**INDOOR POSITIONING SYSTEM(IPS)**

Currently, there is no commonly agreed-upon way to determine position indoors. in contrast, gps (global positioning system) works well outdoors and is almost universally used. however, its signals are weak enough to be blocked by the walls of a building, and thus is not available for indoor applications. various methods exist for indoor positioning, but all must balance flexibility, cost, and accuracy.The applications of indoor positioning are many: indoor robots, inventory tracking, security, and location-finding, for instance. currently, the main problem lies not with the need for applications, but with the implementation. **T**he challenge occurs precisely because of the tradeoff mentioned above. it is natural that a more accurate system should cost more than a less accurate one, or have some other disadvantage. gps, for instance, cost hundreds of millions of dollars to develop, but is extremely accurate and flexible - it can be used anywhere on earth. various issues arise when designing a positioning system, such as clock synchronization, propagation delay timing, signal absorbtion, reflection and interference, and the challenge of creating custom hardware.