

## Electronics is Fun

Q: Is analog electronics fun?



A: Definitely! The best engineers (and the best practitioners of any profession) are the ones that enjoy their work<sup>1</sup>. In an [earlier RAQ](#)<sup>2</sup>, I mentioned that when interviewing engineers, I always ask what they have used their skills to make for themselves—and some of the answers display great ingenuity. Ideas developed for personal projects have often evolved into valuable new devices.

When MEMS accelerometers were first developed, a number of sports enthusiasts used them to measure the movements of their limbs and bodies during training, and thus improved repeatability, efficiency, and fitness. Quite soon afterwards such measurement devices were commercially available and being used by almost every type of athlete.

When heat pipes were being developed for semiconductor cooling, one of the development engineers stuck a heat pipe into a roast of beef and found that its cooking time was reduced and heating was more uniform. A cooks' version quickly appeared on the market.

A friend of mine working with inexpensive digital sphygmomanometers (blood pressure gauges) realised that the instrument, which contained an air pump, a pressure gauge, a microcontroller, and a simple numerical display, could quite easily be reconfigured to make a very convenient depth gauge for his (buried) rainwater tank. A tube that goes to the bottom of the tank is pressurised with air which escapes from its open end. The air pressure in the tube corresponds to the water depth. This idea has not been developed commercially (yet), but it less than 20% of the cost of available tank depth gauges, so most of his neighbours have bought cheap digital sphygmomanometers to monitor their own water stores. The high cost of conventional systems is because their submerged pressure gauge must be an expensive water- and corrosion-resistant type, while the sensor in my friend's gauge is surrounded by dry air, so it can be much simpler.

Many companies allow their engineers to use their resources (and often a reasonable amount of their components and materials) for personal projects in their spare time, and some of the most successful (3M, Google, and Apple among them) encourage such work on company time. The Post-It Note, Gmail, and Twitter were all developed in this way.

If we can develop our own interesting ideas—perhaps regardless of whether there is an immediate commercial application—we will learn useful things, increase our understanding of our technology, and have fun.<sup>3</sup>

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<sup>1</sup> To be happy in your job you should find something you like doing and then find someone to pay you to do it.

<sup>2</sup> [What is the most important characteristic of a successful analog engineer?](#)

<sup>3</sup> “If you are not in business for fun or profit, what the hell are you doing here?” Robert Townsend, ex-CEO of Avis Rent a Car, in his book [Up the Organization](#) (1970 - but still in print).