Project Title

Project Type

**Student Name(s)**

*CPR E 458//558 – Section XX*

*Fall 2020*

*Department of Electrical and Computer Engineering*

*Iowa State University*

Abstract

Give a high-level description of what your project is about in 250 words. You should include the problem that you are addressing, the algorithm(s) that you are studying, the evaluation that you are conducting, and the results of your evaluation.

# 1. Introduction

This is where you set the stage for your project. Provide the background and motivation for your work. Explain the problem that you are addressing, the algorithm(s) that you are studying, and why you are studying them. You should reference what you mentioned in your project plan. Paint picture of the scenario that demonstrates the problem that you are addressing.

# 2. Problem Formulation

Provide a high-level description of your problem (what you are aiming to solve using the proposed algorithm). Explain why this problem is worth studying.

## 2.1. System Model

Where, in the real-world, does this problem appear? How would you describe this environment conceptually? Is this in the Internet of Things, where we have at least one client device and at least one cloud server? Is this within an embedded system where all of the communicating components are part of the same circuit? Show where your problem resides

## 2.2. Problem Statement

Clearly, and concisely, define the problem. What exactly is wrong? What are you trying to achieve?

## 2.3. Objectives and Scope

This is where you specify the overall goal of your project along with the objectives that you aim to achieve. Define the scope of your project. This should be pulled from your Proposal and Design document.

# 3. Methodology

Begin this section with a high-level description of your solution and explanation of how your solution will address your problem.

## 3.1. Algorithm / Protocol

This is the part of the paper where you describe the algorithm / protocol of your study in detail. If you are introducing a new algorithm / protocol, you need to explain how this differs from those discussed in the class.

You should provide a high-level description of how the algorithm / protocol works, along with an illustrated example. Include a realistic task set, relevant schedulability checks, and schedule construction examples so that you can make the algorithm / protocol clear to the readers.

## 3.2. Illustrative Example

Tie your problem back into your scenario in your Introduction. Make it clear how your study is actually going to resolve (or bring us closer to the resolution of) the problem. Make this brief, but realistic.

You should also include the conceptual block diagram from your Design document.

# 4. Implementation/Simulation Architecture

From your Project Design Document, include your key software/hardware platforms, tools, libraries used, and your workload generation.

# 5. Evaluation

This is where you should include your test plan as well as the results of your tests. Make sure that you specify all unit tests, integration tests, and “real” tests. The real tests are where you actually schedule tasks using the algorithm in its real-world instance. This way, you can determine if your algorithm actually helped to solve the problem.

Make sure that you specify your test setup (i.e. how many computers did you use, which were laptops, how many Windows systems, how many Linux systems, what RTOS did you use, what types of embedded systems did you work on, what protocols were involved in your setup, how were your devices connected, who spoke to what at what time and for what reason). You should also specify your procedure very carefully. We should be able to take your equipment and reproduce your tests exactly using the steps that you provide. Please do not miss any details here. Most of this should already be present in your Design Document.

You should clearly state the “performance metrics” used for the evaluation and also interpret your results. We need to see relevant schedules, plots, charts, and graphs as well as clear interpretations of your data.

# 6. Conclusions

What did your learn from this experiment? Make sure that you summarize your work here very briefly and clearly indicate what your contributions were. You should also summarize your findings and provide recommendations for future experiments related to this work.

**Self-Assessment of Project Completion:**

|  |  |  |
| --- | --- | --- |
| **Project learning objectives** | **Status (Not/Partially/Mostly/Fully Completed)** | **Pointers in the document** |
| Self-contained description of the project goal, scope, and relevant requirements | e.g,, Fully Completed | Section #, page # |
| Self-contained description of the solutions (algorithms/protocol/applications/etc.) | e.g., Fully Completed | Section #, page # |
| Adequate description of the implementation details (data structures, pseudo code segments, libraries used, etc.) | e.g, Mostly Completed | Section #, page # |
| Testing and evaluation – test cases, metrics, test results, any relevant performance results | Eg., Mostly Completed | Section #, page # |
| Overall Project Success assessment | e.g,  Mostly Successful |  |

# 7. References

List and number all bibliographical references in 9-point Times, single-spaced, at the end of your paper. When referenced in the text, enclose the citation number in square brackets, for example [1]. Where appropriate, include the name(s) of editors of referenced books.

[1] A.B. Smith, C.D. Jones, and E.F. Roberts, “Article Title”, *Journal*, Publisher, Location, Date, pp. 1-10.

[2] Jones, C.D., A.B. Smith, and E.F. Roberts, *Book Title*, Publisher, Location, Date.