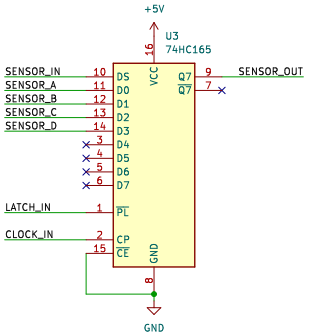
CHECK: Are all these caps correct?

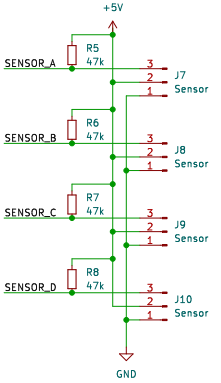


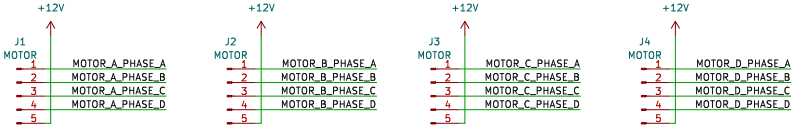
CHECK: Are all these caps needed near VCC on each IC?



LEDs to indicate +5v and +12v power
CHECK: Resistor values

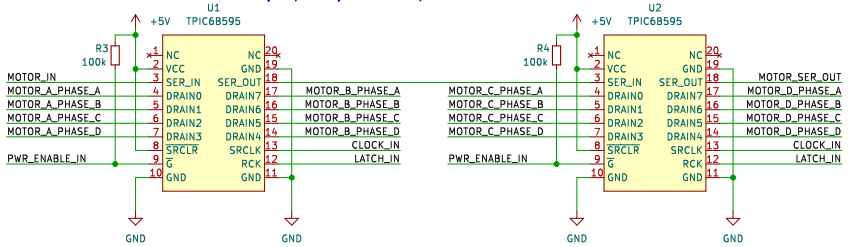




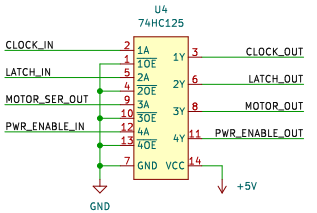


CHECK: Value for the pull up resistors R3 & R4 is only one pullup resistor needed on PWR_ENABLE_IN?

CHECK: I have seen other designs use 74HC595 and ULN2803 (or equivalent). Is it ok to replace them with TPIC6B595?



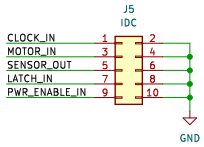
Pull up on ~G to disable motors in POWER_ENABLE_IN is low. This allows a shift register loopback test and to set the shift registers before enabling the motors.

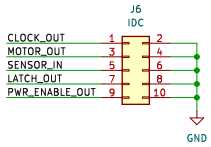


Motor data does not need to be buffered for transmission reasons (It is 1:1 from one board to the next, not bussed), but it is buffered to keep timing in sync with the buffered clock.

Serial chaining relies on narrow propagation delay > hold time margin to work, so we need to be cognizant of anything that may cause data to change sooner after the rising clock edge (reducing effective propagation delay)

CHECK: Should SENSOR_OUT also be buffered?
CHECK: Does MOTOR_OUT need to be buffered with TPIC6B595?





Add a jumper on the last module. This allows a loopback test of the shift registers (TPIC6B595 and 74HC165)