

PROJECTION BOMBING

by **fi5e** on July 8, 2006

Table of Contents

License: Attribution Non-commercial Share Alike (by-nc-sa)	2
Intro: PROJECTION BOMBING	2
step 1: PARTS LIST	5
step 2: PREPARE MEDIA	6
step 3: CHOOSE A LOCATION	7
step 4: SET UP EQUIPMENT	9
step 5: HOOK UP POWER	9
step 6: ALT. SET UP: MORE LUMENS / MORE POWER	10
step 7: ALT. SET UP: CITY POWERED	13
step 8: ALT. SET UP: NO CAR / DEEP CYCLE	15
Related Instructables	16
Advertisements	16
Comments	16

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Intro: PROJECTION BOMBING

A tutorial by [The Graffiti Research Lab](#), the [Eyebeam OpenLab](#) and [Paul Notzold](#).

Outdoor digital projection in urban environments is a great method for getting your content up big before the eyes and in the minds of your fellow city inhabitants. This tutorial comes out of trial and error and it works. But please be careful. Helpful comments on safety and alternative methods are encouraged. The majority of this tutorial is aimed toward using a 2500 lumen projector (or smaller), if you have access to something more powerful you might want to skip straight to step 6.

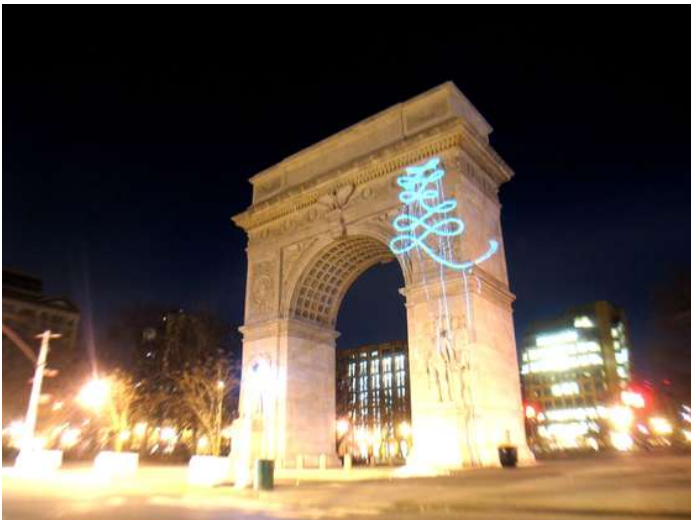
Thanks to [Zach Lieberman](#) for among many other things penning the phrase "Projection Bombing". And huge props to [Krzysztof Wodiczko](#) for bring this technology into the streets.

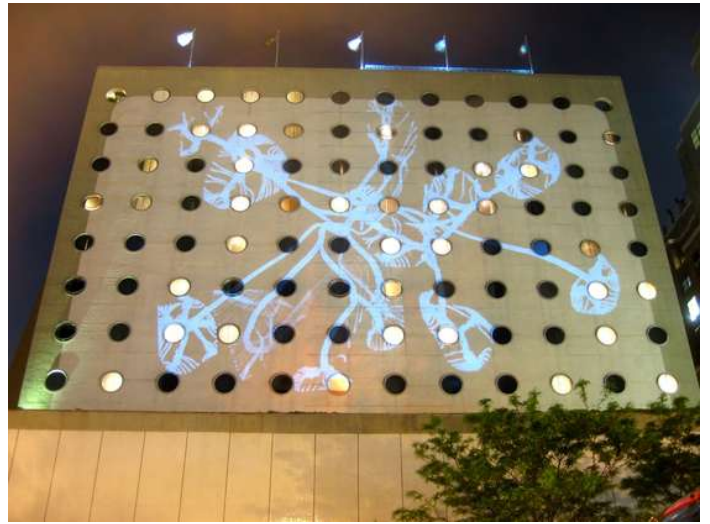
To see examples of this system in use check out the following examples:

- [G.R.L. Drip Sessions](#) (4000 lumen projector)
- [G.R.L. Interactive Architecture](#) (4000 lumen projector)
- [Textual Healing](#) (2500 lumen projector)
- [Graffiti Analysis](#) (4000 lumen projector)

Textual Healing photos show a 2500 lumen projector in use, while all others show a 4000 lumen projector:







step 1: PARTS LIST

Part: DC to AC Power Inverter

Size: 600W - 1200W

Average Cost: \$80 - \$150

Note: Power inverters come in a range of sizes. The more powerful your projector the more watts you will need from your inverter. We have had good luck with a 600 watt inverter used with a 2500 lumen projector. Any inverter larger than 1200W will need to be hardwired onto the battery (rather than clips / jumper cables). Power inverters can be purchased online or at auto parts stores such as PepBoys.

Part: Digital Projector

Note: 2000 ANSI lumens is a recommended min. value for projecting anything bright enough to be viewed outdoors in the city.

Part: VGA Cable (male to male)

Average Cost: \$10

Part: Car

Note: Whatever car you have available should work, but vehicles with larger engines will keep the battery recharging at a faster rate and allow you to project for longer. UHAUL cargo vans work well because they are cheap if you don't drive around much (they bill by the mile), the engines are big, and they are easier to get away with parking in creative locations.

Suggested: UHAUL Cargo Van

Cost: \$19.95 + \$.99/mile

URL: <http://www.uhaul.com/guide/index.aspx?equipment=truck-cargovan>

Part: Laptop

Note: Any laptop that you can plug into your digital projector will work.

Optional Part: **200 Watt DC to AC Power Inverter** (with cigarette lighter attachment).

Note: Powering your laptop from a secondary inverter off the cigarette outlet in your car can be a good way to project for longer than your laptop battery will allow. Don't try plugging the digital projector into this smaller inverter or you will blow a fuse in your dashboard. Similarly, don't try to plug your laptop and digital projector into a single 600W inverter, overloading can damage the inverter.

Note from RESISTOR: This knowledge comes from first hand experience and involves the element fire.

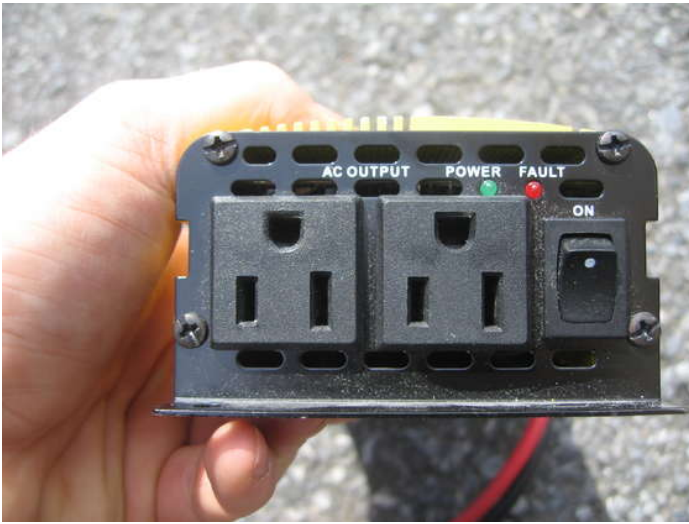
Part: DC Battery (Optional)

Note: This tutorial will focus on describing a process for getting a projection system up with a limited set of common tools. More elaborate projection systems can be created using an additional car battery or a 50-100 Watt or more deep cycle marine battery. An additional battery or batteries can be chained in parallel with your car battery. You can make your set-up as elaborate as you need it to be. This tutorial will just focus on the basic equipment and process you need to project from your car battery.



Image Notes

1. Optional: Instant Power 200 Watt DC to AC Power Inverter. Plug into car cigarette lighter to power laptop.
2. Go Power! 600W: 600 Watt DC to AC power inverter.
3. laptop
4. VGA Cable
5. Sharp PG-C45X Digital Projector, 2500 ANSI Lumens



step 2: PREPARE MEDIA

CONTENT:

If you have reached this far in the tutorial you probably already have an idea of what you'd like to project. If not consult your local graffiti writer... they tend to have LOTS of good ideas. If all else fails [project this](#) .

MEDIA CONSIDERATIONS / SUGGESTIONS:

Go Full Screen:

There is nothing hardcore about the Windows or Mac operating systems so don't let people see them when you are projecting. Launch your files full screen so that your content is the only thing people see. I usually go so far as to keep the lens of the projector covered until my files are up and running.

Hide Edges:

Whenever possible use a black background so that the edges of the projection will blend unnoticeably into the wall in which it is projected on. 4:3 rectangular projections tend to ruin the magic.

High Contrast:

Colors and grey tones often get lost in the ambient light that is inevitable in most outdoor projection situations. To help combat this use true white and black values in your media as much as possible.

Match Surroundings:

Be intentional with where your project. There are lines, edges, curves, and surfaces all over the city waiting to display your message, make sure you don't treat them all in the same way. Good projections will fit into the architecture they are projected on.

SOFTWARE:

To aid in some of the suggestions mentioned above I have included a simple piece of software, which I have found to be very useful. This simple application allows you to open a quicktime movie and display it full screen. The app also allows you to scale, drag and rotate your movie using key combinations. Download the application below. If you are running the PC version ("GRL_qtProjection.exe") place your .mov files in the same folder as the .exe file. If you are running the MAC version ("GRL_qtProjection.app") CTL + click the application and go to "Show Package Contents". Place your .mov files in the "Contents/Resources" folder.

When you launch the .exe file it will display the movie in the folder full screen, starting with the first clip in alphabetical order. Other .mov clips in the same directory can be loaded in with the number keys. Once the clips are on screen you can scale, move, and rotate it to best fit the surface you are projecting on. Making these alterations in the software is much easier than constantly having to move the car and projector around. Click and drag the mouse on the screen to move the .mov clip. Keyboard controls are as follows:

'z' - mouse controls rotation

'x' - mouse controls position

'c' - mouse controls scale

'a' - set rotation axis to the Y axis

's' - set rotation axis to the X axis

'd' - set rotation axis to the Z axis

'r' - resets rotation, position, and scale to 0

'1'-'9' - loads in up to ni9e .mov clips from the applications directory in alphabetical order.

If nothing else this software can save you the \$29.99 cost of buying Quicktime Pro just to play your .mov files full screen.

[Download PC version](#)

[Download MAC version](#)

Source Code:

[Download PC source code](#) / project folder in CodeWarrior

[Downlad MAC source code](#) / project folder in XCODE

(written in C++ using the Open Frameworks code library developed by Zach Lieberman and friends at Parsons)



step 3: CHOOSE A LOCATION

Finding a good location to project is the most important factor in getting your name up really big and really bright. You can make up for having a less powerful projector by paying close attention to the spots you pick, the lighting conditions, surface color, the distance from your car to the projections surface, every detail down to the audience that will see it. Below are suggestions for picking good projection locations:

Low Ambient Light:

Street lights, spotlights, illuminated advertisements; these are your enemy. Search for surfaces that are as far from light sources as possible. In some cases you might be able to temporarily cover certain lights with a heavy jacket or blanket, but in general fighting ambient light is a losing battle. Don't even bother scouting for spots in the day time as you will end up getting your heart broken when you come back at night and find that your perfect spot is ruined by a single street light.

Bright Surface Color:

White surfaces will reflect much more light than dark ones. White stone, white tile, and painted white walls are ideal projection surfaces. It is possible to project on darker surfaces like brick but you will need to get the projector closer to the wall and hence not be able to get your imagery as big.

No Glass:

Avoid walls with a lot of windows and glass. Because light passes through glass instead of being reflected these areas of your image will appear blank.

Unobstructed View:

Trees, telephone poles, and traffic signage can all pose problems with getting a clear projection path. Placing the projector on the roof of the car will at least get you above most people and automobile traffic that might interfere.

Distance:

How far you are away from your target projection surface has a lot to do with how big you can get your image. At a certain distance, however, you will start to lose brightness. It's a tradeoff but usually brighter and smaller is more noticeable than big and washed out. Depending on the lighting conditions and the color of the projection surface aim to position the projector between 4 - 10 traffic lanes away from the wall.

Audience:

After going through all this trouble you want people to see your stuff, so make sure to pick spots where there is a lot of automobile and/or foot traffic. Areas near bars and clubs are good bets, especially later when they start letting out for the night.

Available Parking:

You will almost never find a legal parking spot that also meets all of the conditions listed above. The good news is, however, that once you pop your hood and start messing around with the battery most people will assume you are having car troubles and give you a break. This is accentuated if you are in a UHAUL van, then people will think you are moving and having car troubles.... "what a bad day they are having".

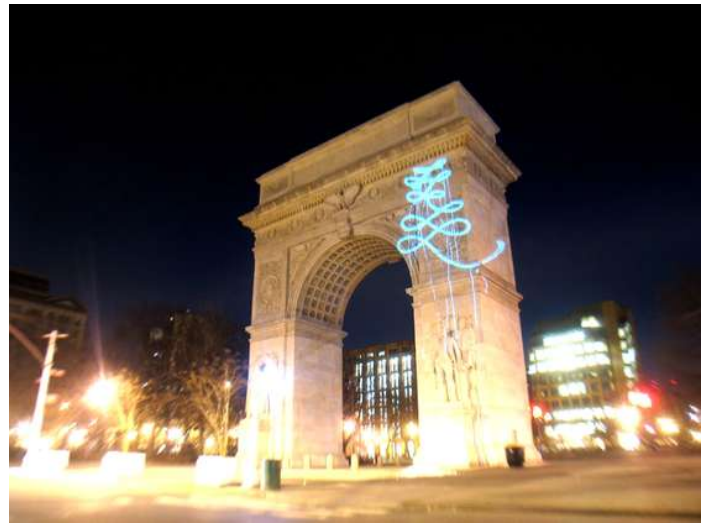
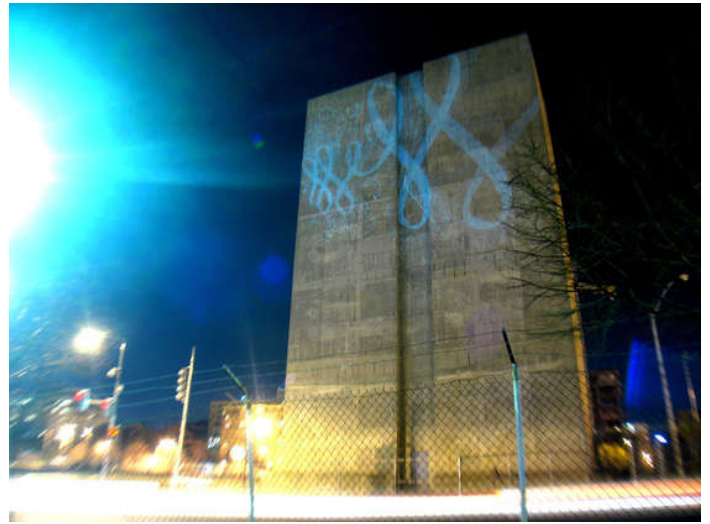
Security:

I have never had a problem with people trying to mess with any of the equipment while doing a projection, but that could just be because of my generally thug-ish demeanor. It could be a good idea to bring a few friends. You should always roll deep.

Police:

I have had two encounters with police, one ended with them running my ID and letting me go, and the other ended with the cop saying, "Oh this looks cool, sorry, I had to come check it out because someone called and said there were some middle eastern looking people hanging out by the monument." This was probably because it was a city monument and because RESISTOR was crawling through the bushes with a camera wearing a ski mask. It is my understanding that it is legal to project in NYC as long as it is not over top of someone else's advertisement.

Click here to view locations in Manhattan and Brooklyn that I have found to be good projection locations.



step 4: SET UP EQUIPMENT

Projector:

Placing the projector on the roof avoids getting a lot of shadows from pedestrians and automobile traffic. If a slightly more clandestine setup is what you are after place the projector on a box inside the car so it points out the window. Run the VGA and power cable from the projector in through the window.

Inverter:

Place the inverter on the dashboard on the same side as the car battery. Snake the cables through the crack between the door and the car (not through the window). This will avoid ripping it off the dashboard when you inevitably forget about it and swing the door open. If its your car and you are hardcore, get a drill and make a hole under your dashboard to run your cables directly to the car battery

Secondary Inverter (optional):

Plug this into your cigarette lighter.



step 5: HOOK UP POWER

Open the hood and locate the car battery. Make sure the power switch on the power inverter is turned off and nothing is plugged into it. Connect the red cable from the power inverter to the positive battery terminal first, and then connect the black cable to the negative battery terminal.

If you are careful about closing the hood you can run the cables through the crack between the hood and car. Otherwise, just leaving the hood popped open can make it look like you are just having car troubles.

Turn on the power switch of the power inverter. Depending on what model you have you should see a green light come on and hear the soft whir of the fan turning on (if something else happens check the alarms listed below). If you have a green light plug in the power cable from the digital projector into the power inverter. Hit the power button on the digital projector. After the projector goes through its warm up cycle and the bulb turns on you will know you are in business. At this point connect your laptop and you are off and bombing.

Tip:

You may want to bring a piece of cardboard to set in front of the projector as you go through the process of booting up and connecting. This is will allow you to see if it is recognizing your laptop, and you will spare your potential audience from having to watch you boot up windows, find your files, and launch your application.

Alarms:

Warning alarms and signals will vary on different models, but the warnings for the Vector brand inverters are as follows:

<http://www.instructables.com/id/PROJECTION-BOMBING/>

- A continuous alarm signals that there is a bad wiring connection. Take this one seriously. One time I tried to ignore it and my inverter starting shooting fire out the back and nearly caught the dashboard of the rental car I was using on fire. Check the connection on the battery to make sure you have a tight connection on both power and ground.
- A less constant audio alarm is a signal that the voltage of the battery is low.
- A red light with no audio alarm is a signal that there is too much power being drawn from the inverter. Try plugging in less stuff.



step 6: ALT. SET UP: MORE LUMENS / MORE POWER

If you have access to a digital projector with more than 2500 lumens you will need a more powerful AC power inverter. The system shown here uses a 2000 Watt AC power inverter with a 4000 lumen digital projector. This is the projection setup used for Graffiti Analysis , and the projections done by the Graffiti Research Lab .

The only major difference of projecting with more powerful equipment is that you 1) will need more power from your battery and inverter and 2) the connection mechanism between the battery and inverter needs to provide a more reliable connection with a larger surface contact area than an alligator clip. Most auto shops and places that sell car batteries will sell cables made specifically to be hardwired onto car battery terminals (see image below). This allows for a tighter more permanent connection to the battery.

Because I was using rental cars for my projections and did not want to have to continually hardwire connections to the battery I purchased a secondary battery. This battery sits on the floor of the passenger seat and is connected via jumper cables to the cars battery. This makes possible quick on location connections to the battery under the hood while still maintaining a reliable connection from the inverter to the secondary battery. It also allows for more minutes of projection time since you are running two batteries in parralel. This set-up also allows for projection from a moving car.

Disclaimer:

This is the system I use most often and it has worked well for me on every occasion but there are inherent dangers to hooking up a battery. Connecting multiple batteries in parallel can increase this danger and add other complications. Doing so inside a car could cause injury or even death if the battery were to leak, explode or make the NYPD think you are terrorists and shoot you 40 times. Any thoughts on the dangers associated with this process or alternatives are welcome and encouraged.

Step 1:

Place the secondary car battery on the floor in the passenger seat. Put the 2000 Watt inverter on the floor next to the battery. Turn on the car and pop the hood.

Step 2:

Make sure the inverter is turned off and nothing is plugged in. Connect the inverter to the car battery in the front seat. It's the same process as in the previous page only now instead of clipping the connection on you will need to use a 13mm socket wrench to tighten the connection bolts. First connect the positive terminals and then

<http://www.instructables.com/id/PROJECTION-BOMBING/>

connect the negative. If this was done properly and there is still some charge left in the battery you should get a green light when you power on the inverter. After testing make sure to leave the inverter in the off position.

Step 3:

Use the jumper cables to connect the cars battery to the battery on the floor in the passenger seat. Make the connections in the same order as you would to jump a dead car battery:

- Connect the red-handled/positive jumper cable clip to the positive terminal (the one with the plus sign) of the cars battery.
- Connect the other red-handled clip to the positive terminal of the battery in the passenger seat.
- Connect the neighboring black/negative clip to the negative terminal of the battery in the passenger seat (the one with the minus sign).
- Connect the black/negative clip to the negative terminal of the battery. You could also try to connect the negative alligator clip to the chassis ground of the car, this may also work and can cut-down on the risks associated with arching caused by connecting batteries.

Step 4:

Turn the power switch of the inverter to the on position, if it shows a green light then plug in the digital projector and you should be good to go. All the setup and warnings from the previous page apply here in the same way.

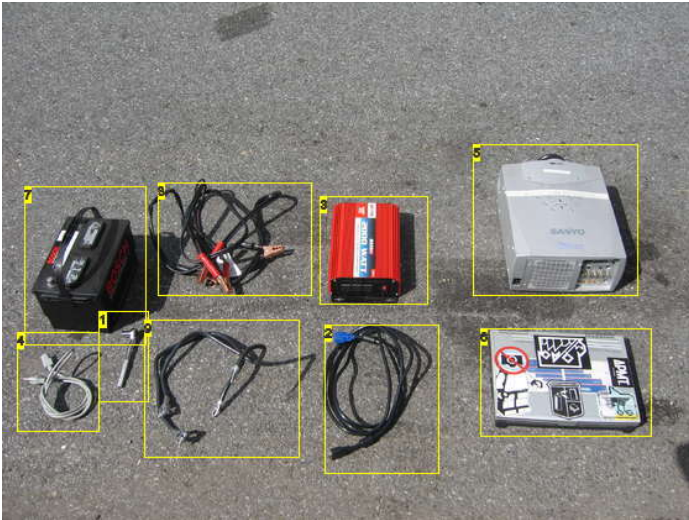
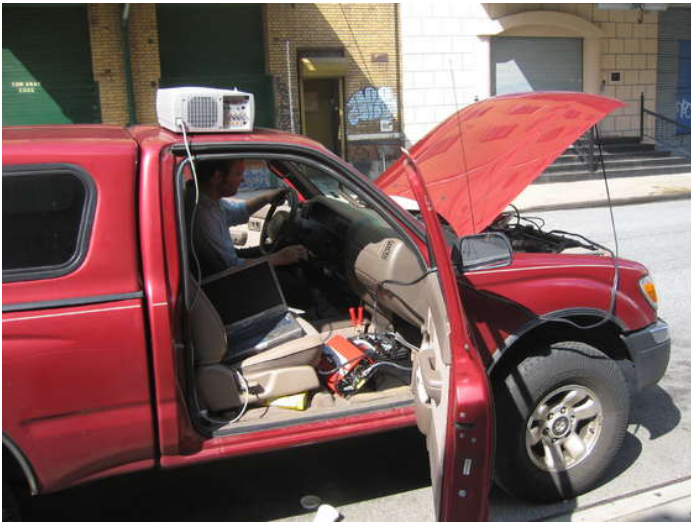


Image Notes

1. 13mm socket wrench
2. VGA cable.
3. MAXX SST Vector 2000 Watt AC Power Inverter
4. power cable for digital projector
5. 4000 lumen Sanyo Digital Projector
6. laptop
7. secondary car battery
8. standard jumper cables
9. heavy duty cable with battery connections on one end. See blow up photo below.







step 7: ALT. SET UP: CITY POWERED

One of the easiest ways of powering a projection system in the city is provided by the city itself. This is inherently dangerous and FREE, so we try to do it whenever possible. But be warned: people and pets have been electrocuted before in NYC from just touching the lampposts, so use extreme caution when thinking about reaching inside them. Good luck!

Step 1:

Find a good projection spot.

Step 2:

Look for a lamppost.

Step 3:

See if its base panel is open.

Step 4:

Open the panel (if locked use a hex key) and see if a 3 prong outlet has been installed. Not all lampposts have three prong outlets.

Step 5:

Plug in and go.





Image Notes
1. power!



Image Notes
1. look for missing bolts

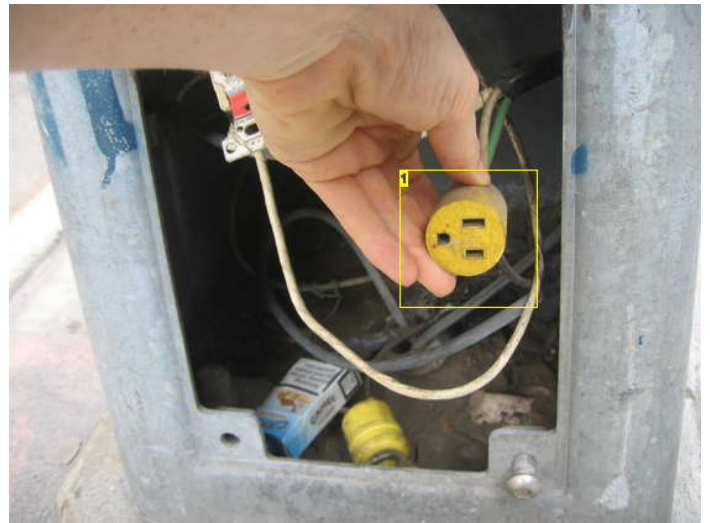
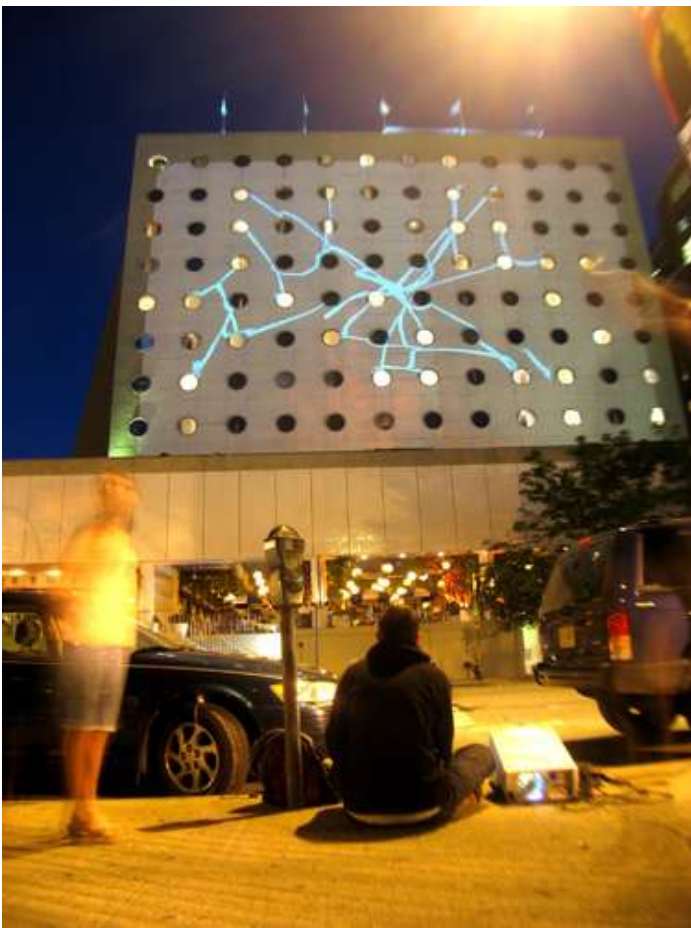


Image Notes
1. Not all lampposts will have a 3 prong outlet already intalled, it's a crap shoot.



step 8: ALT. SET UP: NO CAR / DEEP CYCLE

A more proper method of powering electronics from a battery is to use a deep cycle marine battery. Deep cycle batteries, unlike car batteries, are designed to provide continuous power for a longer duration. They will definitely outlast car batteries in deep cycle applications (<http://www.uuhome.de/william.darden/carfaq7.htm#differences>). Use this in combination with an AC power inverter to power your projection system without need for a car or city provided lamppost. If you use a 250 watt projector and a 100 Ah battery you should be able to project for 2 - 5 hours. You can use a battery charger to recharge the battery. You can put the battery, inverter and projector in a large rolling luggage bag and pull it around the city from location to location.

Connecting to a deep cycle battery is the same as connecting to a car battery and all the same processes from the tutorial and inherent dangers still apply.

MATERIALS:

- 12 Volt 100 Amp Hour Sealed Lead Acid Battery
- 10amp Deep-Cycle Battery Charger

Currently we are testing with a West Marine SeaVolt 12V Deep-Cycle 90 , and a West Marine 15A Amp Battery Charger . More to come on this setup soon.



Related Instructables



My LED Throwies by zildjian



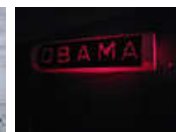
LED Throwies by Q-Branch



All Surface LED Throwies by SniperNinja



How to Go Postal by Q-Branch



LED Throwie - Instant Messenger Tube by adambehman



Electro-Graf by Q-Branch



The High Writer by resistor



Low-Cost Illuminated Signage for Todays Responsible Citizen by Q-Branch

Comments

50 comments

[Add Comment](#)

[view all 105 comments](#)



Dr. Pugsly Eskobar Esq. says:

Nov 12, 2007. 7:15 AM [REPLY](#)

If You Wanted To Be Truly Hardcore, You Could Get Some Four Guage Cable From An Electrical Supply House (You Don't Need That Expensive Ass Amp Power Cable, Its A Little More Flexible, Butt the Stiff Stuff Just Takes A Little Planing And Bending), A Fuse Block And Run The Hot Cable All The Way To Where You Need It Underneath Trim And Carpet. I Would Suggest The Trunk Then You Could Mount The Inverter To The Under Side Of The Rear Deck (By The Speakers).And Run A Short Ground Cable To The Closest Big Bolt. Then Depending On The Type Of Trunk You Have You Could Work Out A Telescoping Mount To Extend It Out Of Your Trunk And Up In The Air To Avoid "Down In Front" Syndrome. My Buddies And I Use To Do This For Movie Night At The Abandoned Drive In Theater (Then Run Sound From The Laptop To The Car Stereo). For A Little More Clandestine Operation You Can Set The Projector On A Tripod In The Back Seat Aiming It Out The Side Window. Message Me For Any Logistical Questions, I'm Bad Ass At Car Mods.



94 says:

Nov 10, 2009. 3:08 PM [REPLY](#)

Caping every word is hard to read, and makes me want to tear out my eyes, please don't do it, it's painful to read.



John Smith says:

Nov 21, 2007. 3:02 PM [REPLY](#)

Pssst- you're not supposed to capitalize every word, just the ones at the beginning of sentences (they start after one of those dot things- they are called periods).



mrgy05 says:

Nov 30, 2007. 6:51 AM [REPLY](#)

Uh yeah, I have seen people do it before, stupid people who don't understand English and how to write / type properly.



Dr. Pugsly Eskobar Esq. says:

Nov 25, 2007. 12:50 AM [REPLY](#)

It's A Visual Punch To The Face, And It Sets My Posts Apart From Everyone Else. Have You Seen Anyone Else Do It???



Derin says:

Mar 23, 2009. 4:35 AM [REPLY](#)

It's terrible grammar.You're fired.



Joebob says:

Feb 20, 2008. 3:40 PM [REPLY](#)

I have seen others do it on other forums, and those persons are generally dismissed as immature, or of limited intelligence. Do you really want to add this "punch", not to mention making your posts difficult to read?




volksfire says:

Aug 17, 2009. 7:18 PM [REPLY](#)

I have a VW Westfalia Camper, and I had a great idea. Rather than have the projector on the roof, a more clandestine way would be to use a Westy. By placing the projector on top of the sink/stove cover, you could project straight out of a window and no one would know where it is coming from. Plus, being a camper, you could travel with the "projector bomb" and have a place to sleep and cook your meals. Westys will also allow you to camp in parking lots while "normal people" think its just a parked van. Perfect for guerilla advertising or campaigning. I get no profit from thesamba.com, or VW, however, I recommend that this camper be considered for this project. You can search for more info on the Westfalia through thesamba.com or by googling VW westfalia. I think that this idea of "projector bombing" is awesome,and I plan to use it. I suppose that ANY flat-side van with sliding side windows would work as well with proper projector mounting. Other van owners, please let us know.

 **wattermelon** says: Aug 10, 2009. 12:02 AM [REPLY](#)
IS this legal? Can you get hassled or harassed by the man for doing simple projections (given that your material is not of the offensive type)?

 **just0ne** says: Dec 20, 2007. 3:52 AM [REPLY](#)
DOES ANYBODY KNOW if there is a PHOTOSHOP or other -program
BRUSH or PLUG-IN to get this F I R E E X T I N G U I S H E R
OR DRIPPING E F F E C T?????????



Derin says: Jul 20, 2009. 11:25 PM [REPLY](#)



 **chrisulloa** says: May 1, 2008. 8:55 PM [REPLY](#)
You guys should put something meaningful like "free tibet" or somethin'



Splortched says: Mar 17, 2009. 9:27 AM [REPLY](#)
More reason to DIY!

 **mynameisjonas** says: Dec 20, 2008. 6:07 AM [REPLY](#)
what a great idea


 **tincanchase** says: May 21, 2008. 4:47 PM [REPLY](#)
is it illegal to open up a street light like that?



peytonjr says: Nov 8, 2008. 7:41 PM [REPLY](#)
probably :(




irinazcona says: Nov 14, 2008. 4:12 PM [REPLY](#)
hehehe

 **PRICK** says: Sep 17, 2008. 1:52 PM [REPLY](#)
I know this instructable has been up 2 years but it still rocks!!
Well done!
I'm inspired to do a slightly smaller version to carry around in a back pack (ruck sack)
I rang a battery warehouse today and took there advice on a set-up
Just wanna check with you guys if it sounds ok, i'm not that techy but desperate to give it a go

The sales guy suggested I go this 24v route as it's better power usage, it was a cheaper option so hopefully he was correct
We intend to connect batteries in series
My concern is plugging 12v equipment straight into a 24V inverter...will this 'cause issues?

2x Yuasa Cyclic 12v 17ah BATTERY
1x 24v 2A automatic CHARGER
1x 24v 350w Pure Sine Wave INVERTER

 **James (pseudo-geek)** says: Sep 22, 2007. 12:07 PM [REPLY](#)
wow very cool!! I'm gonig to be moving to Seattle soon and I'm going to try to set this up.



Ko0LaiD says:
seattle washington? rock bottom is a good place to eat, i live near tacoma

May 13, 2008. 8:08 PM [REPLY](#)



James (pseudo-geek) says:
mhhh....i've seen it before, i'll check it out.

May 16, 2008. 6:14 PM [REPLY](#)



peytonjr says:
where/when??
I want to go see
:D

Apr 30, 2008. 8:18 PM [REPLY](#)



James (pseudo-geek) says:
I'm in Seattle now....still no projector.....

May 1, 2008. 9:46 AM [REPLY](#)



Jesus Christ says:
ooohhh tell me when your going to do it and where too! i wanna see :D

Nov 8, 2008. 4:01 PM [REPLY](#)



w00ty32 says:
Your could use this to convey really meaningful messages, like anti big-tobacco stuff or things like that.

Dec 6, 2007. 5:51 PM [REPLY](#)



darth acexxacer says:
no the big tobacco companys are friends
help me there holding me hostage and making me write these lies help

Jan 8, 2008. 5:34 PM [REPLY](#)



Derin says:
and the gangsters are your friend also
HELLP IM HOSTAGE THEY WILL SHOOT IF I SAY THIS IS A LIE *pow*AA!!!!!!!!!!!!!!*eck*

Apr 30, 2008. 10:39 AM [REPLY](#)



Derin says:
lol

Apr 30, 2008. 10:34 AM [REPLY](#)



altmaker says:
-Darth gets shot by tobacco packet-
-altmaker spazzes out and overdoses on lsd...-
ahaa

Mar 24, 2008. 6:06 AM [REPLY](#)



w00ty32 says:
gimme the address!!!! i'll bike there!!! i need i drivers lisencc b4 i can drive, so you could just send me your drivers lisencc to get you!!!!!!!!!!!!!!!!!!!!

Jan 16, 2008. 2:09 PM [REPLY](#)



darth acexxacer says:
lolol

Jan 16, 2008. 4:49 PM [REPLY](#)




Derin says:
Derin Industries sells missiles if you like.FREE Dropship Airmail for more than \$1000 worth of missiles.Control systems sold separately.


Jul 20, 2009. 11:22 PM [REPLY](#)




emac says:
Great idea maby ill do that

Jan 7, 2008. 7:16 PM [REPLY](#)


 **jossiejojo** says: Apr 28, 2007. 3:13 AM [REPLY](#)
Ive got a 2200 lumens Dell 4100MP projector but I cant get it to work off the inverter Ive got even though its 600 - 1500W. It just doesnt power up. The inverter has a soft-start feature. Could this be a problem? The projector does have a 12V DC power input. Is there a way of linking this straight to a car battery or whatever? thanks


 **Estwald** says: Apr 15, 2008. 3:14 PM [REPLY](#)
Basically there are two types of inverters, Square Wave AC and Pure Sine Wave AC. Motors, heaters and the like work fine on square wave, but many electronic devices require pure sine wave to work. Hope this helps.
-Ray-


 **James (pseudo-geek)** says: Sep 22, 2007. 12:07 PM [REPLY](#)
yes it could be a problem. try using another converter.


 **Peek** says: Apr 10, 2008. 1:16 PM [REPLY](#)
Ok, I admit it! I'm too stupid to get this to work!
Ummmmmmmmmm? Ok I got the source code (for PC) and I can't find any instructions as to how to get this into my computer. I'm not techy and I need help!
Sorry! Anyone want to give help here?


 **Pumpkin\$** says: Apr 6, 2008. 8:12 PM [REPLY](#)
plus one I'd just like to thank the various parties mentioned above: The Graffiti Research Lab, the Eyebeam OpenLab and Paul Notzold. U GUYS ROCK!


 **codykage** says: Apr 2, 2008. 9:14 AM [REPLY](#)
i've seen people do this but they use a laser somehow and write the stuff while theyre there.
there was a vid of it on youtube im pretty sure.
good work (Y)

 **old_bass_masta** says: Mar 24, 2008. 9:02 PM [REPLY](#)
show pink floyd's the wall on that. that would get some interesting reactions.

 **tsiwt** says: Feb 7, 2008. 9:30 PM [REPLY](#)
I was wondering , IF I use a Dc to Ac power inverter with watts higher than the ones required by my projector. wILL it burn>? or get damaged? , I have an optoma ep1690 , it is a 2500 lumens and it says 220 Watt lamp life. that means I need a 220 watt inverter>? please any advise is gratefully appreciated .


 **GorillazMiko** says: Feb 4, 2008. 9:34 PM [REPLY](#)
Awesome! All your Instructables RULE! I love them all, I like them all, and congrats on winning the VersaLaser, I know you guys will put it to great use.

 **craz_meanman** says: Feb 4, 2008. 5:40 PM [REPLY](#)
I like it cuz if the police tell you to stop you can say "why it's not doing any damage." lolololol great idea!

 **Toulouse** says: Feb 4, 2008. 5:03 PM [REPLY](#)
i love this, the only problem i can see it that the GRL tries to outfit us with open source apps, but there is not a linux version--oh well, i'll wine it

 **nkk07** says: Jan 21, 2008. 3:14 AM [REPLY](#)
does pic 7 say clone?

 **emac** says: Jan 7, 2008. 7:15 PM [REPLY](#)
Cool does anyone know if its you can project in the seattle area???

 **Jorad** says: Dec 17, 2007. 10:44 PM [REPLY](#)
I suggest someone make an app. for the Nintendo DS homebrew society that uses a wifi connection to the projector and utilizes the DS' touch screen for the projector... As I do not have the coding knowledge to implement such a task I put my idea out to you the coders of the world.... I believe this would be a more cost effective method rather than having the camera and laptop set-up... Have fun and please keep me informed if anyone decides to do this as I'd love to do it! =)



JessieTu says:

hello! this is from Jessie.I am so interested in your projection bombing. we want to buy it. so if you can please give me the answer. Thanks a lot.

Nov 7, 2006. 9:56 PM [REPLY](#)



x911oz says:

mmm buying things is good.

Apr 17, 2007. 10:55 PM [REPLY](#)



PetahOsiris says:

?????
PROFIT

Dec 5, 2007. 6:51 AM [REPLY](#)

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