

to monitor only one aspect of the picture. An example of this would be to have the camera focused on your house and then you program the camera to activate automatically when something moves at the front door. The rest of the picture is ignored. Obviously if the location of the camera is compromised, an intruder may either be deterred from entering or just deterred from entering in the range of the camera's sight.

The same pixel motion activity is utilized in almost all DVR systems sold today but as the price increases you gain greater flexibility in programming, lower power requirements and longer manufacturer warranties. Once footage is captured on the DVR, most systems allow for playback of the footage on a computer. One of the more expensive systems available has over 20 programmable menu's, can record 24 hours a day, 7 days a week on up to four cameras at once, and during playback the screen provides the user a "motion graph" which details where the action happened during recording. This allows the users to focus on those areas where there is activity and ignore the times when nothing moved in front of the camera. A great time saver during review!

Now, as with all things, you can customize and accessorize as much as your heart desires. I'll briefly run through the more common accessories.

Sensors

Sensors attached to the system can provide the user flexibility to set up the camera in many different types of situations. Anyone who has deployed cameras can attest to the fact that one type of sensor will not work in all situations. Sensor types include Passive Infrared motion sensors (PIR), seismic sensors, beam break sensors, and even sound sensors. Each type triggers the camera to activate and record after it senses its unique activity. The trick is to know what works best in each environment and take the time in the field to "tailor" your setup to that site. Keep in mind however, that as quick a set up time as possible is critical. The more time it takes to install the system, the higher the likelihood of someone spotting you and knowing the camera's location. Although there is still a deterrent factor in having a known camera on site, effectiveness is improved when the camera is not visible or known.

I know of a case where a seismic sensor was deployed to monitor the truck traffic in/out of a tract of timber. A seismic sensor detects the vibrations in the ground created when something passes by the sensor. If the sensitivity of the sensor is set correctly it can detect anything that moves in the camera's range, e.g., humans, dogs, wildlife, varmints, trucks, etc. In this case, the sensor was deployed along the access road and about 100 yards away from the logging deck. As it turned out, that was too close to the deck. The sensor detected the vibrations in the ground from the loading operations and activated the surveillance system so much that the unit was out of power within two days. The operator was expecting to get seven days use from his system and was sorely disappointed when retrieving the system.

Sensors also require more time to setup in the field. Again, more time in the field setting up the system increases the chances you will be observed. If the camera is observed, you may not only lose your advantage, but also find that your system is gone when you go back to retrieve it (a very disconcerting feeling).

Cameras

Cameras come in all shapes and sizes. Generally, the higher the priced ones provide the greatest flexibility in customizing the "on the fly." In other words, if you have another camera with you, they are easy to change out and replace. Typically, in the field, bullet style cameras provide a good picture and are small enough to deploy close to the action without being easily

spotted. Of course cameras do come in pinhole size (which is literally about the diameter of the writing tip of a pencil) and can range up to the size you see mounted above the bank parking lot. Most cameras can have the lens size customized to provide wider angles, or zoom in closer to the action. The newer cameras will switch from color to black and white at night to give a better image. Each camera comes with a lux rating. The lower the lux the better the camera will be able to pick up the image at night. In addition, cameras vary with the level of picture resolution. If you want to identify license plates at night, you will need a higher resolution camera! And last but not least, remember to account for the different power requirements as you swap cameras for different applications.

Power Sources

Of course, as with all things electronic, you must provide the proper power source to be able to keep the system running in the woods. Currently, and for the foreseeable future, lead acid batteries provide the most economical way to power the surveillance systems. The trick is to find a system you can deploy for at least a seven-day period that is small enough that it can be easily carried. I have seen systems that required three 200 amp/hour batteries to operate for a seven-day period. In case you haven't carried one lately, a deep cycle marine battery can weigh up to 100 pounds each! The system I use weighs about 90 pounds, including the camera and batteries. There are lighter options available and as technology improvements march on, things will get lighter. For you gear heads out there, a few individuals are using solar panels and fuel cell technology is getting closer to being an option. A German company is offering fuel cells to the public now and as prices fall, that option will get more attractive. At the moment, \$2500 and up just for a fuel cell as a power source is a little steep.

Where can I learn more?

I am aware that I have not made specific recommendations on your next camera and hopefully you can appreciate the fact that there are dozens of considerations for each application. What works well in the woods, may not work well in a scale house environment and vice versa. Each camera deployment is unique and any number of things can cause your camera to quit operating. So don't be shocked if you retrieve your camera and find you only have footage of you while you were installing the system and nothing else. If you find that happens to you keep in mind you can always outsource your camera audits to professionals.

For some of you this discussion was too basic and you want more details. If so, please feel free to contact me, as I am familiar with several different camera surveillance systems and can answer your questions or provide additional information.