

# Cost-effective and Accurate Indoor Locator System



Cambridge Consultants, a British developer of innovative products, has announced a new technology that can accurately detect someone's location indoors when GPS drops out. A number of sensors and a custom algorithm determine the location, with an accuracy of within approximately 1% of the distance travelled. The technology uses low-power, low-cost sensors and the device concept is small enough to clip onto a belt. Furthermore, it requires no existing internal infrastructure.

The technology opens up countless possibilities and is expected to have an impact in many different situations, according to Geoff Smithson, technology director, sensing systems, at Cambridge Consultants. It could be used to help locate fire-fighters in smoke-filled buildings, for example, or to pinpoint the closest doctor in a hospital during an

emergency – or to track offenders during home curfews. The company is just starting to see the potential of this approach and the diverse demand for this type of low-energy, highly accurate system, he continued.

Indoor tracking systems which process data from one or more sources of location information to estimate where a person or object is located are not new. But they often rely on RF signals from wi-fi access points or custom infrastructure, poor-quality GPS signals or expensive, high-quality sensors. The availability of low-cost smartphone components – including accelerometers, gyroscopes, magnetometers and pressure sensors – has enabled a new generation of location devices and applications, when combined with a tailored Bayesian algorithm to fuse the information.

The new technology platform can be embedded in an existing design or operate as a stand-alone unit, with options to compute the location locally or transmit the information to a remote system which can process the data before visualising it on a smartphone app.

The biggest challenges were developing an algorithm which optimally combines the data from GPS and the other sensors, and overcoming the issues of using such low-cost sensors in a system without any absolute location reference, said Smithson.

Cambridge Consultants specialises in developing low-cost, low-power connected devices for clients – with a team of experts with sensing, wireless and software engineering expertise. The latest technology builds on the company's tracking and location systems experience in a variety of market sectors ranging from defence and security to consumer, industrial, and oil and gas.