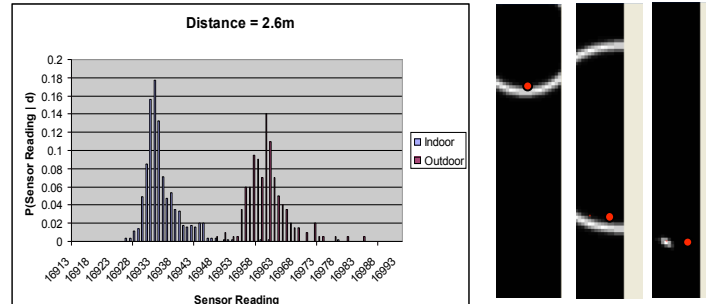


Self-Localization Using Wireless Sensor Network Communication Signals

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A critical element for autonomous vehicle operation is reliable and adequate location information. Conventional stand-alone location techniques, such as the Global Positioning Systems (GPS) receivers, may not be suitable for micro-UAVs because of operating environment limitations. An integrated approach that extracts information from a combination of current location techniques and other communication signals of opportunity may provide solutions to the problem. This project investigates the feasibility of using existing wireless sensor network communication signals as viable location techniques and the means to fuse these signals with other location techniques such as GPS and INS to produce an integrated navigation information system. Experiments in both indoor and outdoor environments are conducted to study the environmental impact on the wireless sensor network signals as a navigation tool.

Reference:

Zmuda, M., Y. T. Morton, "Calibrating Non-GPS Navigation Sensors for Use in Robot Localization," *Proc. 2007 ION NTM*, San Diego, CA, January, 2007.