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MakeYourOwnLift Overall components:

- Auto shutoff Winch
- Harness and pulley systems
- Long length adapted switch or fob control
- Secure mounting bracket and fastener use

The fundamental component in Make your own lifts is the remote control winch. The auto shutoff winch shown here is available online from Harbor Freight for \$109. This winch will pull in and unwind most reliably when a slight amount of tension (~5 pounds) is always on the cable. It's rated at 220 pounds pull when used without the intermediate pulley. An auto shutoff switch cuts the winch when the orange disk pulls close. Auto shutoff is an essential safety feature. The yellow remote control wire comes only 5 feet long. The easiest cure is simply to cut the 5 foot cord in the middle and splice in 10 to 15 feet of 4 conductor 16 gauge cable using solder, heat shrink tubing and electrical tape.

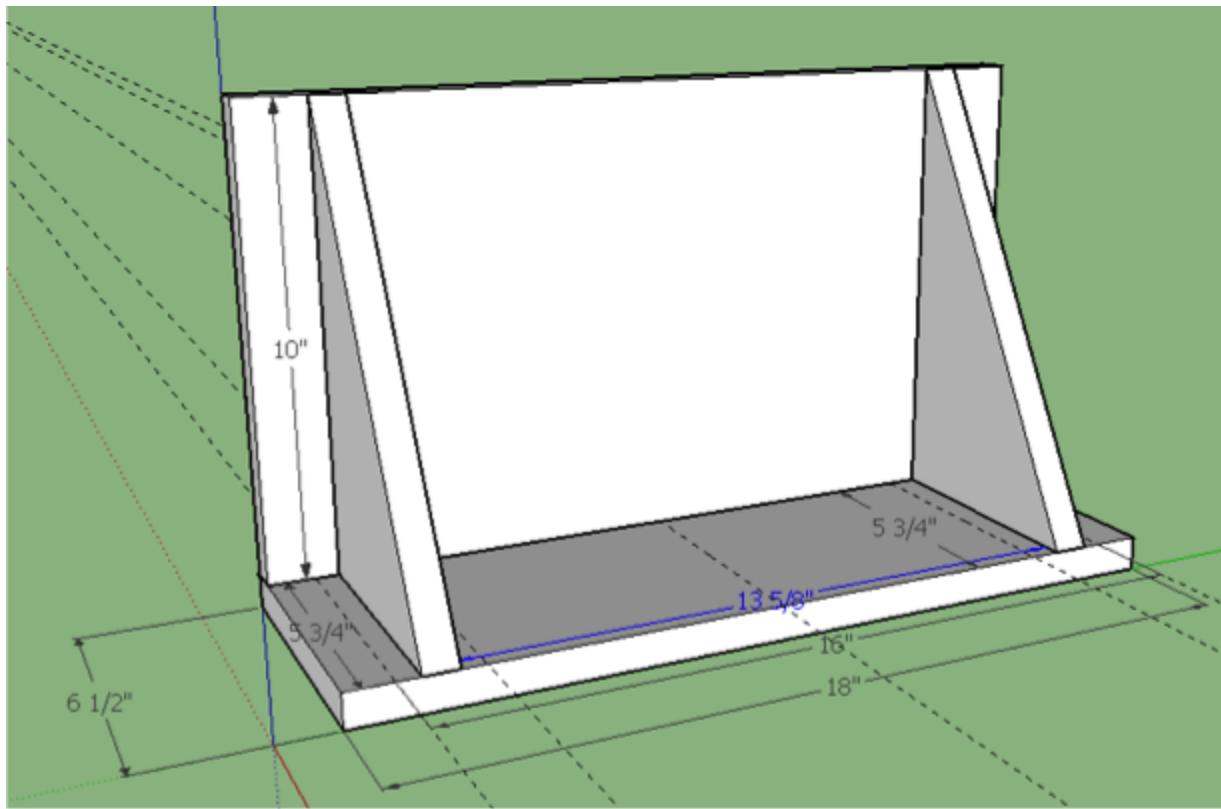
Each lift can be adapted to use a remote control fob on a wrist band. The components on the right, along with wiring and mounting in the box does the job. A cross-section of assembly skills are needed. For example carpentry, metal work, construction, wiring, circuits and following safety procedures and methods.



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Secure winch and pulley mounting is critical.

This may usually be accomplished by screwing all load bearing components into structural members of the house: stud, wall top plate, ceiling joist. Where structural members are covered by sheetrock make sure all screws go directly through the sheetrock and into the 2X4 studs underneath. Sheetrock anchors are not sufficient. Using a good stud sensor and careful technique the support screws or bolts need to be pilot drilled on center with wall framing 2x4's.



This wood bracket can screw to 16" center wall studs or directly to the floor. Brackets minimize sheetrock damage but must be securely screwed together themselves. Mount the winch near the floor when possible as it weighs 35 pounds and needs to be plugged into wall current.

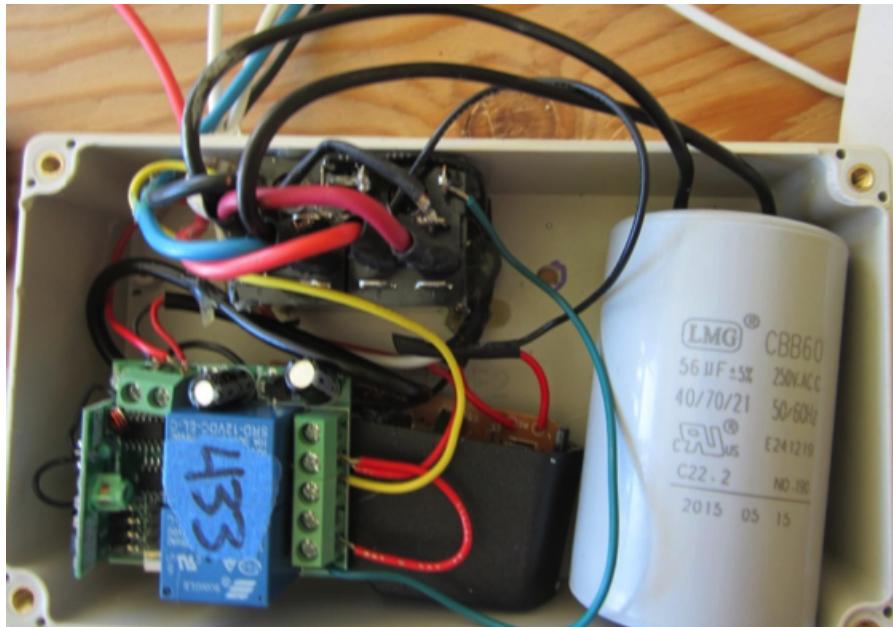
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General details on building fob control into the winch: - not step-by-step instructions.

Opening the yellow winch dongle up, you can see one double throw double pole momentary switch and the reversing capacitor at the right.



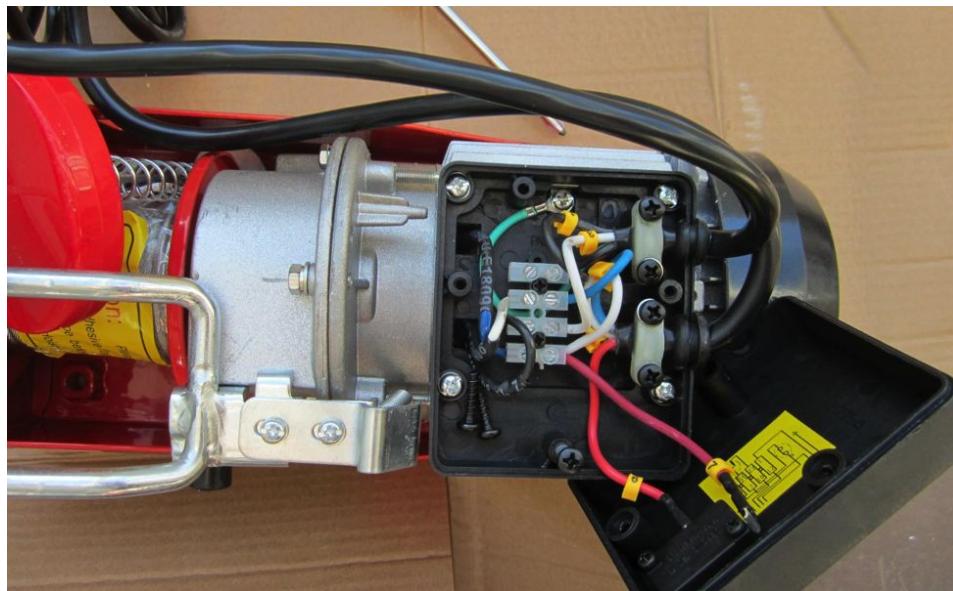
In the fob electronics box below we see the repositioned reversing capacitor wired to two independently driven relays along the top of the box. That's what it takes to replace the simple momentary switch of the dongle. On the bottom of the box labeled with its frequency of 433 Mhz is the fob receiver. The receiver takes power from the hacked wall wart underneath it. The small relays on the receiver power the energizing coils on the big relays. The winch will start winding or unwinding depending on which fob button is pressed and which relay is energized.



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Note that the circuitry above is AC powered. Without proper insulation, packaging and handling this kind of circuit can be hazardous to both the builder and the user. These components were later secured in place and the box was closed before the unit was operated by the user.

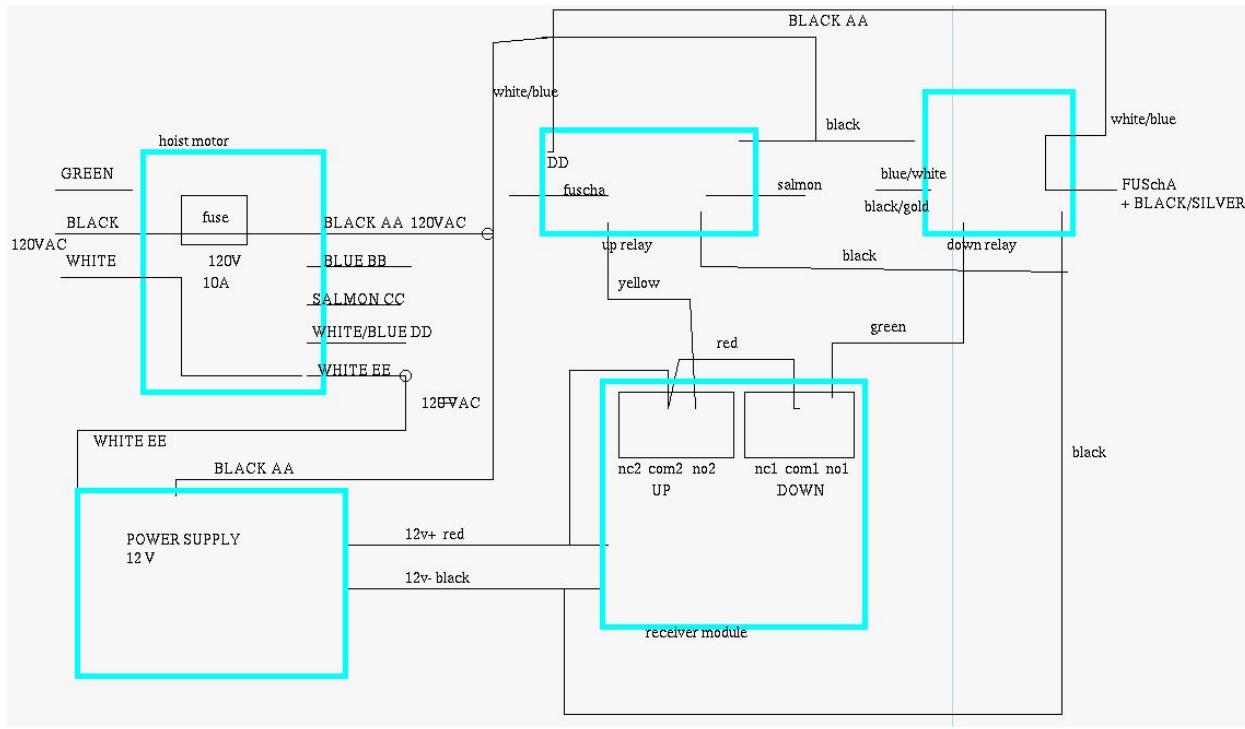
The wires coming out of the box we just showed connect to the winch where the yellow dongle connected before. That can be by cutting the dongle wire and attaching your circuit there or wiring directly to the winch electric box. Taking the winch wiring cover off shows this:



The top black cable with its green, white and black conductors is the power cable that plugs into the wall. The bottom cable with its black, white, blue and red conductors is the yellow dongle. The red wires go to the winch cutoff switch.

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The following wiring diagram shows how the different components hook up. According to Bob.



The winch is advertised by Harbor Freight. It will take an engineer like person with multiple skills to make it all work.

Relay Omron LY2NJ 12V DC 10A 8PIN 8-PIN Coil DPDT

<http://www.ebay.comitm/2PCS-Small-Relay-Omron-LY2NJ-12V-DC-10A-8PIN-8-PIN-Coil-DPT-NEW-181847140411>

GRK Fasteners (especially strong deck screws)

#10 x 4 in. R4 Self-Countersinking Flat-Head Multi-Purpose Screw

<http://www.homedepot.com/p/GRK-Fasteners-10-x-4-in-R4-Self-Countersinking-Flat-Head-Multi-Purpose-Screw-50-per-Pack-103141/203525231>

3/16" Cable x 2" Diameter Swivel Eye Snatch Block

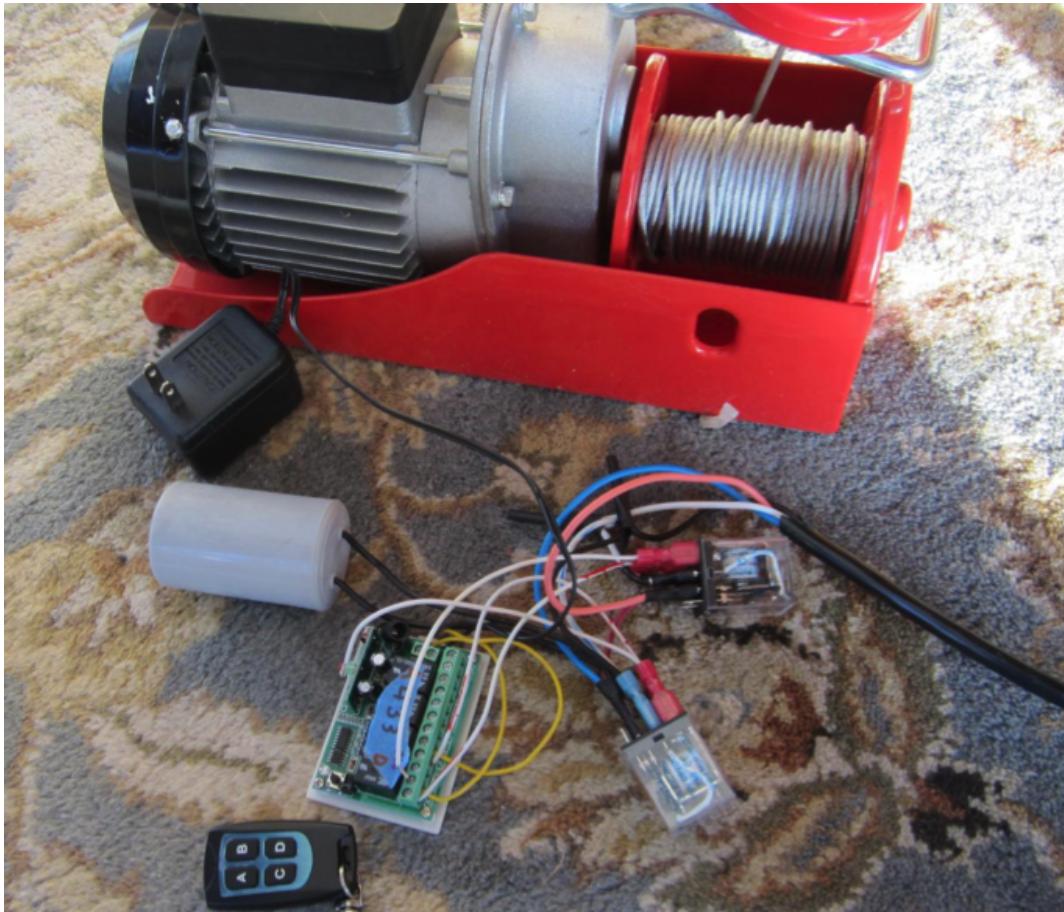
<http://www.e-rigging.com/swivel-eye-snatch-blocks>

DC 12v 10A relay 2CH wireless RF Remote Control Switch Transmitter + Receiver

<http://www.ebay.comitm/DC-12v-10A-relay-2CH-wireless-RF-Remote-Control-Switch-Transmitter-Receiver-221517636847>

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Here is how one of the early designs looks laid out on the carpet. The dongle wire is coming in from the right. Recommend an insulated surface when you first try out your circuits, but not your carpet please.



It's a good idea to put a connector like this Molex in the wire between the winch and the circuit you are trying to build and debug on your bench. Otherwise you have to drag around the 35 pound winch. Using properly sized wire nuts with tape reinforcements is an alternate method.

