The Greek Philosopher Plato and …. False Alarms

The Greek philosopher Plato stated … "Necessity is the mother of invention". Never was this more evident than in the late 1990's when the founder of E&E Electronic Engineering Research Inc., Randall Wang realized that his Southern California alarm company was faced with a serious and growing problem of false alarms. Randall, being both a Medical Doctor and an Electronic Engineer set about in a deliberate and diagnostic manner to examine and understand the root cause of these false alarms. After much empirical study encompassing the review of thousands of accounts the evidence became clear. The vast majority of false alarms (around 75%) are caused by spurious (false) trips from PIR motion detectors. These are in turn caused by differential temperature sources, lightning, RF energy, insects, air drafts and other sources. The main characteristic is that they happen only once within a reasonable period of time. This is the basis of the statement… "On average, a PIR will false once per year". Given the number of PIR's in service and the false alarm rate that E&E experienced, this statement is accurate. In contrast, a real break-in will cause more than one trip to occur, either as the burglar moves around in front of the same PIR or moves in front of two or more PIR's. This is a key differentiator between false and real alarms. Another significant source of false alarms is lightning. A lightning strike in close proximity will simultaneously set off multiple PIR's, something a burglar is highly unlikely to do. If one takes all of these factors into consideration, the means for reducing false alarms becomes apparent.

These empirical observations inspired Randall to develop a module to weed out the false alarms from the real ones. As stated earlier, necessity is the mother of invention and Randall desperately wished to eradicate his company's false alarm problem. He created the original eFAR (electronic false alarm reduction) module to achieve this goal. This module hooks up to an alarm panel to intercept and interpret the PIR zones. It looks for two trips on a single PIR or two trips on different PIR's before passing the signals through to the alarm panel. The troublesome spurious (false) alarms are therefore blocked from reaching the alarm panel. The module also has an output which can be used to tag signals as verified to the monitoring station, thus eliminating the need for other forms of verification. This initial eFAR module was installed in 1000+ sites… the false alarm rate was reduced by an incredible ~90%, an amazing success!

Interestingly enough, around the same time, the authorities in Scandinavia recognized these same factors and solutions. Starting in Sweden, the Police Chief mandated that all alarm equipment must include the "Double Knock" (two trips on the same zone) and "Cross Zoning" (two trips on two different zones) functions and generate a special "Police Code" that is transmitted when either of these conditions applies. The net result… the false alarm problem in Scandinavia has been significantly reduced. The same problem of false alarms on two different continents generated surprisingly similar solutions, the key difference being that the Scandinavian solution applies to new installations only, while the eFAR applies equally well to both new and retrofit situations.

Once again, necessity being the mother of invention, Randall believed that the eFAR, as well as many other similarly inspired concepts needed to be further developed. In early 2004, Randall met and partnered with Jim Parker, a veteran in new product development. Jim's past life involved a successful 18 year career with the security equipment manufacturer DSC. Jim started with DSC just after the company literally moved beyond a basement operation as an R&D department of one. Jim's career rapidly advanced, reaching a pinnacle in which he found himself running an R&D department with over 200 engineers. In late 2001, DSC was acquired by Tyco. Two years later Jim resigned his position as Vice President of Engineering. The timing was perfect. With Randall's experience and business knowledge and Jim's product development skills they formed a sister company to E&E called EE Systems Group Inc. The first project for this company was to re-engineer and improve upon the original eFAR module. The result is the eFAR100 which has all of the features of it predecessor plus many enhancements including lightning block. The eFAR100 works with any standard alarm control panel and all common loop supervision modes (i.e. EOL, DEOL and NC). The installation is straightforward and takes only minutes. Typically only one wire per zone is required. The eFAR100 requires no programming or jumpers. It is rugged and reliable, with built in diagnostics and electronic fusing. It is truly intelligent and automatically configures itself. Two smart wires provide a multitude of functionality such as a "DV" output that can be used to tag the alarm signal as "verified" to the monitoring station (much like the Swedish police code).

Technology	Cost	Training	Reliability
eFAR100 (DVC)	**Low**	**Low**	**Very High**
Call Verification	Medium	Medium	Low
Two Way Audio	High	High	Low
Video	Very High	Very High	Medium

The eFAR100 is based on patented DVC (Digital Verification Control) technology. This technology encompasses all of the features mentioned earlier in this article. Referring to the chart, it can be seen that the eFAR100 offers a superior alternative to other methods of alarm verification. With the eFAR100 reliability is very high while cost is low, about that of a single PIR motion detector. The DVC technology is the only method that stops the false alarm at the source! All other methods require the false alarm signal (with the local siren sounding) to be transmitted to the monitoring station where further action is taken. DVC technology greatly reduces the burden on the monitoring station. The eFAR100 represents the lowest cost, highest reliable solution available to address the false alarm issue.

Recently, after reviewing the eFAR100, Marc Mineau, past president of SIA and leading industry figure stated "I am really impressed with the eFAR100. It is an industry changing product".

For more information on the eFAR100 please visit www.eFAR100.com or contact EE SGI at 1-877-579-3889.