

DIRT-CHEAP EMERGENCY COMMUNICATIONS

Meet 80% of your needs for \$30

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Basic needs

If money is tight, 80% of your basic needs can be met:

- Listen to people for many miles
- Updates from region, city, neighborhood
- Transmit a few miles
- Wake up people in your group or neighborhood



Better than a Baofeng?

A [Baofeng UV-5R radio](#) is often recommended by prepping experts, **but...**

Pros:

- Cheap (\$19)
- Reliable
- Listen and talk on ham bands
- Use a ham repeater to transmit about 50 miles



Better than a Baofeng?

Cons:

- Need an [amateur radio license](#) (\$35), plus [study materials](#) (~\$30), and a few weeks of study.
- Stock antenna is poor. Get a better antenna such as a [Nagoya](#). (\$21) [Watch for counterfeits](#).
- Even with a Nagoya, transmit directly (no repeater) only about 10 miles.
- Pain to use without a [programming cable](#). (\$9)
- Learning curve.

\$9 ham radio

- I suggest you start with a [generic RTL-SDR](#) before a Baofeng.
- Designed to be a European TV tuner but can hear many frequencies. Listen to ham, FM radio, CB, FRS, GMRS, MURS, weather, military, airplanes... oh and European TV 😊
From 25MHz to 1.2GHz. (12m – 25cm)
- Get the AliExpress site coupon and combine it with the store coupon, then it's less than \$9. Or eBay, Amazon, etc.



\$9 ham radio

Pros:

- Jack of all trades
- No license required
- Good way to learn the basics for a license
- Decent range

\$9 ham radio

Cons:

- Receive only—cannot transmit. (You do far more listening than talking anyway.)
- Jack of all trades—but master of none. Not the best quality, but still a great value.
- No license required—but still must learn some things. Difficulty: 5 out of 10. It's a weekend project.

\$9 ham radio

- Follow one of the [many tutorials](#), and [there is a manual](#).
- [Here is a hack](#) that upgrades the stock antenna. Just need a couple pieces of wire.
- Here, I am using it to [listen to a local ham repeater](#).
- Here, I am using it to [listen to CB radio](#).

\$9 ham radio

- Receive ability can be dependent on a good receiver, but a good antenna can make up for a low-quality receiver.
- For the beginner, a long wire up a tree can be sufficient.
- Put a fishing weight on a fishing line, shoot up a tree with a slingshot, pull wire up with line.
- Put the center conductor on the tree wire, and connect the outer shielding to an electrical ground such as the center screw of a power outlet.
- **Don't use if there is lightning within ten miles.**

\$32 upgraded RTL-SDR

RTL-SDR Blog V4



- Listen on even more frequencies. Almost every ham frequency, shortwave, medium wave, etc. From 500kHz to 1.2GHz. (600m – 25cm)
- Better quality
- A few cool (but not essential) extra features
- Be aware of [counterfeits](#). Buy directly from the store.
- Does not come with an antenna, but a [combo kit is \\$42](#).

CB radio

- Not as sexy as ham (if you can call ham sexy) but still useful for listening and talking up to 15 miles.
- Listen to chatter to understand what might be going on nearby.
- No license required.
- Easy to learn.



CB radio

- Handheld units w/ original 23 channels on eBay for about \$20. Ensure it has an antenna. Transmits about two miles.
- Car mounts, some with more power, more channels, more watts, big antenna, can be seen for \$20. Range can be 15 miles depending on terrain, antenna, etc.
- Use a car unit as a home base with a 12V adapter.
- Or [receive with an RTL-SDR](#).

FRS walkie-talkies

- Very common, may be some near you right now.
- As low as \$9 used on eBay.
- Don't be afraid to try used, they are often robust.
- Range of about half a mile.
- Listen to local chatter for what's going on.
- Or organize neighborhood, everyone on one channel.
- Receive with RTL-SDR.



Baofeng/Pxton BF-88A FRS radio

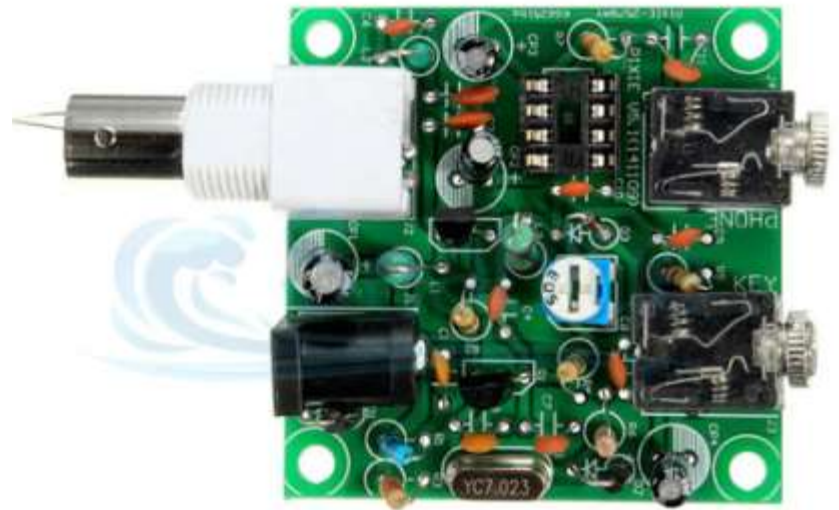
- Great value FRS radio.
- Decent quality, rechargeable, more features, headset, common battery type, recharge by USB, programmable.
- [\\$60 for a pack of six](#) (\$10 each.)
- Uses same programming cable and software as Baofeng ham radio.



Pixie Morse code radio

Pros:

- [\\$1 on AliExpress](#)
- Transmit/receive for hundreds of miles
- Fits in an Altoids can
- Battery powered (9V-12V)



Pixie Morse code radio

Cons:

- Only a few frequencies
- Hard to make many contacts
- Got to solder (pretty fun one-day project)
- Got to build an antenna
- Got to learn Morse code
- Got to have a license
- Got to buy a different frequency crystal if you have the lowest-class ham license (Technician)
- Got to tweak it or buy more crystals for more frequencies
- Not my first choice

Pixie Morse code radio

- I have one for a true emergency even though not licensed. Bought extra crystals.
- Allowed to use in a true emergency, or if grid is down, or government is too preoccupied.
- Print out a [Morse code cheat sheet](#)
- <https://vk3ye.com/projects/projpixie.htm>
- <https://vk3ye.com/projects/pixiehack.htm>

Rock-Mite and Super Rock-Mite Morse code radios

- \$20-\$30 on eBay or AliExpress
- Can do over 1,000 miles
- Better quality sound and transmission than a Pixie
- Also uses crystals like a Pixie
- Also must solder, also must learn Morse, also must have a license



Weather radio

- Don't say you're a prepper but sleep through a tornado ☺
- Currently using a [Midland WR120B](#) (\$40), sometimes cheaper on eBay



Weather radio

- Unless the radio has certain settings, and is configured properly, can be so annoying you just turn it off
- Look for:
 - A feature called S.A.M.E.
 - A feature called E.O.M.
 - And ability to silence certain alarms such as severe thunderstorm
- Read and configure the F.I.P.S. code
- Silence alarms that don't concern you
- Ensure it alerts correctly during the weekly test, Wednesdays between 10a and 12p
- Also listen on RTL-SDR, but no alarm

Meshtastic

- [\\$18 each](#)
- Off-grid texting at distances of 3-5 miles
- Uses LoRa wireless frequencies
- Good for groups



Meshtastic

- Bluetooth device for your cell phone, has long-range antenna to talk to other Meshtastic devices and phones
- Text off-grid for 2-3 miles in suburban area, better in the open
- Search AliExpress or eBay for LilyGo TTGO

Free options

Scanner radio app

- [iPhone](#) and [Android](#)
- Alerts you when there's something major going on
- Only a few cities covered
- Requires internet
- Maybe you don't have internet but your phone has a data connection

Free options

Red Cross Emergency phone app

- [iPhone and Android](#)
- Alerts you (**TOO QUIETLY!**) when there's bad weather
- Look at the notification settings, turn off nuisance alerts such as severe thunderstorm
- Not loud enough to wake you. Let's all request they add that feature!
- Requires internet

Free options

Android or iOS built-in emergency alerts

- Look around in your phone's settings to turn on emergency alerts
- Some good features are disabled by default
- Is loud

Free options

Standard AM/FM radio

- Cheap or free
- Battery-powered
- Lots of information during an emergency
- Biased by government and media
- Better than nothing



Free options

Online ham radio

- Do a web search: Online ham radio
- Listen to ham radio online
- Information not coming from biased government mouthpieces
- Outside your local area and conditions
- Free and no license required
- Requires internet
- Could use from your phone's data plan

Free options

Old cell phone in the glove compartment

- Any old working phone can dial 911 even if not registered
- Call the police non-emergency number and ask how to do a 911 test
- Put a charging cable, USB cigarette lighter adapter, and perhaps a spare battery bank in the glove compartment with the phone
- Put a reminder on your calendar to charge it every month

Free options

Community bulletin board

- Notes on a message board in a central location
- Low-tech and reliable
- Leave messages for others



Free options

SMS phone text messaging

- Most reliable way to use a cell phone
- Best guarantee of message delivery
- During Katrina, texts were usually the only thing which got through

Free options

SMS phone text messaging

- Set up a text tree, **NOT** group texts
- Group texts depend on phone data, which may be unavailable
- One person texts two people, those people each text two people, and so on

Free options

Phone call tree

- Redundant with an SMS text tree
- Same organization as a text tree

Free options

Christopher's emergency web server

- It *might* be possible to talk with each other using my personal web server even if the rest of the internet is down
- Only if the power doesn't go out
- I can send you details by email

Free options

Neighborhood telegraph

- **HIGHLY illegal**
- Only if grid is down and police are not responding
- Pirate phone lines, cable coax, or even power lines
- These wires run to every house in your neighborhood
- Use to wake neighbors in night or regular Morse code daily communications

ILLEGAL

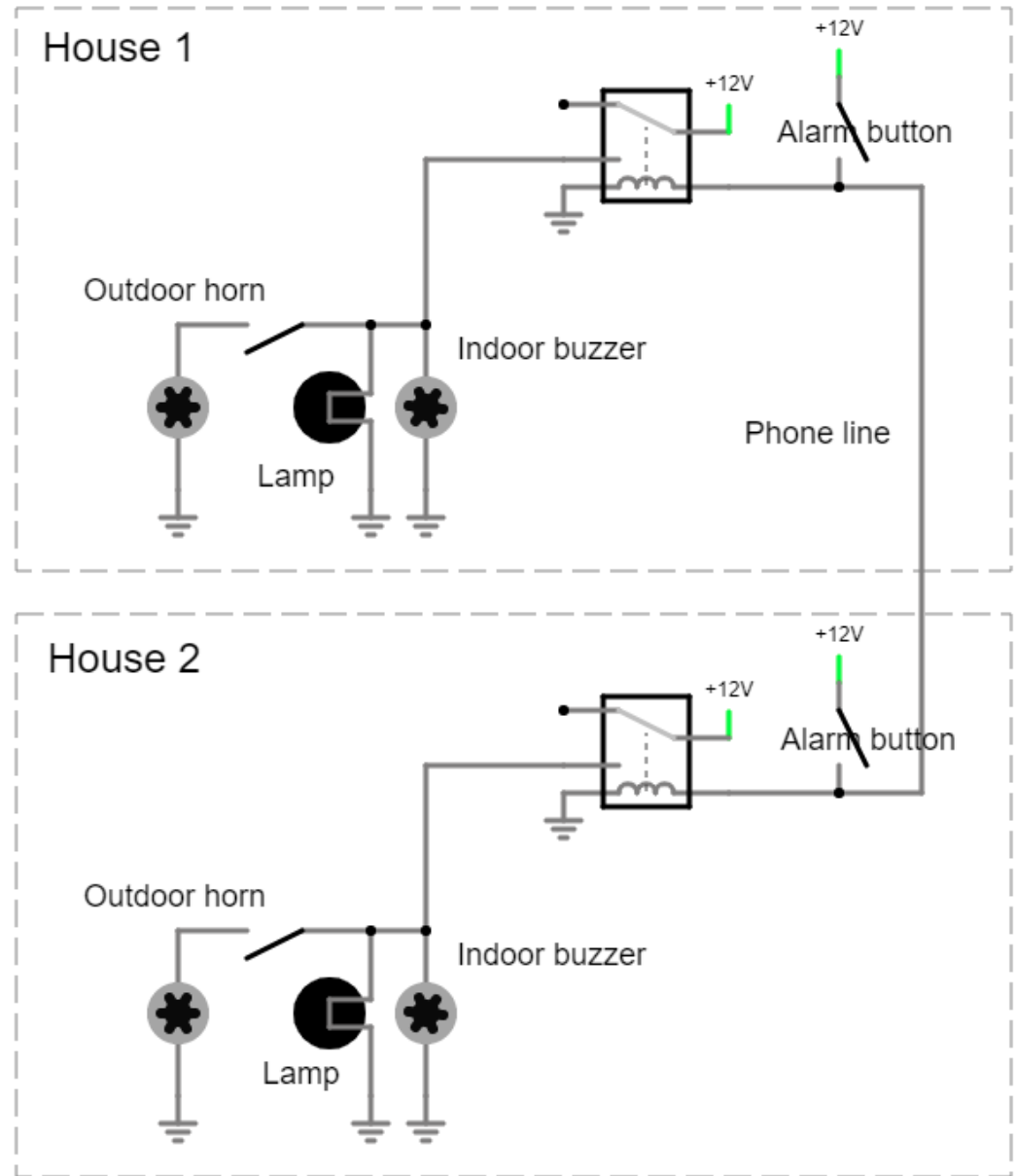
Free options

Neighborhood telegraph

- Scrounge car batteries, car relays, car horn, 12V buzzer, lights, and switches
- Go to central switch box
- Disconnect wires going away from box to central office
- Connect all wires to the battery
- Install an indoor buzzer and lights loud enough to wake a person
- Outdoor car horn turned on at night or for emergencies
- Use buzzer at all times
- Wake everyone, they go outside, horn tells them who's in trouble
- Write down a Morse code cheat sheet for everyone

Neighborhood telegraph

Multiple houses all connected to a single line, disconnected from rest of the grid. Ground could be actual ground or a second wire in the same phone line. Charge batteries with car motor, or solar, or bicycle generator, or wind generator... [Play with this circuit here](#).



If I only had \$30: An 80% solution

- RTL-SDR, \$9
- Pair of used FRS radios, \$18
- Scanner radio app, free
- Red Cross Emergency app, free
- Android/iOS alerts, free
- Online ham radio, free
- SMS and phone trees, free
- Car AM/FM radio, free
- Old phone in the glove compartment, free
- Community bulletin board, free
- Christopher's web server, free
- Neighborhood telegraph, free

Resources

- <https://hackaday.com/tag/the-50-ham/>
- <https://frugalradio.com/>

