SERVICEMAN'S LOG

The alarming false alarm system

Dave Thompson

I've written before about home alarms and the problems that DIYers like myself run into working on them. The main problem is that I don't know what I don't know, and given my proclivity to 'have a go', it's no surprise that I sometimes come unglued. The silver lining is that everything is a learning opportunity; next time I'll try again, and if necessary, bring in someone who knows what they're doing.

This means – rightly or wrongly – that I sometimes try to do jobs usually best left to professionals. However, getting a professional to do the job doesn't guarantee that it's done right either! Admittedly, my expectations might be unrealistic. But if I'm paying (usually handsomely) for a job, I expect a certain level of competence when it comes to the final result.

I'll be the first to admit that I'm an average serviceman; I win on some repairs and fail at others. My Dad, and then the airline I served with, instilled in me the will and skills to do a good job, and this set my standards high. Given the environment at the airbase, and the number of people who worked there, it is inevitable that there would be others far more capable than myself.

Those guys studied hard, got licensed to the hilt and more often than not, saw out their careers pushing papers in technical support. Then there were the guys who weren't as 'book-smart', but who were very manually skilled.

I knew engineers who could weld wood to concrete without a visible bead, or strip jet engines or avionic systems, overhauling every component and then reassembling it all blindfolded (not that that was encouraged)!

I was somewhere in the mix; everyone had different skills, and with a bit of good fortune, we all ended up where we wanted to be, doing what we wanted to do. Now and then an extra-challenging job would come across the bench to spice up the workday. I sometimes miss being part of that environment.

Lately, I've encountered several 'professionals' where tool skills didn't seem to be part of their job requirements. It pains me to shell out for a job that, even when viewed with hindsight, we could have done ourselves; and sometimes done better.

I've had workers come to service appliances, repair water pipes and install fibre broadband and in all these cases, I reckon I could have done at least an equally good job.

I know about as much about plumbing as I do about mathematical formalism in quantum mechanics. But with all due respect to plumbers, charging $700 to zip-cut a metal pipe off and replace it with a plastic section over two hours is awfully steep. And the less said, the better, about the gas-fitter who scribed a divot into our brand-new benchtop when his power drill slipped.

~SHOPPERS WALKED PAST WITHOUT A RAISED EYEBROW

I could have fitted that hob, or done the pipes; I just wasn't "qualified" for the job.

These situations remind me of the old yarn about the boilermaker who was brought in to fix the misbehaving boiler on a steamship. He walked in, looked around for a couple of minutes, took out a tiny hammer and gently tapped a valve. The boiler then worked perfectly. The ship owner was irate to receive a $1000 bill for this fix, and asked for an itemised invoice. The invoice he received read:

Tapping the valve: 50¢
Knowing where to tap: $999.50
Total: $1000

So I guess my point is, you hire the professionals to do an easy job so that if it turns out not to be so easy, you don't get into a lot of bother. But it's still galling when someone charges you a lot to do a sub-par job, especially when you know you could do better.

Installing the old alarm system

When we moved into this house, we installed a security system. This was for our own peace of mind and also the safety of my tools and my customers' hardware in my workshop. (April 2018; siliconchip.com.au/Article/11033).

It is debatable whether a neighbour would even bother glancing at our residence if the alarm was blaring away. But it is nice to know that in a dimly-lit bunker somewhere across town, an operator is sitting at a console, waiting for our monitored alarm to go off, so they can send a security guard around and charge us a hundred bucks for the privilege!

If I hear a nearby alarm sounding, I always wander down the street and have a look at what's going on, even though I'm not sure what I could do if I do find something amiss.

I've accidentally set my car alarm off in public several times. On one occasion, I'd locked myself out of it in a supermarket car park and was trying to break in. Shoppers walked past without a raised eyebrow, though admittedly some did look annoyed at the noise!

My first stop was the alarm monitoring company we'd used for the last 20 years. They had provided our original alarm system by way of a deal where you got the system free if you signed up for three years monitoring at a buck a day. We'd moved that system a couple of times over the years and weren't keen on moving it again.

The bad news was the alarm companies don't do those deals anymore. I would be looking at "about a grand" to have a basic system installed and configured by Chap and Bloke, the two overall-clad likely lads who were contracted to do this company's alarm installations.

I'd had dealings with these guys in the past and wasn't too impressed with their work, so I thought I'd check the internet first.

There are literally thousands of alarm systems on AliExpress (one of my favourite websites back then), some cheap and some costly; the biggest problem was which one to choose. Talk about upskilling by proxy; I had to learn and translate a whole raft of new acronyms and technical doublespeak.

I also had some strict requirements; many of the newer systems used only SIM cards and the digital GSM (cellular) network to send data to the monitoring company.

Not only does this involve an ongoing cost for any calls made from the alarm, but back then, the monitoring company couldn't accept signals sent this way. So we had to ensure any alarm we installed used the increasingly 'old-tech' copper-wire based PSTN (Public Switched Telephone Network) system.

This proved to be no real problem as many compatible PTSN systems were available, and the majority of those systems used 433MHz wireless technology to connect sensors to the 'base' unit. This was appealing on many levels, not the least of which is that I am getting too old to be crawling around in the roof or under floors to route wires.

I ended up purchasing a mid-level digital base unit with both PTSN and GSM capability, along with suitable wireless pet-sensitive PIR sensors, a couple of photo-electric smoke detectors and some magnetic door/window switches.

I could have up to 99 zones with this system, and while this was a few more than I needed right away for Casa Thompson, it would allow me to expand. Who knows, I might eventually add 92 more rooms to my house. Any more than that and I would need a new alarm system!

Installing this system was as easy as it sounds, with the majority of the work going into deciding where to put the sensors and screwing their mounts to the walls or doorframes. Then it was just a matter of programming the base unit and adding the sensors to it.

I wired in a copper phone line using the supplied cable, which I first had to modify by cutting off the original RJ11 plug and crimping on a kiwi Telecom BT-style connector. I had a spare SIM, so for 'belt-and-braces' monitoring, I put that into the system as well.

I then encountered the first hiccup: the new panel wanted to know my monitoring company's phone number and my customer number, neither of which I knew. The only way to get this information was to call up the company, and of course, they weren't about to dish that information to just anybody, and (quite rightly) didn't want some cowboy messing around with their system.

In the end, I had to book Bill and Bob to make a visit, just to watch them press a couple of buttons and make a test call to the monitoring centre. *Note to self: make sure to factor another $200 into the cost of any future alarm system.*

For the most part, this alarm worked well. It came with four keyfobs for wireless arming and disarming, and these are extremely handy; especially because after a few years, I forgot what codes I originally programmed into the panel for manual disarming, since I never used them!

A flawed system

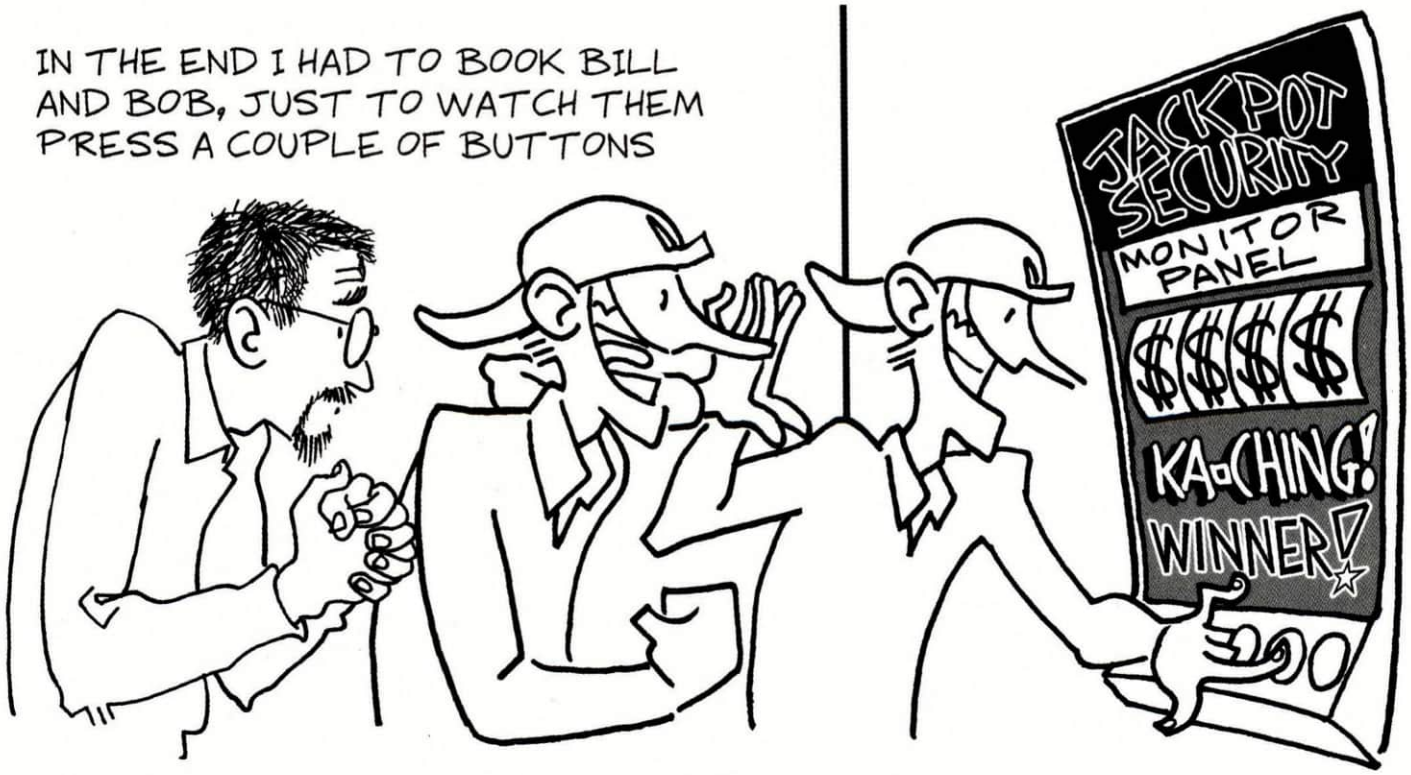
One of the big downsides is replacing batteries in the sensors; the PIRs use that old standard, the 9V battery, but the window and door sensors chew up those little 12V 23A-style buggers, and neither are cheap to replace. *Note to self: factor in many more dollars for batteries for any future wireless alarm system.*

Replacing batteries is to be expected, but as the voltage drops, some sensors get unstable, so we were continually having false alarms. In fact, this was usually how I found out that a sensor battery was going flat. Being rudely woken up at 4am by a shrieking piezo siren is not my idea of fun!

Being at home when a false alarm happens is one thing; being out and about when it happens results in a whole other set of problems. The alarm calls the monitoring company, telling them what zone is triggered and what type of emergency it is (fire, intruder, panic etc). It also calls my mobile phone via the SIM with a pre-recorded message with similar information.

The problem, as I discovered, is that the monitoring company usually get straight on their phone to call my registered number to report the alarm going off. But they get a busy signal because the alarm system is repeatedly calling me, tying up my phone. If I didn't answer, they'd send a security guard around and charge us the fee.

This can be a real pain, especially as Murphy's Law dictates this happens only when I'm in an important meeting, driving, or sitting in the dentists' chair. I soon reconfigured things to make this process smoother. Another lesson learned. *Note to self: factor in*



many potential visits from security guards in any future wireless alarm system.

Long story short, I got sick of constantly replacing batteries and paying security guards to tell me we had another a false alarm. I can't remember our old wired system, which we'd used for decades, ever going off (unless we tripped it accidentally). So I resolved a few months back to look for something similar to that and replace this new-fangled-but-flawed wireless thing.

I should also add that recently, the monitoring company let us know they had upgraded their system and could now do GSM signal monitoring. While this meant we might be able to ditch our old copper phone lines, they also said it would incur higher per-call costs than what we currently pay.

I briefly pondered how that worked, since we paid for any alarm-generated cell-phone calls anyway, but gave up and decided to stick with the monitoring system we already had.

Fed up with wireless hassles

I found a new alarm system on AliExpress almost identical to our old 8-zone wired system, but with 16 zones, a lockable metal box and PSTN dialling. It was quite reasonably priced and included a couple of fob remotes for wireless arm/disarm.

I could also pick whatever sensors I wanted to go with it, and opted for three pet-sensitive and three 'normal' PIR/microwave combination sensors. These are Canadian-made, and apparently they have the lowest false-trigger figures in the business. I also got two smoke detectors and an extra keypad. All I'd have to add is a 12V SLA backup battery and some cable; I already had a 100m roll.

One obvious downside to this decision is the requirement to run those cables. This is usually not too much of a hassle in any normal house (at least here in New Zealand) with reasonable roof or underfloor space.

However, our house was converted from a single to a double-storey home 30 years ago. So much of the ground-floor ceiling space needed for routing cables has a whole other house sitting right above it, leaving almost no usable gaps.

While there is a very narrow crawlspace around the perimeter of the roof, I (and a builder friend) pondered this sensor location and cable-routing problem for weeks. We eventually decided that the only way was for one of us (that means me) to suit up, get into the roof space and to probe aptly-named fish tape (or fishing rods) through any gaps we could find between the floors.

Hopefully, we could route the wires as close to the ideal sensor positions as possible. If the worst came to the worst, I'd run the cables out through the roof tiles and around the eaves. *Note to self: before buying wired alarms, check out potential cable access problems!*

I'm not claustrophobic enough to have a problem crawling around inside the wing tanks of aeroplanes, but that was 35 years ago, and I had proper gear then. Wiggling through dark, spider-web and mouse dropping-infested gaps I can barely fit my shoulders through while dragging a long fibreglass pole is not how I pictured spending my increasingly autumnal years.

Someone had to do it, though. I am happy to report that with some surprisingly agile gymnastics and inspired-but-educated guesswork from both of us, we were able to run all the cables we needed to the positions we wanted. We only had to drill one hole in a less-than-ideal position, around 50mm away from where we wanted it.

While I was up there, I ran Cat6 network cabling out to my workshop and a couple of other rooms I wanted connected, so we got a lot done in one day. *Note to self: allow several days for physical recovery after cabling work.*

I mounted the alarm box by the access door in the roof space, which is a natural junction of all the cables coming from the sensors. I mounted a couple of cheap LED lights up there too, which made connecting up the sensor wires a lot easier.

This was all relatively straightforward work. But I did need to ensure the sensors' operating mode (normally-open or normally-closed, set by jumpers on their PCBs) matched the panel configuration.

Normally-closed operation requires