**Subpos System and Pozyx system**

**Subpos System:**

The SubPos Wi-Fi Standard is an open source (GPL), indoor positioning system that can be used in various environments such as metro lines, shopping malls, car parks, art galleries or conference centers, essentially anywhere GPS doesn't penetrate. It is a complete positioning system that doesn't require expensive licencing, specialised hardware or laborious area profiling and isn't reliant on data connectivity (a connection to a database or cellphone coverage is not required).

The Standard defines an accurate method for subterraneous positioning in different environments by exploiting all the capabilities of Wi-Fi. Plug and play SubPos Nodes or existing Wi-Fi access points are used to transmit encoded information in a standard Wi-Fi beacon frame which is then used for passive position calculation by a device of your choice (as long as it contains a Wi-Fi receiver). No more sending your position to external location providers when navigating indoors. Plus, since this is a purely client based system, location latency is significantly reduced compared to a server-side implementation.

**Pozyx System:**

The pozyx system is a hardware solution for Arduino that provides centimeter accurate positioning and motion information. It is an Arduino-compatible hardware kit for indoor positioning. In other words, it lets robots and other projects locate themselves within a space — like GPS, but at the centimeter-scale resolutions needed to navigate the interior of a home instead of the wide streets of a city.

The system comes with four USB-powered “anchors” that are the analog to GPS satellites. These get placed around the perimeter of the space you want to use. Each one transmits an ultra-wideband radio signal that can penetrate walls and other obstacles, and has a maximum range of about 200 meters.

Then there’s the fifth piece: the Pozyx tag, which senses and interprets those fixed-point signals to obtain its position in 3D space. It’s built as an Arduino shield module, which means Pozyx will be familiar and easy to program for anyone who’s used the popular prototyping hardware. The tag also includes a motion sensor to track the module’s orientation, and a pressure sensor that will let robots detect when they’ve bumped into something.

Plenty of smart devices use “geofencing” features built around Wi-Fi or Bluetooth, but these are fairly imprecise measurements — they can only tell you if an object is within a broad radius of the signal’s source. Because its anchors provide multiple signals to compare between, Pozyx provides accurate and specific location data down to about 10 centimeters. And the ultra-wideband signals that tell the tag where it is can also be used to pass data between the tag and anchors, without interfering with other wireless protocols.

While better self-directed robots are the most obvious use case, there’s also a lot of potential for smart-home automation that responds to precisely where you are in the home (assuming you’re carrying the Pozyx tag around with you). And Pozyx’s designers expect that the developer community will quickly surprise them by finding lots of unexpected uses for accurate indoor positioning. To that end, they’re planning to release their Arduino libraries and part of the firmware to the open-source community.