Eddie Richter

Diego Jimenez

ECE 478 Project 1

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**Introduction**

In our implementation of the Distributed Coordination Function (DCF) of 802.11 simulation we developed all the functionality in a python script. This allowed us to use object-oriented programming and 3rd party graphing modules to easily create and test our simulation. Both members communicated how the problem would be solved and worked on all parts together. However, for book keeping purposes, a binary work distribution is given below:

Eddie:

* Created initial framework, including class structure and organization.
* Developed first simulation where just one packet could be sent. Used to test the various timing functionalities (DIFS, SIFS, data, etc.)
* Implemented statistic functionality such as counting the number of collisions, fairness index (FI), and throughput of the nodes with varying rates.
* Implemented graphing functionality within the script.

Diego

* Implemented Poisson distribution.
* Implemented collision functionality.
* Implemented debug print statements so we could create synthetic scenarios and see how the system reacted.

**Description**

Our simulations were developed in more realistic sense than what was being talked about in class. Our simulation will go through every slot, and update various counters to keep track of what is going on over the medium and on every station. In our simulation, we start off by creating the scenario, which includes all the stations and the shared medium. When the stations are created they generate a Poisson distribution of sending times, as well as initialize all the internal counters.

**Graphs**