



## Helicomm Hypercompetes in M2M

by Tim Smith, PhD

The wireless telecommunications revolution continues at a fast clip in areas that many of us never notice. We rarely think of the number of machines in our lives until they fail to perform as expected. We think even less about monitoring these machines and adjusting their performance. Yet this is the province of a wireless revolution that will dwarf the consumer market in unit volume terms.

Advances in RF engineering and wireless communication protocols have brought the price-to-quality ratio low enough to make machine-to-machine communication and remote equipment monitoring cost effective. In recent years, ZigBee™ and IEEE 802.15.4 low power wireless networking standards were created ([www.zigbee.org](http://www.zigbee.org)). The implementation of this standard potentially shifts the price-to-quality frontier towards even greater value. If customers perceive this shift in value as significant, we should expect dramatic changes in the penetration of the wireless networking technology for machine-to-machine communication.

### Helicomm

Helicomm is a two year old company based in San Diego ([www.helicomm.com](http://www.helicomm.com)). They provide wireless data networking solutions for embedded systems and sensory networks in commercial, industrial, and residential industries. Helicomm's solutions are well suited for transmission of short-range communication of machine data up to 300 feet. Longer distance data communication is made possible through mesh-network software that relays signals over thousands of feet.

Unlike their direct competitors, Helicomm has taken a standards-based approach to wireless data networking. The use of the ZigBee and IEEE 802.15.4 standards directly improves the price-to-quality ratio by (1) decreasing the complexity of the network and its modules and (2) taking advantage of high-volume semiconductor manufacturing to lower the price.

### Machine-to-Machine

The potential value created by wireless data communications has spawned entire industries in residential and office environmental control, industrial equipment monitoring, and utility meter reading (AMR).

In these industries, the focus is on communicating with a machine, not a person. Since there are far more machines and devices than there are people, the market potential for machine-to-machine communication is commensurately larger. For instance, in 2002 roughly 150 million PC-class microprocessors were shipped globally for human use. In that same year, over 8 billion embedded microcontrollers shipped for machine use.

Machine-to-machine communication relies upon collecting and communicating data with embedded systems, (embedded systems are computer chips within machine devices.) In many remote monitoring applications, wireless data networks are more cost-efficient to deploy and maintain than wired or cable networks.

The source of value in machine-to-machine communication is created by enabling individuals to make decisions about multiple devices at the same time. The decision may be as simple as turning a device on, off, or leaving it as is, but when the decision must be made with respect to hundreds to millions of devices at a single time, the potential savings through automation are considerable. The savings are created in automating the collection of data from these devices, communicating the device level information to a central repository, and processing the data to uncover areas where a decision is required.