

EECE 5155 WSN/IoT Homework 2: Dual Beacon Discovery

For the second homework, I was able to implement the Dual Beacon Discovery algorithm by creating three modules in OMNeT++ being the SensorNode2BD, MobileSink2BD, and WirelessChannel modules. The modules were initialized with all of the necessary parameters for inside my 2BD.ned file with variables for the Y-Coordinate of the Mobile Sink, Discovery Range variable (R), and both Duty Cycle parameters instantiated in my .INI file to be able to quickly adjust parameters between simulations. My simulations were able to simulate the movement of the MobileSink2BD module starting 1 meter outside the Discovery Range and moving 0.0111 every Δ secs until the Mobile Sink completed a passage 1 meter outside the other end of the Discovery Range. My Wireless Channel module was able to calculate the Message Loss Probability (p) and check when LRBs, SRBs, or data packets were received in the handleMessage() function inside the module. I was able to visually see in my simulations the passing of cMessages between the Mobile Sink \rightarrow Wireless Channel \rightarrow Sensor Node. However, I ran into some issues with the timeouts of my Sensor Node and the Sensor never enters the SRB-Discovery state due to timing issues with the Radio variable being turned off. I spent a number of hours debugging with the print commands to print strings to the console of my simulation, which helped me to make this amount of progress, but due to limited time left, I decided to submit what I had completed for the homework.