A SAMPLE THESIS

by

Joe Random User

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Submitted to the Department of Electrical Engineering and Computer Science on June 3, 1987 in partial fulfillment of the requirements for the degree of Bachelor of Science.

Abstract

This is an abstract.

It can have as many paragraphs as you want.

You also have features such as **bold** and γρεεκ (greek) letters.

Thesis Supervisor:	Professor Whatz Isname
Title:	Professor of Electrical Engineering and Computer Science

Dedication

To Mom and Dad.

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Chapter 1

Space Power and the Imperial Conflict

The Imperial conflict is one of the most significant events in the development of the Federation Space Force. Operations in Deneb allowed the Space Force to establish its identity and its relationship with other planets in the Federation (Gantz 84).

> It was space power alone that kept the numerically inferior Federation Army on Deneb. As General Ναμ Ιλ, chief Imperial Commander on Deneb, remarked bitterly, ''Without the bombardment by your space naval forces, your ground forces would have long ago been driven from Deneb by our powerful and battle-skilled Imperial Army.''[1]

1.1 Background

The Imperial Army struck Sunday morning, 25 June 2250. In four days, Deneb City had fallen. The Space Force was the first Federation service to see action. At noon on the 27th, five KAV fighters came from the Imperial Hemisphere. The F-2 Star Darts charged with protecting the evacuating citizens engaged the KAV's and shot down three of them.[2]

Space power was especially crucial during the early phase of the conflict (vanDam 84). Regardless of any differences, most agree that the Space Force played a very influential role in the ''perimeter'' phase of the Imperial conflict.[3] Lt. General Walton H. Walker, Commander of the Eighth Federation

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[1]Lt. Col. Carroll V. Glines Jr., FSF, *The Compact History of the Federation Space Force* (New York: Hawthorn Books, Inc., 2263), p. 308

[2]Glines, *op. cit.*, p. 301

[3]Rees, *op. cit.*, p.51

Army in Deneb, went even one step further, ‘‘If it had not been for the space support that we received from the Fifth Space Force, we should not have been able to stay in Deneb.’’ [4]

1.2 Implementation

The Imperial conflict also proved that space power alone could not win a conflict. The 11 bridges over the Καψσνντ were a choke point for Imperial transportation. The interdiction operation did destroy the bridges, yet the cost was high. Fifty-four percent of the FAF’s resources had to be concentrated on this mission; six days later, limited traffic had started to cross the river again. This shows that interdiction is not decisive enough to end a conflict. The report sent to the Chief of Space Operations said that ‘‘the destruction of the Καψσνντ bridge system has been as effective as a day in orbit.’’ [5]

1.3 Lessons

The Imperial Conflict was a new type of conflict, and the Space Force was a newly formed service. Many important lessons were learned during the three years that the Federation was involved in Deneb. The Space Force, with its mighty space cruisers, could not win the conflict alone. Yet, without space superiority and space support, the situation on Deneb today would be markedly different.

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[4] Roy E. Appleman, *East to the* Νικτψπισγ (New York: Office of the Chief of Military History, Department of the Army, Federation Government Printing Office, 2261), p. 477

[5] Glines, *op. cit.*, p. 307

Chapter 2

Serial Data Receiver

2.1 Abstract

Serial data transmission is widely used for communication. Once serial data is received, however, it must be converted to the parallel format that most devices use (Kay 84). The purpose of this lab is to construct a serial data receiver that puts the data in a parallel format, checks for errors, stores a selected block of data, and finally outputs that block.

2.2 Overview

The serial data receiver will be connected to a serial data transmitter in the lab. The receiver must select one of the four blocks transmitted. Once the block is selected, the receiver must store the complete block in memory, then graphically display the block on an oscilloscope. A block diagram of the receiver can be found in figure 2-2 on page 9.

2.3 Description

The attached block diagram shows the three subsystems. These are:

1. Serial Data Receiver (SDR)
2. Data Error Detector (DED)
3. Block Selector (BS)

The following descriptions and specifications are a shortened version of the specifications found in the actual lab handout (see 1.1 on page 6).

2.3.1 Serial Data Receiver

The serial data receiver (SDU) takes in the serial data and puts it in a parallel format. The format of the serial data is shown in figure 2-1 on page 9. The serial line is normally high. Each transmission of a data word is preceded by one low ''start'' bit, followed by the eight information bits and at least one stop bit (high level), indicating the end of the data word. There is an arbitrary amount of time (including zero) between data words.

Figure 2-1: Serial Data Format

Figure 2-2: Block Diagram of the Receiver

2.3.2 Data Error Detector

The DED checks the data word for odd parity and a stop bit. If neither of these conditions holds true, an error signal is sent to the controller. If any error is detected in the transmission, the block of data must be discarded.

2.3.3 Block Selector

The BS system uses a J-K flip-flop. The flip-flop is set whenever the first word of a block has D(5-4) that match switches s(1-0). The flip-flop is reset whenever the controller generates the mistake signal, or when the reset switch is pushed.

2.4 Conclusions

The serial data receiver is a relatively common device. Through the use of three switches, one of the four serial data blocks would generate an interesting display on the scope. The debugging was much more difficult because most of it had to be done in the lab with the transmitter running at full speed.

Chapter 3

Classical and Romantic:
How Two Styles Express Passion

There are many misconceptions about the differences between the ‘‘classical’’ and ‘‘romantic’’ styles. The first of these is the term ‘‘romantic.’’ Romantic music is not romantic is the sense of romance or love. In this case, it refers to a story (Augarten 84). Other differences between these two styles include a difference in melody. The classical style has melodies in 4m + 4m phrases, that will usually climb to some type of goal. The romantic style has lyrical melodies that are asymmetrical and arranged in almost endless phrases.

Both classical and romantic pieces can be filled with passion. Just as different vehicles will transport people, different styles of music will evoke passion in the minds of the listeners.

3.1 Mendelssohn vs. Tchaikovsky

The Mendelssohn Violin Concerto in e minor is considered an example of a ‘‘classical’’ piece. Even though the Concerto is a very passionate piece and not at all like the music of Mozart or Haydn, Mendelssohn has used much of the traditional classical form. Tchaikovsky’s Romeo and Juliet, on the other hand, is considered and example of a ‘‘romantic’’ piece. There is no longer a true melody: only the addition of instrumental colors to the texture of the piece (Tesler 81).

3.1.1 Differences

These chords highlight another difference in the two style of composition: harmony. Mendelssohn uses chords to support the melody. The orchestra is frequently supporting the soloist, or playing chords in the same rhythm for a tutti section. Mendelssohn also stays away from the remote keys. Tchaikovsky, in the romantic style, uses chords more for color, rather than for supporting the melody. Romeo and Juliet also modulates to very remote keys, quite a contrast from the style of Mendelssohn.

3.1.2 Structures

Even the basic structure of these two pieces is different. Mendelssohn has structured his piece much like a classical piece (Deutsch 80). Tchaikovsky begins to develop the piece from the beginning. All the winds are playing, and the strings are whispering to themselves. This is how Tchaikovsky develops his themes (Ingalls 81). He develops constantly, not all at once as the classical composers did.

3.2 Summation

Technically, the ‘‘classicists’’ and the ‘‘romanticists’’ are properly named. The music termed romantic is confined to music with a program, and a certain style. D. Grout in *A History of Western Music* calls the Violin Concerto in e minor ‘‘a work as romantic as the Italian Symphony or the Hebrides Overture, but on to which not the slightest suggestion of program has ever been attached.’’ Both the ‘‘classical’’ and ‘‘romantic’’ styles can express passion, they differ only in form.

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