

Morse Code Converter

cpe 426/526

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# Introduction

Morse code is a very interesting yet dated form of communication. Around the year 1836 three gentlemen who go by the names of Samuel F. B. Morse, Joseph Henry, and Alfred Vail got together and developed the world’s first electrical telegraph. The system worked by transmitting electrical signals across wire that traveled from station to station. Samuel Morse would later create a code that would leverage the telegraph as a medium to send complex messages in the form of dots and dashes.

There are two main devices, a key and receiver, used to create, send, and receive these messages. The key is a spring-loaded device that when pressed will complete an electrical circuit via a contact before springing back creating the stalled open circuit. When the contact is made, it will send an electrical impulse to the receiver. The dots and dashes of Morse code are created by how long the contact is connected.

In the year 1844, Morse would send his first message, “What hath God wrought?” using “Morse Code” from Washington D.C. to Baltimore, Maryland. Samuel Morse’s code would later be extended to radiotelegraphy as one of the main means of communication during the World Wars. Morse code laid the foundation for the early communication revolution and would be used for many years in various operations before being replaced by the more sophisticated technology of the 20th and 21st centuries.

## Problem Statement

For this project, we have decided to re-create this technological feat with more modern tools. The key, used for transmitting the code, has been replaced with a personal computer and an FPGA board; whereas, the receiver has been replaced with a hexadecimal display and speaker interface.

# Abstract

Write this last as it will basically sum up the entire paper.

# Team

Introduce the team, maybe have each person write a little bit about themselves. (2-3 sentences)?

# Requirements

What were the requirements of the project? What was our definition of done?

The requirements for this project were to have a user to enter in a phrase in plain text English and have a system to convert this to Morse Code and output the result to the user.

# Design and Implementation

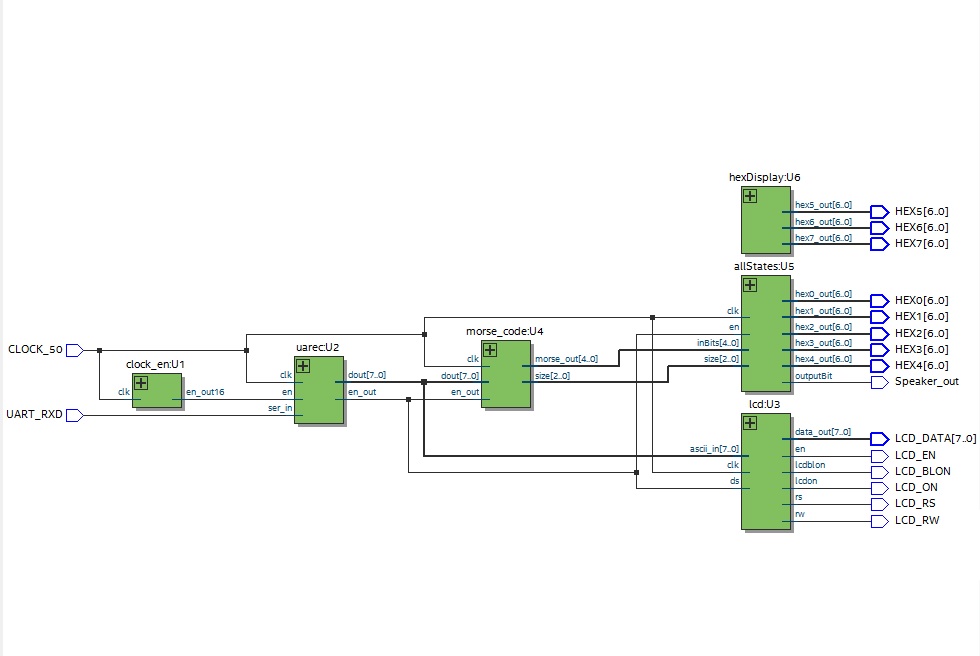


Figure RTL Top Level View of the Morse Code Converter

## Project GUI

In the traditional sense the operator would transmit the message in Morse Code using a device called a key, which requires training as well as precise timing for the Morse Code messages to be transmitted and received correctly. In our case the user/operator will be transmitting plain text English via a graphical user interface (GUI), refer to Figure 2 below, that will later be translated into Morse Code, this allows the user to transmit Morse Code without having been trained as an operator.

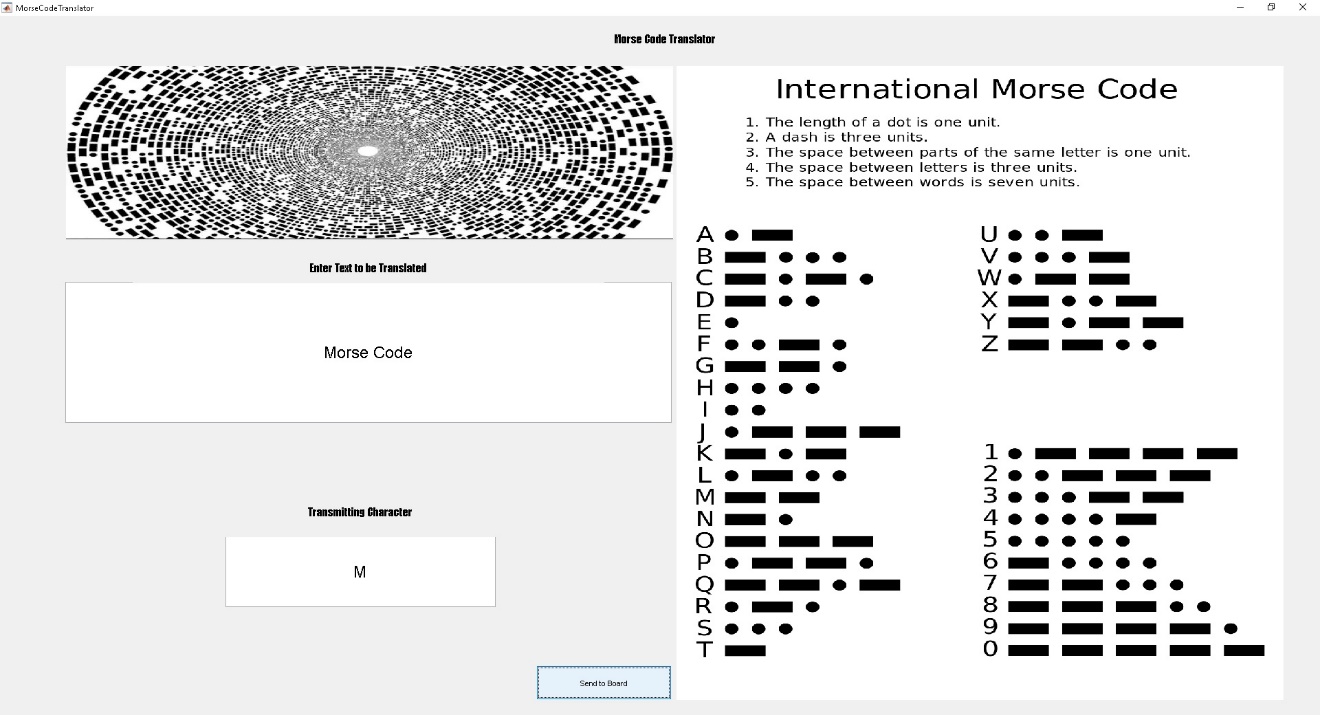


Figure Morse Code Graphical User Interface

## Receiver Module

Matt – Write something here.

KRR – I wrote some test benches for the receiver code, I may include some testing.

## Morse Code Converter Module

Nipuna – Write something here.

## Hex Display Module

Nipuna – Write something here.

## Speaker Module

Prawar – Write something here.

# Testing?

Do we want to show some testing?

# Lessons Learned?

Maybe include this section for some brownie points.

# Conclusion

Project conclusion. Did it work? Did we meet the requirements?

Note: Add figures to your hearts content, it seems that she really likes if people add pictures. We were graded poorly in our presentation for our images so I guess we should ramp it up for the report.