

# Project Name

Student Name 1, Electrical Engineering, Spring 2021

Student Name 2, Computer Engineering, Spring 2021

Student Name 3, Volunteer Intern, Computer Science, Spring 2024

**Abstract** - Enter an abstract of the work contained in this report. The abstract is limited to 150 words and cannot contain equations, figures, tables, or references. It should concisely state what was done, how it was done, principal results, and their significance.

**Index Terms** - Give a few keywords about your work.

## I. Introduction

The Introduction should include the following material:

- 1) Description of your project and the problem/issue that you are attempting to solve or improve. Include your Value Proposition and your key Customer Segment. If you have a “Tag Line” for your project, include it here. Include a Block Diagram of your Product.
- 2) List your project Features and Specifications. Your Specifications should include the industry standard(s) for the wireless technology, or technologies, that you have implemented in your project. For example; IEEE 802.15.4 (Zigbee), IEEE 802.11 (WiFi), ISO 18000-6 (RFID). Details of the wireless standard will be included in the next section of this report.
- 3) A brief review of what is currently done in the industry to solve the problem/issue. Provide a List of potential competitors including a brief statement about their product. For each competitor’s product, briefly describe what makes your project better.
- 4) Describe how your prototype was developed, including the use of Kanban for project management, what resources you used including software tools, the ECE labs and/or Tandon MakerSpace. Briefly describe how the people and resources were used during the project development.

All tables and figures must be properly formatted and referenced in your report.

## II. Analysis of Applicable Standards

In this section, you will describe the industry standard(s) that are applicable to your design project. From the Specifications list in the Introduction, provide a technical overview for each wireless standard(s), discuss why you selected the standard for your project and describe how the wireless technology is used in your project which may include the type of data transmitted (sensor, time, alarm triggers, etc.), how often data is transmitted, transmission rates (usually taken from the wireless standard), and transmitter’s RF carrier frequency (usually taken from the wireless standard).

## III. Project Work

In this section, you will describe the specifics of your project work. Discuss which features listed in the Introduction section were implemented and operational. Provide the technical details on how you achieved each feature. Provide measurement results to show that you have met the Specifications listed in the Introduction section. You may use as many images, graphs, tables, and diagrams to clearly convey the functionality of your working prototype. All figures should be very clear, the fonts readable and all axes should be labeled and include units. Included figures must be referenced and discussed in your report.

You can add sections and subsections as needed to organize your report. Any large portions of software code should not be included in this section but should be included in an appendix and only referenced here.

If you were able to achieve the operation of a “Stretch Goal”, include a section that describes the specifics of this added feature.

#### **IV. Conclusions**

In this section, you should state if your work fulfilled the intended prototype operation. You should summarize which features are operational and if the prototype met the technical Specifications. For Features that were not implemented and/or Specifications that were not met, discuss the reasons why the goals were not achieved and what work remains to be done in order to complete these prototype features. The discussion of remaining work should be technical and not a list of excuses.

#### **V. APPENDIX A: Purchased Items**

Provide a Table of purchased components and services. Include the manufacturer's name, distributor's name (if applicable), item quantity and item cost. If the item quantity included the purchase of spares, include a note on the Table. Provide the total cost of the project. Receipts for purchases are NOT required here; reimbursements for project related expenses will be handled through the ECE department.

#### **VI. APPENDIX B: Technical References (Optional)**

If you referenced technical papers, such as IEEE articles, textbooks, websites, or other technical information, include a numbered list of those references here. All references listed in this section must be discussed in your report..

#### **VII. APPENDIX C: Software Code (Optional)**

If desired, you may include additional sections and subsections with listings of your software code.