**Demonstration of Energy Efficient Protocols within a Mobile Adhoc network**

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***Abstract***

The ideal goal for this project is to show an understanding of ways in which we can ideally simulate a more efficient mobile network. In order for us to achieve this we will try and implement different existing protocols for communication run simulation to achieve results. Multiple scenarios will be tested with documentation behind each design and implementation.

1. **Motivation**

With the increase of wireless networks that utilize multi-hop features and dynamic routing features to forward traffic we wanted to improve or demonstrate improvements that can be possibly made during these communications. The key aspect that we will be looking at are Mobile ad hoc networks (MANET) and discuss the benefits and if any negatives of the suggested implementation techniques. We also want to document different methods in which we can test different environments in order to find a good coverage of information. Different metrics to observe for proposed Protocol performance are power consumption that is mainly caused by the transmission and reception of packets. This is an important metric to check how “green” a protocol is. Next we would want to look at traditional metrics that are used to measure a network, such as dropped packets, throughput and potentially the network lifetime. Mobile adhoc networks

1. **Methodology/Approach**

To approach this, research will be made on different network designs and implementations used. After choosing which architectures we want to work with, we will simulate the scenario within Cooja. Other approaches will also be attempted, although those methods outside of Cooja haven’t been yet explored. A milestone within section 4 will be created targeted at looking at different ways we can simulate or analyze these scenarios.

1. **Topic Outline**

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Introduction: Documentation about the project and history behind the purpose of the project. This section is estimated to a page in length and provide the reader with a clear idea of the project.

Protocol: In this area we will outline the different types of protocols that we will be testing and provide a bit of information about each of them

Performance & Metrics: We will document what it is we are looking for and provide an explanation to the reader on how to tell whether a protocol used is more “green” than another.

Test Environment (Design and Implementation): In this section we will do an overview of the testing design and the implementation that is most likely conducted in Cooja.

Results: Graphs and other relevant visual information pieces will be allocated here. Explanations will be given as well as documentation on any irregular occurrences within data.

Conclusion: Lastly we will give our views on which results and the protocol were the best in each situation and overall. This area will document our findings and also close out the project by providing additional information on other possible avenues or ideas in the field that way be nice to look into.

References: Self-explanatory area where work is cited.

1. **Timeline**

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| **Task #** | **Milestone** | **Deadline** |
| 1 | Develop and define the scope of the project, what we want to achieve and how we are going to approach it | March 18th |
| 2 | Find research material, create the test space which is the testing condition(s) and scenario that will be used. We will most likely create a easily replicable Cooja file. | March 18th |
| 3 | Establish the parameters for testing | March 22nd |
| 4 | Begin simulations, collect data from tests | March 29th |
| 5 | Create visuals to accompany simulations | March 30th |
| 6 | Draft of Project | April 1st |
| 7 | Proofread and tach on finishing touches | April 3rd |
| 8 | Submit Project | April 4th |

**5. Expected Results**

The goal of this project is to demonstrate an understanding of the protocols used and how they overall affect our design implementation. We hope to show that the protocol(s) used will provide a more “green” network in the metrics discussed within this document. We also hope to be able to provide the test scenario for others to look at and modify.

**References**

<http://www.computer.org/csdl/trans/ec/2014/02/06648690.pdf> (a start)