WSN Project Report

The project consists in estimating transmission parameters like packet loss and delay for a small WSN deployed on a medium sized boat, with the aim of measuring properties of the environment and of the boat engine/control system.

The estimation of said parameters will take place throughout 2 sets of 2 tests each:

* No external (802.11, 2.4 GHz) interference
  + No multihopping (Star topology)
  + Multihopping enable (Zigbee mesh/tree)
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We will measure avg delay and packet loss over 10K packet sent for each test, in different locations throughout the boat, to test different materials as obstacles.

With these, statistical plots will be produced as a result, along with considerations about feasibility, performance and possible improvements.

Every test was performed with a fixed controller position, inside the deck house, where the operator (se vuoi mettici helmsman che significa timoniere ma diventa troppo pesante da leggere) manouvers the boat.

Repeater, instead, was placed such that it was always in between the 2 devices’ positions in average, during all the tests.

Due to the extremely complex structure, we chose for the end device some pivotal point of interest that, in our opinion, should be the most disturbed and, at the same time, suitable in nautical application. Specifically, we selected 5 locations (as shown in fig. ??):

* bow – region (front side)
* stern – region (back side)
* engine room (under the main deck)
* starboard rail (right side, PTP only)
* top deck (worst case with repeater only)