



Dust Collection With A Ceiling Fan Remote

by [BeachsideHank](#) on January 27, 2015

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There's always a better way of doing things, to find it just simplify- improvise- adapt and overcome.

Intro: Dust Collection With A Ceiling Fan Remote

My workshop dust collector has been something of a nuisance to turn on and off as the switch is located in an awkward position on the motor body, well away from where I need to access it. I happened upon a thrift store offering of a wireless R.F. remote on/off system for ceiling fans that would suit my needs perfectly with just a little modification, so I laid down my whole \$2.00 and off to home I went.



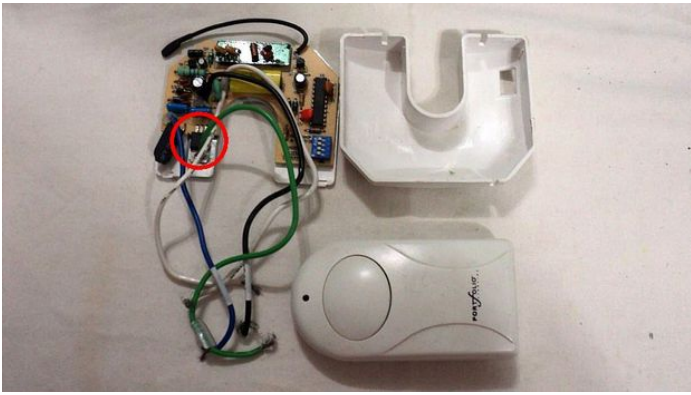
Step 1: Safety First

High voltage may be present in this build, ensure all power is removed from this project during physical handling.



Step 2: Examine The Goods, Figure Out Needs

This device was date stamped 2001, a bench test showed it to be operational, so the next step was to open it up and see what the mains switch type is. I found a BTA12 triac is used to switch a maximum rated lamp load of 300 watts, although the data sheet indicates the device can handle up to 12 amps at 120 volts A.C. I need more current capacity as the collector's motor is 1- 1/2 hp or 12 amps, highly inductive. A definite purpose contactor is called for, and now the triac can easily handle motor duty switching since the contactor coil draws very little current. The dust collector motor is thermally protected and fused, so this modification is simplified by not replicating those functions.



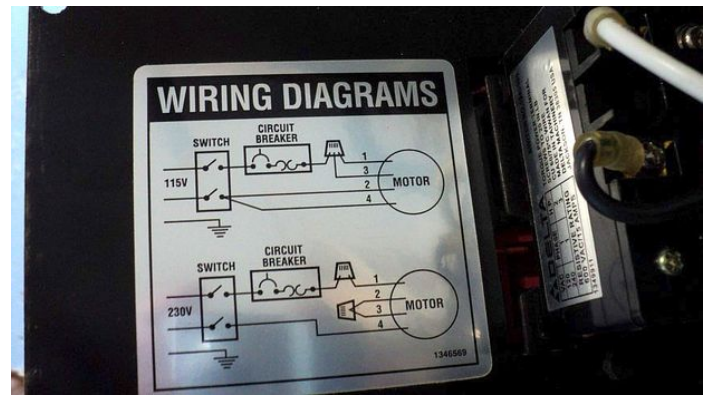
Step 3: Gather Parts, Plan The Work

I ordered a contactor from E-Bay, rated 30 amps at 120 volts ac, plenty of safety factor for \$9.36 delivered:

http://www.ebay.com/itm/30-AMP-120-VAC-Double-2-Pole-Definite-Purpose-Contactor-HVAC-Packard-C230B-/151249333087?pt=LH_DefaultDomain_0&hash=item233729ab5f

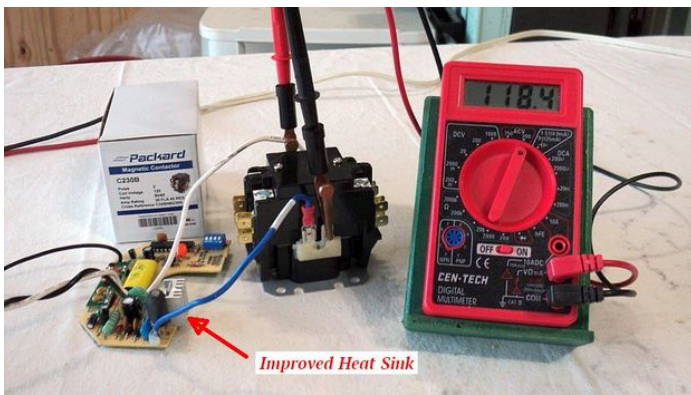
Opening the motor junction box gave me access to the wiring diagram, I plan on operating at 120 volts exclusively, and wanted to still have a manual override feature, so the original switch wiring will be utilized as well.





Step 4: Improve The Receiver, Test The Circuit, Add Protection

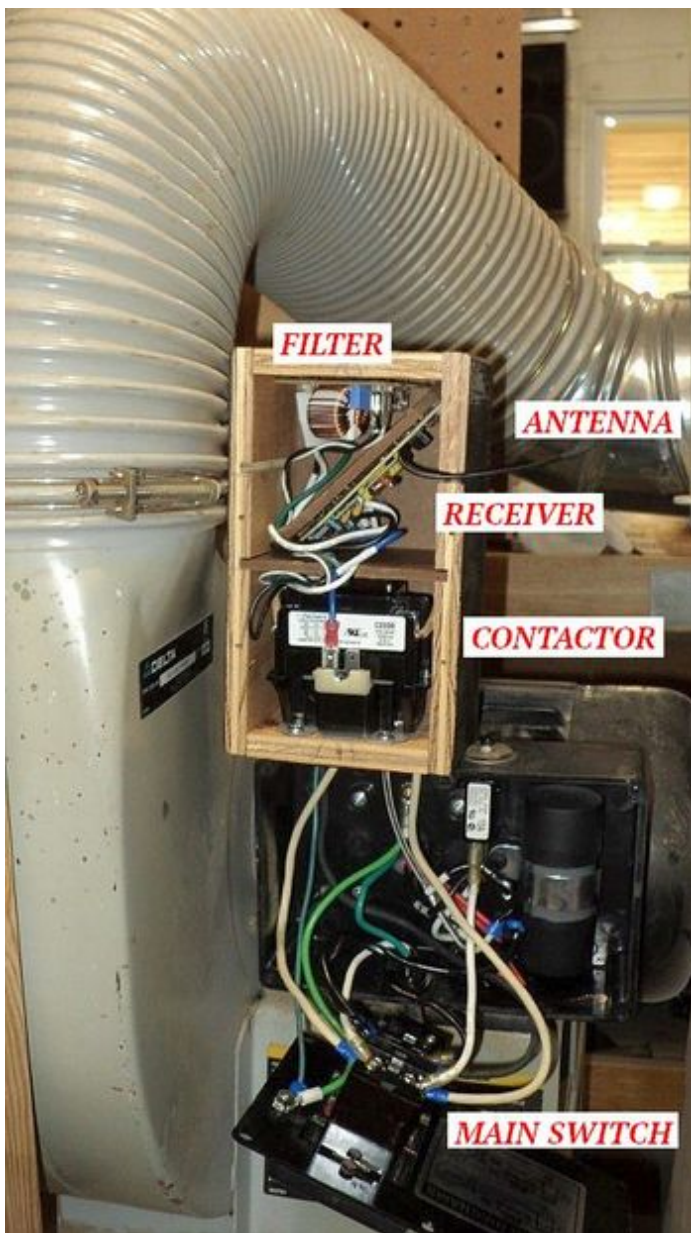
I removed the simple heat sink slab/ back panel and attached a better quality design to the triac. I am also going to include a line conditioner circuit I recovered from a microwave oven. I figured with the motor and contactor there'd be EMF generated, and since a microwave oven is like an EMF hand grenade, their design would be superior, plus it included a fuse which I changed from a 20 amp to a 2 amp.



Step 5: Housing And Wiring

I constructed a simple box from scrap plywood, and painted it black. Screws secure it to the original motor switch box, and access holes were drilled to make the interconnections. Wiring is straightforward, the contactor parallels the main switch, a D.P.S.T. design, and power for the filter/ receiver module is taken from the "hot" side, or line in, so it is constantly waiting for a command, I let the antenna lead out the side of the box, but it probably would have worked inside as well.

It's more than an indulgence, it actually improves productivity as during a workshop session, I might need to periodically saw parts well over a dozen times a day, and fiddling with a poorly located on/ off switch can have a detrimental impact on concentration.



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