

Six Things Every Prepper Should Do With Arduino

Over the years, I've given a lot of thought to just how much I should try to avoid modern electronic devices when it comes to prepping.

I have also sought, wherever possible, to end or reduce reliance on electricity and anything else that requires a major social or commercial effort.

There are some devices that I feel cannot be done away with, at least in the final stages of a major social collapse and during the first few years after.

In this case, I refer to Arduino computer controllers. These small devices are very easy to customize and can be used to increase your odds of survival.

Arduino is a combination of mini, solid state computers housed on a circuit board, and the programming required to make them work

For preppers looking for low cost and easy methods to achieve certain goals, Arduino can be an ideal means until you are able to build systems that do not rely on solid state electronics.

Modern Challenges That Complicate Disaster Scenarios

Smog, weird colors in waterways and horrible smells coming from the ground all point to high pollution levels – you go deep into the woods, and still won't be aware that upstream or upwind pollution has found its way into the plants and animals

living there.

If a major disaster occurs, you will wind up coming into contact with even more dangerous forms and [levels of pollution](#).

Here are some sources of toxins that are somewhat contained now and may increase the problems in the aftermath of a disaster:

- You may not want anything to do with modern electronics, but thieves and other rouges might take advantage of your lack of interest in this area. From radar surveillance to RFID bugs and other devices, criminals can easily figure out where you are, what supplies you have on hand, and how best to get everything of value from you.
- Once sewage systems aren't maintained anymore, clogs and pipe collapses, which will make every city street a disaster zone as the sewage backs up into the streets. It will be impossible to live in any home attached to the community sewer system because backups will occur through the pipes.
- Right now there are thousand to millions of barrels of toxic waste sitting in dumps, underground, and in the oceans. These barrels are leaking and causing massive problems that require millions of dollars to clean up. When nobody will control or limit these problems, there will be no such thing as a safe location to live free of these poisons.
- Factories, commercial farms and other large scale operations also work with extremely hazardous toxins on a routine basis. These toxins require careful storage and monitoring so the people wouldn't be exposed to them, but the chemicals may escape their containment, and no one will be available to stop the situation or remedy it. In fact, even if you come across a toxic spill, you won't have the gear or the skills to restore

order.

- As different chemicals merge together, there will be an increased risk of fires that push smoke filled with toxins into the air, affecting people for miles around at a moment's notice. While these explosions do happen right now, they are the exception, not the norm that you will see in a major collapse scenario.
- Given the number of [nuclear reactors](#) and the number of people required to keep them safe, it is a given that exposure to nuclear radiation will happen in a large scale after disaster. If you don't have the means to detect the presence of nuclear radiation, you won't figure out what is going on, let alone get to a safe location underground.

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What is Arduino?

Basically, Arduino is a combination of mini, solid state computers housed on a circuit board, and the programming required to make them work. The IC chips used to power Arduino are not as complicated as the ones that control your computer, however they can keep up with some tablets and smart phones on the market today.

Arduino systems are also very easy to customize in the sense that you can buy all kinds of add-ons and accessories that are controlled by the main board.

Here are just a few things you can use Arduino for.

Building Robots

Even though these robots may not be very big, they can be used for all kinds of things. For example, if you need to probe an underground tunnel, you can always send in a wireless camera

on wheels.

The Arduino controller will act as an interface between the vehicle and the controller that you use to steer it. The Arduino main board can also receive information sent back from the camera so that you see it onscreen.

Chances are you would be truly amazed at how useful small, wheeled vehicles can be in a survival situation.

From mobile cameras used for scoping out an area to testing for land mines and traps, these robots can be true life savers. You can also use these robots to detect unsafe radiation levels, or to help you avoid toxic ground, air, and water.

Hazardous Air Indicators

Have you ever gone out of your local area, only to discover that other locations [smell very different](#)? When you returned home, did you notice that smells that bothered you early on have returned? If so, then you can readily understand why hazardous air indicators are so important.

No matter whether you have become accustomed to the smell of smog, waste dumps, natural gas, or other odors, they indicate the presence of gasses that can be dangerous to your health.

During and after crisis, these air toxins are bound to reach levels that will make you much sicker, or even kill you.

Since you can buy several different kinds of air quality sensors to use with an Arduino controller, you could to detect the presence of, or increase in toxic gas levels. From there, you can take appropriate steps such as wear a respirator mask, or employ other means to clean the air circulating in your home.

Detect Electronic Surveillance

As a prepper, you are always going to be concerned about your privacy or the number of people that know about your stockpile, it's contents, and where it is. More than a few products you are storing away may have hidden RFID chips in them.

While these may be referred to as innocent inventory tags, there is no telling what those chips can do when activated. If you try to buy a pre-manufactured RFID sniffer, it can cost hundreds of dollars and still miss out on some of the more stealthy chips.

There are many frequency detector accessories that can be purchased to use with Arduino controller boards. Not only will you save money on the RFID detector, you will also be able to customize it to detect both older and newer sensor types.

This can also come in very handy if you need to find out if these kinds of chips are hiding around your property, in your vehicle, or in other areas.

Tools and Knowledge You Need for Building

To build complex systems using Arduino, you need very little in the way of tools and skills. The basic tools you will need include:

- A **computer** (even a tablet or smart phone can be used to transfer programming to the Arduino controller);
- The actual **Arduino controller** and **accessories** (kits that include the main board and accessories run around \$30.00 USD);
- Access to **Open Source code** for the controller and Add-Ons (this is free and accessed through your computer);

- A **solder iron** (used very rarely);
- Any **attachments that you may want to add** to the controller.

For example, if you want to build a robotic camera system, then you might purchase a kit that includes these parts, plus others that can be used to expand on your main application.

Insofar as knowledge required to use and build Arduino systems, you should have at least a basic understanding of electronics.

Even if you don't know the difference from a resistor or capacitor, however, there are plenty of instruction guides filled with pictures that will tell you exactly what needs to be done.

At the beginning, you will not need to know anything about computer programming because there are many excellent sources of code that can be used with the main controller and any accessories you want to attach to it.

That being said, as you expand into more personalized applications, you may want to learn how to write your own code.

Video first seen on [I Like To Make Stuff](#).

A Caution About Videos and Tutorials

Over the years, I have searched through thousands of videos and tutorials as I worked my way through different DIY tasks. In many cases, I have seen hundreds of videos showing the exact same mistake, yet the “results” shown on the video were astounding.

For me, the most memorable occasion for this is when I decided

to build a [pen gun](#). Just about every video and tutorial on this subject showed using a wad of paper to push the spring into position.

What I quickly found out is this would never work for two reasons:

1. If the wad is big enough and adheres to the walls of the pen enough to hold the spring in place, then the spring will never have enough power to eject it, let alone propel the payload forward.
2. If you use a wad that is too small, the spring and everything else will come out and fly all over the place. Let's just say that the vast majority of videos on this topic lead to creating something completely useless.

In other cases, I have found videos that offered contradictory, and often dangerous advice. Unless you actually take the time to build something yourself and test each stage out with care, there is every chance that the advice in these videos will do more harm than good in a time of need.

Now, if you go online and look for videos on Arduino, you will find thousands. While they may give you the basics on how to insert wires and parts into a breadboard, do not assume that the actual wiring details are correct. It is truly best to explore on your own and take the time to check your work carefully.

Even if hundreds of videos show the exact same thing and the exact same results, remember what I learned from the pen gun explorations – no matter how many times something wrong is repeated – it is still wrong and can never be made right.

What to Beware Of

As someone that has worked with building electronic gadgets

and programming computers, I tend to be a bit cautious about an interface that combines both.

In particular, I'd hate to plug in my Arduino controller to the USB port on my computer, and not realize that there is a short somewhere in the breadboard attached to the Arduino.

For this reason, I advise taking the following precautions as a beginner, and even later as you become more confident of your skills:

- Load programs onto the controller without other accessories attached. This will help reduce the risk of shorts and other mistakes being in an electrical connection with the rest of your computer.
- Use an old tablet or old computer for programming. Try to avoid using anything expensive until you are sure it is safe to do so. Today, there are plenty of tablets that cost less than \$100.00 that you can add Arduino related apps to.
- Never rely on the computer or tablet for powering the Arduino while accessories are attached. Unless you [built your own computer](#) and know that the power supply can take the added load, never assume that the computer can handle even a small additional load. After programming, it is best to power the Arduino board with a dedicated power supply. In many cases, this may be as simple as a AAA or 9V battery pack. You can also purchase regulated power supplies that are designed to attach to the Arduino controller board.
- Follow Basic Safety Precautions – in most cases, you can do more damage to the Arduino controller and accessories than they can do to you. Never handle the controller or accessories without wearing an anti-static grounding strap. It is also important to avoid touching the circuit board itself or any metal parts. Always handle the controller from around the edges. When you set the controller or other parts down, make sure they are not

on a surface that can conduct electricity. Finally, always store the controller and parts in a case that will keep it safe and free of moisture and dust.

- Never combine the controller with parts it isn't designed to work with. During the process of selecting an Arduino controller, you will find several variations on the market. While most sensors and accessories will work with all boards on the market, others will not. Study the data sheets for the accessories carefully so that you know which boards they will and will not work with.

Six Things Every Prepper Should do With Arduino

When it comes to meeting a wide range of survival needs, Arduino can fit into just about any scenario and make things easier.

Here are six things that you should know how to build and operate.

1. Environmental Pollution Detector System

As mentioned earlier, being able to detect air pollutants and toxins is and will be crucial after crisis. If you suffer from breathing problems, you may be amazed at what a few simple sensors will reveal about why you are sick and how best to get on the road to being well again.

Arduino controllers can also be used to power water pH and other aspects of water quality. Since water is usually at neutral pH (7.0), levels significantly higher or lower can point to the presence of dangerous toxins.

If you find water that has an unusually acidic or alkaline pH,

you can use that information to determine how to clean the water.

This meter can also tell you how effective your methods were. Without a question, if you thought boiling water is the “end all” cure all for water quality problems, seeing the pH skew even more in the unwanted direction will reveal problems with that idea; and may just save your life.

In a similar way, you can use other sensors to test soil quality. This will help you choose the best areas to grow food crops as well as help you figure out which additives will make the soil more suitable for your plants.

Video first seen on [The Suburban Hippie Experimentalist](#).

2. Mobile Surveillance Systems

Also mentioned above, there are truly endless ways to use Arduino wheeled robots, cameras, and recording systems for surveillance.

No matter whether you want to know what is happening near a distant fence or even some location within your home these wheeled systems can meet all your needs with ease.

3. RFID Detectors

RFID detectors are absolutely necessary since chips are planted in everything from razor blade packages to children and pets. Knowing where RFIDs are can help you understand all the possible locations where spies can find out where you are and what you are doing.

You can always upgrade the Arduino sensor system for a fairly low price instead of spend hundreds of dollars on pre-fabricated systems that come out in response to newer stealthier RFID technologies.

4. Radios and Receivers

You can build everything from Foxhole radios to transmitter systems, but they may not be as strong as what you can make using an Arduino controller. If you take advantage of the wireless sender and receiver kits, you can also communicate more easily over short distances using much lighter equipment.

Video first seen on [David Watts](#).

5. Alarm and Safety Systems

Why should you sit up day and night worry about if thieves are going to get into your campsite? Have you been hoping a deer was going to come your way? There are literally hundred to thousands of ways that alarm systems can be used to enhance safety and survival goals.

With Arduino, you can build all kinds of systems that will generate invisible beams that will alert you to the presence of something you should know about. When combined with wireless signal systems and cameras, you can have real time intelligence about everything going on around you.

6. Nuclear Radiation Detection System

Although often overlooked, nuclear radiation risks are truly going to be much higher regardless of whether nuclear bombs are deployed. While you can always use a Kierney Fallout meter, it never hurts to have a Geiger counter onhand.

You can purchase an add-on for Arduino controllers that will do this job with ease. Remember, if you don't want to dedicate a controller just to this task, just unplug the sensor from the Arduino controller and use it for some other task!

In fact, you may even decide to use one board for all your prepping tasks until you decide which ones you want to build

as permanent applications.

Even though most of your prepping must involve tangibles like food, water, defense, and transport, it may not be a good idea to ignore all forms of electronic devices.

Arduino controllers and their accessories are highly customizable and can be used to help you navigate through a crisis more easily than expected. As you think about each area of your survival plans, consider that these systems may be of far more value than you realized.

Feel free to share other ways your prepping efforts might benefit from using an Arduino interface. I have built several for my own current and prepper based needs and would love to discuss them with those who are interested in learning.

If you are looking for low budget options to bridge the gap to more expensive devices, or ones that don't rely on electronic devices, Arduino can fill that gap, and may you didn't even realize existed in your current plans.

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This article has been written by Carmela Tyrell for Survivopedia.