

Introductions

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Abstract—An Introduction defines your project by providing background information such as purpose, problem, and scope. It answers the questions: What did we do and Why?

I. WHAT TO INCLUDE IN AN INTRODUCTION

The first sentence of an Introduction should briefly summarize the entire project, including the overall objective, with some context. Then you should discuss the importance of the experiment. You should also include theoretical predictions which will be analyzed at the end of the report to determine success or failure of the task. For a *project report* (which is not the same as a *lab report*), you should additionally provide background theory, which may require a literature survey, definitions of terms, or an overview of equations or laws which are being tested.

After describing the purpose or objective of the experiment or project, and giving background, you should outline the remainder of the report. Try to use a transition sentence when switching topics. Use present tense when speaking about your paper (“Section 3 presents the design...”).

II. WHAT NOT TO INCLUDE IN AN INTRODUCTION

An Introduction is not the place for specific details about how the experiment was performed. Nor should it discuss any numerical results. It should also refrain from judging the success or failure of the project, or making recommendations for a better outcome. It simply prepares the reader for further discussion of methodology and findings.

III. SAMPLE INTRODUCTION

Below is a sample Introduction for a typical lab experiment or other project:

The purpose of this project was to design a temperature measurement and display system that incorporated the Motorola 68HC11 microcontroller (HC11). Similar temperature measurement and display systems are often used in buildings and vehicles [1]. The design presented here made use of the HC11’s analog-to-digital (A/D) converter and the serial subsystems. As shown in Fig. 1, the design included a temperature sensor connected to one of the HC11’s A/D input pins on Port E, and light-emitting diodes (LEDs), connected to Port B. These LEDs acted as temperature indicators. Additionally, the design included a connection between the HC11 and a remote personal computer (PC). This connection served to send messages regarding temperature to the PC. An assembly software program developed for this design performed various functions for using the added hardware.

The design had two main objectives. The first was to use the HC11 to measure temperature. Included in this objective was the task of connecting the temperature sensor and the LEDs to the HC11. Also included in this objective was the task of designing software to do the following: initialize the A/D converter and serial subsystems; control the measurement and storage of temperature in a RAM variable called TEMP; and control the display of temperature on the LED outputs.

The second objective of the design was to use the HC11 to indicate if the temperature went outside of prescribed limits: below 20 degrees Fahrenheit or above 90 degrees Fahrenheit. Included in this objective was the task of connecting the HC11 to a remote PC terminal through an RS-232 connection. Another task within this objective was developing software to initialize the serial subsystem. The final task of this objective was to create subroutines for the software program from the first objective to have the HC11 send a message to the PC if the measured temperature went outside the stated limits.

This report first presents the procedures for and assessment of the design to have the HC11 measure temperature. Then the report discusses the procedures for and assessment of adding a serial output to the HC11 design to communicate whether the temperature is outside of prescribed limits.

Note how this Introduction begins with a general *Purpose Statement*. The next sentence adds context. If this were a *project report*, you would need to include a few sentences about how the HC11 might improve on the current technology. The remainder of paragraph #1 describes the equipment. Note how acronyms are defined before they are used.

Paragraphs #2 and #3 divide the objectives between designing the apparatus and making the actual temperature measurements. Defining these objectives at the outset will come in handy when writing the Conclusion, where you can determine if the results matched the expectations.

The final paragraph in the Introduction outlines the remainder of the report. The transition is a bit too abrupt, though. This paragraph needs to be explicitly connected to the objectives.

IV. OTHER SOURCES

Be sure to visit Dr. Cotter’s website at <http://www.ece.utah.edu/~ece1270/> for additional information on writing lab reports.

REFERENCES

- [1] University of Vermont. [Online]. Writing guidelines for engineering and science students: Laboratory reports. Available: <http://www.writing.eng.vt.edu/>. January 20, 2007 [date accessed].