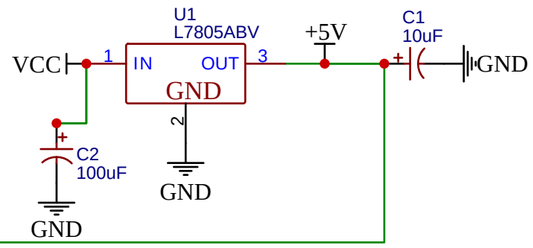
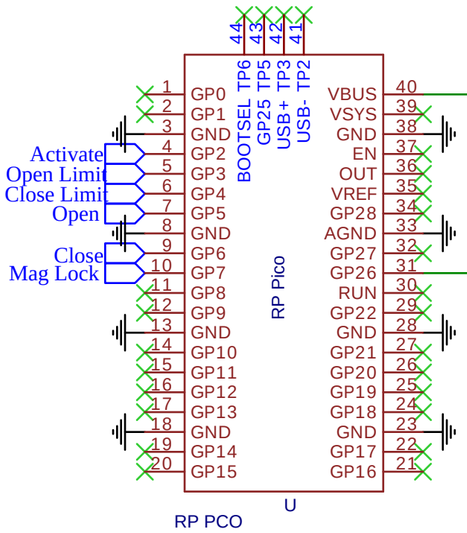
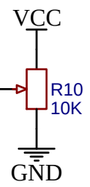
The L7805 can accept up to 25VDC. If using a voltage other than 12VDC than the relays need to be changed to the appropriate voltage.

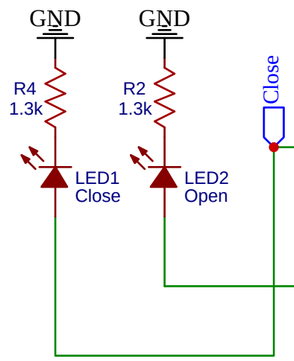






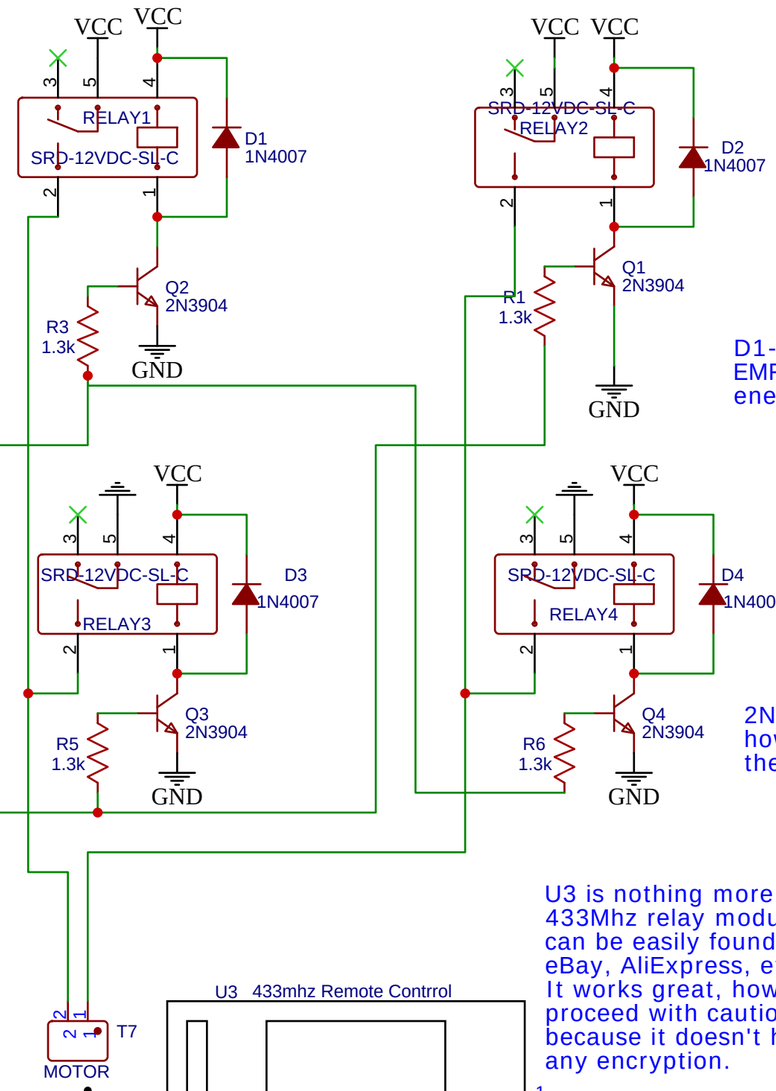
R10 is a variable resistor. As of now the code doesn't do anything with it. My intent was to use it to detect when the bus voltage goes below a threshold, indicating that the gate is jammed and hopefully stop itself before the fuse blows.

Status LED's indicate when the gate is opening or closing.



Relays 1-4 form an "H Bridge" that turns on the actuator motor in either direction. These are 12VDC relays, However this same circuit could easily be used with 24V by replacing the relays with 24V relays.

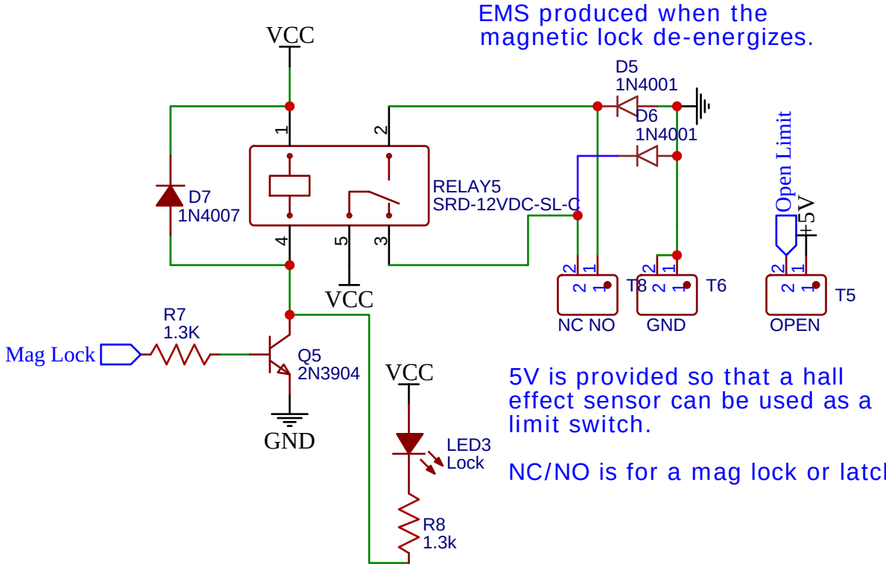
I initially made this circuit with TIP-120 Darlington transistors and quickly realized that they were way too small for the job. The relays handle the fault currents of a jammed gate much better than a transistor.

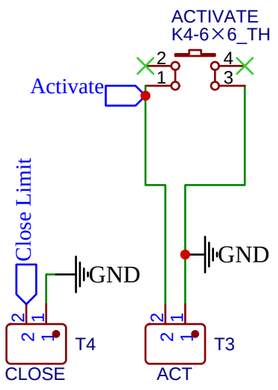


D1-D4 and D7 absorb the back EMF when a relay de-energizes.

2N3904 transistors are specified however 2N3055 will work exactly the same.

D5 and D6 are for the back EMS produced when the magnetic lock de-energizes.



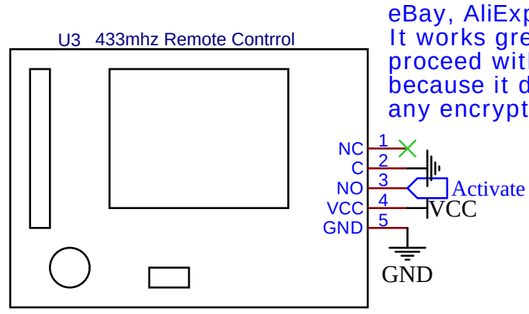


5V is provided so that a hall effect sensor can be used as a limit switch.

NC/NO is for a mag lock or latch.

The limit terminals must be connected to your limit switches. Activate is paralled to the 433Mhz remote control and the activate button. It can be used with an external device like a doorbell button.

U3 is nothing more than a 433Mhz relay module that can be easily found on eBay, AliExpress, etc. It works great, however proceed with caution because it doesn't have any encryption.



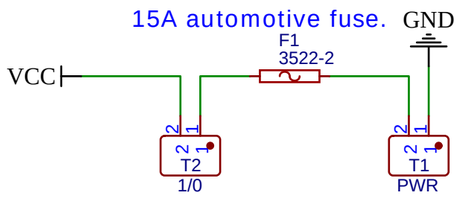
IMPORTANT!!!

When first connecting the actuator motor, verify that it is moving in the correct direction. If it is going the wrong way and it has internal limit switches the limit switches will be destroyed!

On my Mighty Mule actuator, the red wire needs to be connected to pin 1 on the RIGHT side of T7. I'm sure this will be different with other actuators.

I recommend starting with your actuator extended midway to avoid damaging the limit switches.

15A automotive fuse.



This is the power input. 1/0 is intended to be used with an external power switch. PWR is the power input. The input voltage for the circuit as it is needs to be 12VDC.

F1 is a simple automotive fuse holder. It is the same part as was used in older Mighty Mule gate openers.