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Automatic fire detection system with water sprinkler system pdf

Because fire sprinkler systems protect a variety of buildings and property, many different types have been developed over the years. These include wet, dry, deluge, pre-action and foam. Each has its own unique set of characteristics that protect the specific building and property for which it was installed.As we learned on the previous page, sprinkler heads are connected to a system of pipes in the walls or ceiling of a room. These pipes are composed of steel, copper or fire-resistant plastic. The most commonly used system in commercial buildings is a wet pipe system, which is composed of steel pipes that are always filled with water (hence, the term "wet"). The water in the pipes is under a moderate amount of pressure. When the sprinkler head is activated, the pressurized water in the pipes is immediately released, providing a faster reaction time than any other type of system.The wet pipe system is also the simplest and most reliable, boasting cost savings for easy installation and low maintenance. However, wet pipe systems are not always the best choice. Since the pipes are always filled with water, they're not recommended for locations where the pipes might freeze or in residential environments where accidental leaks could be detrimental.As you might have guessed, in a dry pipe system, the pipes are not filled with water -- they're actually filled with compressed air. When the sprinkler head is activated, a valve releases the compressed air through the sprinkler head. Once all of the air is released, the pressure in the pipe changes, allowing water to fill the system. Dry pipe systems have a slower reaction time (up to a minute delay). To make up for this, dry pipe systems release a larger amount of extremely pressurized water, which requires larger pipes (and a larger budget). And, while a leaky pipe in a dry pipe system doesn't pose a flooding threat, maintenance fit the system is more complicated and costly. So, this type of system isn't recommended unless specific conditions -- an unheated warehouse in Canada, for example -- exist. Read on to learn about the different types of dry pipe systems available.More Fire Safety TipsEven if your warehouse, office building or apartment is equipped with an automatic sprinkler system, be sure you have operating smoke detectors, as well. And have at least one on every floor. They cost on average less than $10 and save thousands of lives every year. Just remember to change the batteries at least twice a year. Don't you hate it when your automatic sprinkler system turn on in the middle of the night when it had previously rained all day? Hobbyist developer and maker Jashua became so annoyed by this he hacked together a control system for his sprinkler system utilizing the Python programming language and around $45 in parts. The heart of the system uses an x10 controller, a cheap rain gauge, and an old Microsoft Sidewinder game controller. The system is smart enough to keep the sprinklers from turning on if there has been a significant amount of rainfall in the last 24 hours or if there is a rain forecast in the next 24 hours.The full details along with code for the sprinker controls can be found at the source link below.Python Sprinkler Project | via Hack a Day Last month, Elecrow have left from the original office and moved to a new office. We will miss our original office where we worked so hard for more than two years, we will miss everything here, the desks, the windows, and those potted plants, that we cared for more than two years with our neighbor.   Our neighbor, a design team, led by a man named Kimi, we had so many memories together in the difficult early days. Together we planted some potted plants in the balcony, to help us release when tired after a whole day hard working. But as we leave, Kimi team are so careless and they often go out for some shows, we all worry about that these plants will be thirsty as we leave.   So, We decided to design an automatic watering system to ensure that these plants are still alive when we come back here the next time. It monitor the soil humidity of each potted plant, if the humidity too low, the pump automatically start to spray, in this way, Kimi team do not need to water those plants every day. I have recorded a video for reference: we prepared the following modules(all parts can find in www.elecrow.com): 1. Soil Moisture Sensor. Each flowerpot need such a soil moisture sensor to collect the humility data. the best advantage of this kind of sensor is, it is really cheap, while the disadvantage is that it may corrode after long-term usage. Of course, you can also use a better humidity sensors, such as the capacitive soil moisture sensor, but you may need to pay ten times the price. 2. A small pump plus a driver. A driver is to provide enough current for the pump, my application needs a spray distance about one meter, so this pump is enough. But if you need to make a system that needs a large spray range, you may need a larger pumps, or even a pressurized device to make the projectile even farther, such as the watering system in a tea garden. 3. Servo and Rotating Platform, to take the water pipe to water the target plot. In order to control the spray distance and angle, 2 servo wold be necessary. 4. Of course, the controller is a must, i use the Crowduino platform, plus anExpansion Board for easy connection. 5. Water pipes and the power supply is essential too, and, some wires would also be help.OK, all things prepared, then let's get started. The world's first sprinkler system was installed in the Theatre Royal, Drury Lane in the United Kingdom in 1812. The systems consisted of a cylindrical airtight reservoir of 400 hogsheads (95,000 liters) fed by a 10in (250mm) water main which branched to all parts of the theatre. A series of smaller pipes fed from the distribution pipe were pierced with a series of 1/2" (15mm) holes which poured water in the event of a fire. From 1852 to 1885, perforated pipe systems were used in textile mills throughout New England as a means of fire protection. However, they were not automatic systems, they did not turn on by themselves. Inventors first began experimenting with automatic sprinklers around 1860. The first automatic sprinkler system was patented by Philip W. Pratt of Abington, Massachusetts in 1872. Henry S. Parmalee of New Haven, Connecticut, is considered the inventor of the first practical automatic sprinkler head. Parmalee improved upon the Pratt patent and created a better sprinkler system. In 1874, he installed his fire sprinkler system into the piano factory that he owned. In an automatic sprinkler system, a sprinkler head will spray water into the room if sufficient heat reaches the bulb and causes it to shatter. Sprinkler heads operate individually. Until the 1940s, sprinklers were installed almost exclusively for the protection of commercial buildings, whose owners were generally able to recoup their expenses with savings in insurance costs. Over the years, fire sprinklers have become mandatory safety equipment and are required by building codes to be placed in hospitals, schools, hotels and other public buildings. In the United States, sprinklers are required in all new high-rise and underground buildings generally 75 feet above or below fire department access, where the ability of firefighters to provide adequate hose streams to fires is limited. Fire sprinklers are also mandatory safety equipment North America in certain types of buildings, including, but not limited to newly constructed hospitals, schools, hotels and other public buildings, subject to the local building codes and enforcement. However, outside of the US and Canada, sprinklers are not always mandated by building codes for normal hazard buildings which do not have large numbers of occupants (e.g. factories, process lines, retail outlets, petrol stations, etc).